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## Pension Services

Salomon Brothers

Lawrence N. Bader

# The Financial Executive's Guide to Pension Plans

1995 Edition

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The author wishes to express his appreciation to Rick Carr, Stanley Kogelman and Ethan Kra for their valuable comments and suggestions.

**Salomon Brothers**

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# **The Financial Executive's Guide to Pension Plans**

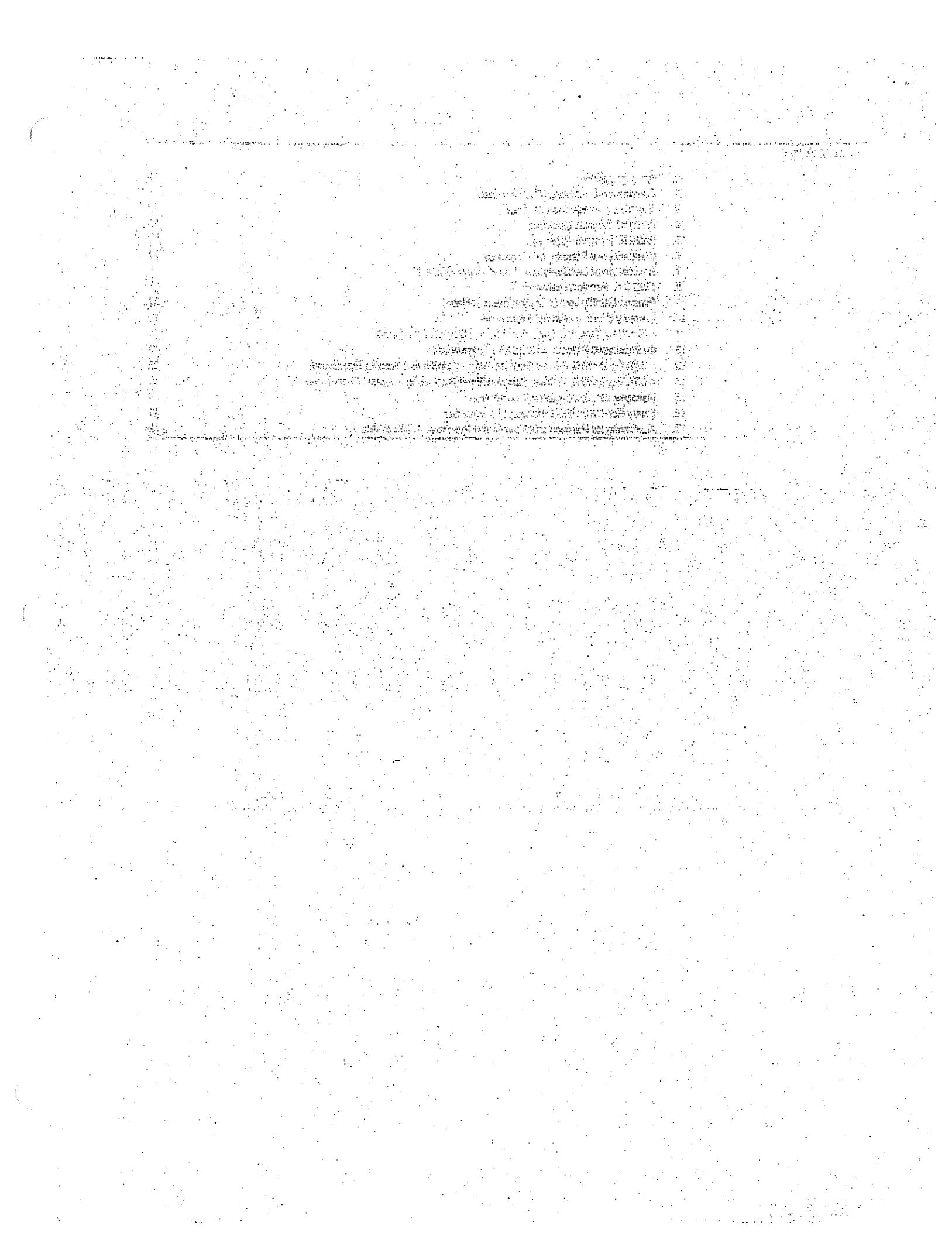
**1995 Edition**

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## INTRODUCTION

### Pension Plans

Virtually all large- and medium-sized employers in the United States sponsor some form of retirement plan, in which funds are set aside during the employees' working careers to provide income for their retirement years. Retirement plans in the United States fall into two broad classes: defined contribution plans and defined benefit plans.<sup>1</sup>

Under defined contribution plans, the employer and/or the employees contribute to individual employee accounts. Each employee ultimately receives a benefit equal in value to the vested account balance. The value of the account depends on its investment performance and the contributions by the company and employee. Neither the plan nor the employer guarantees the level of benefits available at retirement, leaving the employees subject to the risks of investment performance and inflation. Examples of defined contribution plans are profit-sharing plans, in which the employer contribution depends on the company's financial performance; thrift plans, which focus on employee savings; 401(k) plans, under which employees can make pretax contributions, commonly with matching contributions by the company; and employee stock ownership plans (ESOPs), which give employees an ownership stake in the company.

Defined benefit plans promise a stated benefit at retirement, usually in the form of an annuity. For example, an employee retiring at age 65 with 25 years of service might receive monthly annuity payments for life in an amount equal to 50% of the employee's monthly salary averaged over the last five years of employment. The employer makes actuarially determined contributions to fund the promised benefits and bears the risks, and rewards of investment performance, inflation, and other future events.

### Regulation

Pension plan regulation in the United States principally involves the following agencies:

- The Internal Revenue Service (IRS) has historically played the largest role. The Internal Revenue Code (IRC) and IRS rulings and regulations set forth standards for plan qualification. A tax-qualified plan receives preferential tax treatment, including the deductibility of employer contributions, tax-sheltered fund earnings and the deferral of tax to participants until benefits are received. The IRS also monitors the funding of pension plans.

- The Department of Labor (DOL) enforces the fiduciary standards of the Employee Retirement Income Security Act of 1974 (ERISA), the disclosure of plan information to participants and other aspects of plan administration. Within the DOL, the Equal Employment Opportunity Commission (EEOC) has jurisdiction with regard to age and sex discrimination in pension plans.

- The Pension Benefit Guaranty Corporation (PBGC), a Governmental agency created by ERISA, oversees terminations of defined benefit pension plans. It guarantees certain benefits if a terminating plan is inadequately funded, assesses liability against the sponsors of inadequately funded terminating plans and collects premiums from plan sponsors to finance its

<sup>1</sup> While retirement benefit plans can include postretirement medical benefits, these benefits are usually provided through other sources and are touched on only briefly in this report.

guarantees. It also plays a role in regulating the funding of troubled plans, consulting with the IRS on granting waivers of the funding requirements and requiring security from the plan sponsors in certain situations.

The Securities and Exchange Commission (SEC) is responsible for the financial reporting of corporations that sponsor pension plans. The SEC generally accepts the standards developed by the Financial Accounting Standards Board (FASB).

#### Funding and Financial Reporting

Pension funding refers to the contributions by the plan sponsor to a pension fund from which benefits are paid. With few exceptions, ERISA and the IRC govern pension plan funding. The legal environment includes *minimum* contribution requirements to promote benefit security and *maximum* limits on deductions to control the Government's loss of current tax revenues. Excise or penalty taxes are imposed on failure to contribute within the allowable range. Within that range, companies may set their funding policies in accordance with their own views on appropriate funding levels, their tax circumstances, sources and alternative uses of cash, and other factors that may vary from year to year.

FASB Statements Number 87 and 88 govern the financial reporting of pension assets, liabilities and expenses in the financial statements of the pension plan sponsor. A company's reported expense can be the same as its contribution, but this is rare under FASB 87 and 88. The accounting rules are designed to ensure that however a company chooses to fund a plan — rapidly, slowly or not at all — its financial statements fairly and consistently report the expense of the plan each year.

The funding and financial reporting of defined benefit plans require periodic actuarial valuations of the plans. An actuarial valuation is an assessment of the current funding status and cost of a pension plan. It is prepared by an actuary, who may be an employee of the plan sponsor or, more commonly, of a firm providing actuarial services to plan sponsors. To certify compliance with ERISA's funding standards, the actuary must be enrolled with a Government agency, the Joint Board for the Enrollment of Actuaries. ERISA specifies that the plan sponsor engages the actuary "on behalf of all plan participants."

#### Actuarial Valuations

An actuarial valuation requires two types of input: factual and judgmental. The factual elements are the plan provisions, plan assets and participant census. These may be subject to the long-term control of the plan sponsor, but at the time of a valuation, they are fixed and cannot be altered as part of the valuation process. There are, however, four judgmental elements on which actuaries and plan sponsors have some room to exercise discretion: the actuarial assumptions; actuarial cost method; asset valuation method; and amortization period for unfunded liabilities. We discuss each of these in later sections of this report, in the context of funding and expense determinations.

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#### RETIREMENT PLAN DESIGN

The human resource department is primarily responsible for retirement plan design in most companies. Certain decisions on plan design, however, can have far-reaching financial implications, dramatically affecting a company's exposure to inflation, the securities markets and other economic conditions. In

this section, we review retirement plan design from the viewpoint of the financial executive, focusing on the type of plan and benefit formula selected by the company.

**Defined Benefit and  
Defined Contribution  
Plans**

In a **defined benefit plan**, the employer undertakes to pay a stated benefit to each employee that depends (usually) on the employee's pay and length of service. Because a company sponsoring a defined benefit plan must provide specific benefit amounts, it is at risk with respect to the investment performance of the fund, the ages at which participants will retire, their salary progression, turnover, longevity, and other plan experience. These risks, together with plan changes that are funded over extended periods, can result in surpluses, deficits, expense volatility, and other surprises.

A **defined contribution plan** limits the employer's financial obligation to making contributions as defined by the plan, with the investment risk and other risks being borne by the employees. Depending on the type of defined contribution plan selected and on the specific provisions used, the sponsor may determine the contribution in a variety of ways, including the following:

- **Fixed contribution level** — for example, 6% of payroll;
- **Company matching of employee contributions** — for instance, \$0.50 for each dollar contributed by employee;
- **Contribution dependent on the company's financial performance** — such as 25% of the company's earnings in excess of a specified return on equity;
- **Contribution determined each year at the company's discretion**. The employer need not make a contribution each year, but IRS regulations require that contributions be "substantial and recurring." Of course, the employer's ability to vary contributions may be constrained by employee expectations based on prior years' contribution levels or company communications.

Except in leveraged ESOPs, all contributions are allocated directly to the accounts of the individual employees in the plan, and their benefits depend on the investment results.<sup>2</sup> The investments may be in a single pooled fund, but large plans often give participants a choice among several funds for part or all of the accounts — for example, an employer stock fund, a diversified common stock fund, an insurance company guaranteed investment contract (GIC), and a Government bond fund. The employees bear the investment risks and the employer is not affected directly by the investment performance, although employee relations needs may require some compensation for disappointing returns.

"**Hybrid plans**" combine some of the characteristics of defined benefit and defined contribution plans. These plans include target plans, cash balance

<sup>2</sup> In a leveraged ESOP, contributions are used to repay a loan to ESOP, releasing shares of employer stock into the participants' accounts. See *The Financial Executive's Guide to ESOPs: 1990 Update*, Salomon Brothers Inc., January 1990.

<sup>3</sup> ERISA, Section 404(c) encourages plan sponsors to give employees diverse investment choices, adequate information about the choices, and the right to change their asset allocations at appropriate intervals. A sponsor who complies with the 404(c) rules receives protection against fiduciary liability for the employees' decisions.

plans and floor/offset plans.<sup>4</sup> Such plans must be examined carefully to determine the precise obligation and risk accepted by the company. Defined contribution plans are characterized by an obligation simply to make specified or discretionary contributions, while defined benefit plans carry an obligation to contribute whatever is ultimately needed to provide specified benefits.

The choice between defined contribution and defined benefit plans is a fundamental retirement plan decision from both a human resource and financial viewpoint. Many large companies have both types of plans, with one or the other considered primary, in most instances the defined benefit plan.

#### **Advantages of Defined Contribution Plans**

- The company benefits by transferring to the employees substantially all risks, primarily investment performance and inflation, which may render the accumulated funds inadequate to meet increased employee needs. If economic factors lead to disappointing benefit levels, the company can make additional contributions but is not required to do so. (To the employees, of course, this risk transfer is a *disadvantage*, although they also stand to benefit if the experience is favorable rather than unfavorable.)
- Employees understand and appreciate defined contribution plans more readily than defined benefit plans. Periodic statements of their account balances convey a far more tangible value than distant promises of pensions at retirement.
- Defined contribution plans have an appealing portability. A vested employee terminating employment can usually take the full vested account balance in cash or avoid immediate taxation by rolling over the taxable portion of the account balance into an individual retirement account (IRA) or, if permitted, the plan of a successor employer.<sup>5</sup>
- Defined contribution plans offer a natural vehicle for voluntary employee contributions to supplement the employer's contributions. In particular, 401(k) plans permit employees to make tax-deductible contributions.
- Defined contribution plans avoid the complex accounting and funding rules that govern defined benefit plans, and the accompanying surpluses, deficits and volatility of costs.
- Administrative costs are lower in defined contribution plans. Although recent nondiscrimination rules have increased these costs markedly, the regulatory burden remains much lower for defined contribution than for defined benefit plans. Defined contribution plans require no PBGC premiums. Participants generally cash out when they leave, so there is no roster of retirees to track and pay monthly.

<sup>4</sup> A *target plan* is a defined contribution plan in which the employer contributions vary among participants depending on their age and length of service. If the investment experience of the plan conforms to certain assumptions, the account balances will reach target levels equivalent to those of a defined benefit plan, but no benefit guarantees are provided. A *cash balance plan* is a defined benefit plan in which each employee's benefit is expressed as an individual account balance, with the employer crediting specified contributions and guaranteeing a certain interest rate (which may vary from year to year). Its appearance is that of a defined contribution plan, but the employer accepts the risk of guaranteeing a certain account balance, at least for one year at a time.

A *floor/offset plan* consists of a defined contribution plan plus a defined benefit plan that acts as a floor. If the defined contribution plan provides less than a certain targeted level because of poor investment performance or other factors, the defined benefit plan picks up the shortfall. In other words, the defined benefit plan provides a floor of benefits, with an offset for the benefits provided by the defined contribution plan.

<sup>5</sup> Although no taxes are ultimately due on a rollover, the employee can avoid current withholding tax only by a direct plan-to-plan transfer.

**Advantages of  
Defined Benefit  
Plans**

- Most defined contribution plans can invest substantially in qualifying securities of the plan sponsor, while all defined benefit plans are subject to a 10% limit on such holdings. In particular, the decision to establish an ESOP is often partly motivated by the desire to stabilize a company's ownership base by placing a block of stock in the hands of its employees.
- Defined benefit plans ensure employees of a specified lifetime income or lump sum, regardless of market conditions and how long they live.
- Defined benefit plans based on the employees' final pay before retirement provide automatic protection against inflation during their working careers. These plans provide a more appropriate level of retirement income to employees whose pay and responsibilities increase sharply. (The benefits of such employees in a defined contribution plan could depend in large part on contributions made in their earlier years at lower pay levels.) Although plans whose benefits are not based on final pay do not provide *automatic* inflation protection, they are generally adjusted periodically for active employees to keep up with their increasing pay.
- U.S. corporate defined benefit plans rarely provide *automatic* cost-of-living adjustments after retirement. However, they often give post-retirement inflation protection through *ad hoc* increases in retirement pensions, gained in collective bargaining or granted every few years by the company at its discretion.
- Sponsors can design defined benefit plans to encourage or discourage career choices such as early or late retirement; defined contribution plans are less flexible in this regard.
- Defined benefit plans focus a greater proportion of their benefits on employees who stay until retirement. (Defined contribution plans generally provide annual contributions to employees' accounts that are independent of age. They therefore reward early leavers more than defined benefit plans, which are of little value to younger employees because of the long deferral period until payment begins. Age-weighted profit-sharing plans, which overcome much of this effect, have attracted attention recently, but they are still not common.)
- Defined benefit plans can deliver a given number of retirement dollars to retirees at a lower cost than typical defined contribution plans. As mentioned above, they divert less money to early leavers. Also, they tend to rely heavily on equity-oriented investments that generally outperform the more conservative investments that employees commonly select for themselves in defined contribution plans.

**Benefit Formula**

Defined contribution plans have straightforward financial implications (leveraged ESOPs excepted), and we will not consider such plans further in this report.

Defined benefit formulas fall into the following three classes:

- Final average pay plans provide a percentage of the employee's pay averaged over the period near retirement, typically the last three or five years. An example would be the formula mentioned earlier, paying a 25-year employee a pension equal to 50% of the employee's monthly salary averaged

over the last five years of employment. Because these plans pay benefits that are linked to pay shortly before retirement, they provide employees automatic inflation protection during their careers and commit the company to the corresponding cost levels.

\* Career average pay plans provide a percentage of each year's pay. For example, a plan providing 2% of each year's pay would give a 25-year employee a pension equal to 50% of pay averaged over the 25-year career. These plans do not provide full automatic inflation protection, but they commonly function like final average pay plans through periodic updates. Such an update could redefine an employee's *accrued* (but not *future*) pension to be based on past five-year-average pay, rather than past career average pay. The standard practice is to provide updates at company discretion, perhaps every five years. This enables the company to provide benefit delivery substantially equivalent to that of a final average pay plan but with a lower commitment at all times and greater control over the timing of its costs.

\* Flat benefit plans pay a fixed-dollar amount per year of service — for example, \$30 monthly for each year of service. Such a plan would give a 25-year employee a lifetime monthly pension of \$750. Flat benefit plans are common for hourly-paid employees. Like career average plans, they require periodic updating (increases in the benefit unit) to keep pace with inflation.

Pay-related plans (based on final average pay or career average pay) can be *integrated* or *nonintegrated*. An integrated plan reflects Social Security benefits, which provide a higher percentage of pay to lower-paid employees. For a 65-year-old 1995 retiree who had been earning \$30,000 annually, individual Social Security benefits would be about \$11,800 annually, or 39% of pay; an employee earning \$100,000 would receive \$14,400, or 14% of pay. A company may compensate for the declining percentage of Social Security benefits by using an "integrated" pension formula that provides a somewhat higher percentage of pay for the higher-paid employees. However, the "permitted disparity" in favor of the higher-paid employees is limited by a complex set of IRS rules.

All tax-qualified defined benefit plans are subject to a vast body of regulation designed to prevent discrimination and to protect plan participants against the loss of pension rights. These rules limit both the annual compensation that a benefit formula can recognize (\$150,000 in 1995) and the benefit payment itself (\$120,000 annually in 1995, subject to numerous adjustments). Most companies provide nonqualified pension plans to compensate highly paid employees for any pension reductions caused by these rules. Because companies cannot fund these make-up plans tax-effectively, they have usually paid the excess benefits out of current revenues.<sup>6</sup> The past 15 years, however, have witnessed repeated reductions in the qualified plan limits, so that these make-up plans cover more employees; covered employees have also become more conscious of benefit security. In response to these trends, many companies have adopted various types of trust funds or insurance.

<sup>6</sup> The plans are called "excess benefit plans" and are not covered by ERISA... if they are unfunded and solely designed to compensate for reductions caused by the \$120,000 limit. If they serve other purposes, they are commonly known as supplemental executive retirement plans (SERPs). Unfunded SERPs are exempt from much of ERISA if they cover a select group of management or highly compensated employees.

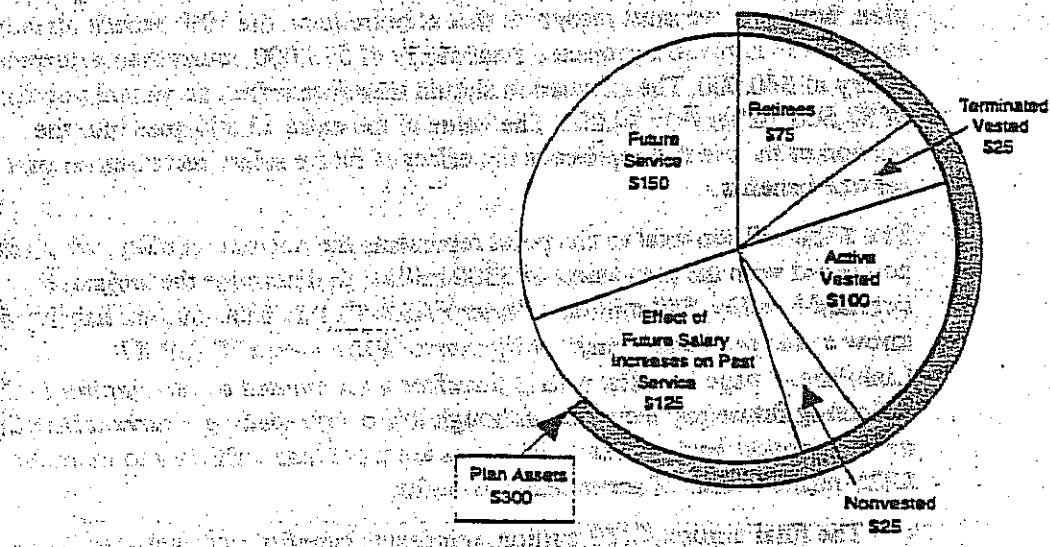
arrangements to secure the benefits against corporate bankruptcy or a change of control.

## FUNDING

ERISA and the IRC set forth a general method for determining the required contribution each year. They also create a host of special adjustments, particularly for plans with very strong funding positions (the *full-funding limitation* for plans with assets that exceed their *accrued liability* or 150% of their *current liability*, as explained below) and weak funding positions (IRC Section 412(l), generally for plans with assets that are less than 90% of their current liability). We base our discussion on the general method, and note the major special adjustments later in this section.

Figure 1 illustrates the components of pension liability in a funding calculation.

Figure 1. Pension Liabilities (Present Value of Projected Benefits = \$500; Dollars in Millions)



The pie represents a plan's total liability of \$500 million; that is, assets of \$300 million, together with expected investment earnings, would suffice to pay all benefits that will ever be paid to current participants. Plan assets amount to \$300 million. The pie is divided as follows:

- The value of benefits for retirees is \$75 million;
- The value of benefits for employees who have left the company with vested pension rights, but have not yet retired, is \$25 million;<sup>7</sup>
- The value of vested benefits accrued to date for active employees is \$100 million;

<sup>7</sup> Vesting refers to the right of employees to receive pensions even if they do not continue working for the company. Under ERISA, pensions generally must vest by the time an employee has five years of service or has reached normal retirement age.

• The next portion, \$25 million, is the value of nonvested benefits for active employees, typically those with less than five years of service. The total at this point, \$225 million, is the value of all benefits earned to date, an important measure of the plan's liability and a rough indicator of the value of benefits that would be paid if the plan were terminated (see "Plan Terminations," page 35). Under ERISA, this \$225-million liability is known as the *current liability*. (The calculation is similar to that of the *accumulated benefit obligation* (ABO) under FASB 87—see "FASB 87 Liabilities," page 18.)

• The next portion, \$125 million, represents the effect of future salary increases on past service benefits.

An example will illustrate the benefits in this category. Suppose that a plan provides benefits of 1% of final salary for each year of service. Consider a 45-year-old employee with ten years of service, currently earning \$40,000, but with a projected salary of \$75,000 at age 65. The current accrued benefit is equal to 10% of the \$40,000 salary, or \$4,000 payable annually beginning at age 65. The value of that \$4,000 annuity is included in the earlier portion of the pie corresponding to active employees' vested benefits. For an ongoing plan, however, we must recognize that at retirement, the 10% benefit already earned will apply to a projected final salary of \$75,000, rather than a current salary of \$40,000. The calculation should therefore reflect an annual pension of \$7,500, rather than \$4,000. The value of the extra \$3,500 goes into the portion of the pie that represents the effect of future salary increases on past service benefits.

The \$350-million total to this point represents the *accrued liability*, which is compared with the plan assets of \$300 million to determine the *unfunded accrued liability*, \$50 million. (Under FASB 87, this \$350-million liability is known as the *projected benefit obligation* or PBO—see "FASB 87 Liabilities," page 18.) The plan is therefore *underfunded on an ongoing basis*, reflecting future pay increases, although it is *overfunded on a current liability or termination basis*, because the assets are more than sufficient to meet the \$225-million value of accumulated benefits.

• The final portion, \$150 million, represents benefits attributable to future service—for example, the additional 1% of pay that our hypothetical employee will earn each year from age 45 to retirement.

The company's contribution for the year would then consist of two major components, determined so that over time, they will cover the \$200-million difference between the total plan liabilities of \$500 million and the assets of \$300 million. The *normal cost*, or service cost, is the value of benefits earned during the current year. This is the portion of the final slice of the pie, \$150 million of future service benefits, which will move into the accrued liability during the year. For our illustrative benefit formula, the normal cost for each participant is the actuarial present value of the pension to be credited for the current year of service, 1% of the participant's projected final pay. In this example it is \$10 million, 1/15 of the \$150-million value of all future service benefits under the plan, indicating that the average future service of the active plan participants is about 15 years. The *past service cost* is the level amount (including interest) that would amortize the \$50-million unfunded accrued

liability over a specific period. The period may be a composite of several periods for various components of the unfunded liability (see "Amortization of Unfunded Liabilities," page 13). Suppose that the sponsor is amortizing the \$50-million liability over a 30-year period beginning with the current year and that the investment return assumption is 8%. Standard mortgage calculations show that annual payments of \$4.4 million for 30 years would amortize the liability. The total contribution for the current year would then be as follows:

Normal Cost	\$10.0 Million
Past Service Cost	<u>4.4</u>
Total Contribution	\$14.4 Million

**Actuarial Assumptions** Actuarial assumptions are needed to estimate the amount of money that must be invested currently and prospectively to meet the future benefit obligations. These assumptions are of two types: economic and demographic.

- Economic assumptions cover investment returns, salary growth rates if the plan benefits relate to salary, and Social Security growth rates if the plan benefits are integrated with Social Security benefits.<sup>8</sup> (The limits on tax-deductible funding prohibit the projection of possible future increases in the \$120,000 benefit limit or the \$150,000 cap on covered compensation.)
- Demographic assumptions cover the changes in the work force that result from retirement, death and other service terminations. (Future hires are not generally considered in an actuarial valuation.)

Most of the assumptions used for funding pension plans are not subject to specific legal limits or to advance IRS approval. Each assumption used for funding must, however, be reasonable, taking into account the experience of the plan and reasonable expectations.<sup>9</sup> Optimistic assumptions can result in underfunding and the impairment of benefit security, while conservative assumptions can lead to overstated tax deductions and the loss of revenue to the Treasury. Actuaries take a long-term and generally conservative view of the assumptions, sometimes leading to objections by the IRS. The courts, however, have consistently upheld plan sponsors and their actuaries against IRS challenges of their assumptions.

Because pension obligations extend over many decades, the costs are highly sensitive to changes in the investment return assumption, which is used to discount the liabilities. A one-percentage-point or 100-basis-point increase in the investment return assumption typically will lower the present value of the liabilities by 10%-20%. (The effect on the annual cost of the plan can vary widely based on the plan's funding level, as well as its demographics.)

Although the investment return assumption is the most important factor, the cost of a final average pay plan can also be quite sensitive to the salary growth assumption. The salary growth assumption should reflect an inflation outlook consistent with that implicit in the investment return assumption and may be

<sup>8</sup> In a funding calculation, the investment return assumption is used as a discount factor in valuing the liabilities. By contrast, the expense calculation used in determining corporate earnings utilizes two separate interest rate assumptions, one for discounting liabilities and one for estimating future investment returns (see "Expense — Actuarial Assumptions," page 21).

<sup>9</sup> Alternatively, the reasonableness test may be ignored for individual assumptions if all the assumptions together result in a plan contribution equal to what would have been determined using individually reasonable assumptions. In other words, the individual assumptions are not required to be reasonable if the package of assumptions is in balance.

age-graded. The assumption concerning the ages at which participants will retire can also significantly affect a plan with heavily subsidized early retirement benefits.

Although future salary increases up to the \$150,000 cap can be anticipated in determining contributions, future plan amendments (other than those already agreed to in collective bargaining) cannot. These rules create serious differences between the funding pace of final average pay plans and flat benefit plans:

- Final pay plans, which commonly cover salaried employees, keep up with inflation by relating the benefits to pay. Because the funding anticipates the pay increases, it tends to run ahead of accrued benefits based on current pay.
- Flat benefit plans, which commonly cover unionized workers, keep up with inflation through negotiated increases in the benefit level. Because the funding does not reflect these benefit increases until after they are negotiated, they create deficits every few years and the funding tends to lag behind the current benefit levels.

The funding rules thus make it common for industrial companies to have well-funded plans for their salaried employees and underfunded plans for their unionized employees.

#### Actuarial Cost Methods

Actuarial cost methods, also known as funding methods, are different ways of spreading costs over the service periods of plan participants. For example, consider a plan that credits a monthly pension at age 65 of \$30 for each year of service. What should the company sponsoring the plan contribute this year for a new employee at age 35? It can choose to fund an amount that, in 30 years, will provide the \$30 pension that the employee will earn this year. Next year, it could fund another \$30 pension starting 29 years from then. The second-year contribution would be higher because of the shorter accumulation period and the greater probability that the employee will vest and live to collect the pension. Under this method, called the *unit credit cost method*, each year's contribution reflects the value of the benefits earned during the year. As an individual employee ages, it becomes more expensive to provide the benefit that the employee earns each year. (A company's overall cost might remain stable if new hires keep the average age of the work force stable.)

Our analysis of the pie chart in Figure 1 is based on the *projected unit credit cost method*. ("Projected" refers to the projection of salary increases). This method has become increasingly popular in recent years because of its relatively low current contribution requirements and its adoption in FASB 87 for accounting purposes.

To avoid the potential funding escalation of the unit credit and projected unit credit methods, a company could instead use a level cost method, such as the *entry-age normal cost method*. Under this method, a company does not fund benefits as they are earned with the built-in escalation factor. Instead, it pays a level amount from each employee's entry age to retirement age.<sup>10</sup> The level payment overfunds the benefits accruing in the early years to keep costs from rising in later years. The accrued liability or asset target under the entry-age

<sup>10</sup> Level as a percentage of pay for a pay-related plan, and level in dollar amounts for a flat benefit plan.

normal cost method would, therefore, be higher than the \$350-million accrued liability under the projected unit credit method shown in Figure 1. This is because the accrued liability under the entry-age normal cost method includes a reserve to prevent costs from rising as employees age. Unless the participant group is old, not only the accrued liability but also the total annual contribution will ordinarily be higher under the entry-age normal cost method.<sup>11</sup>

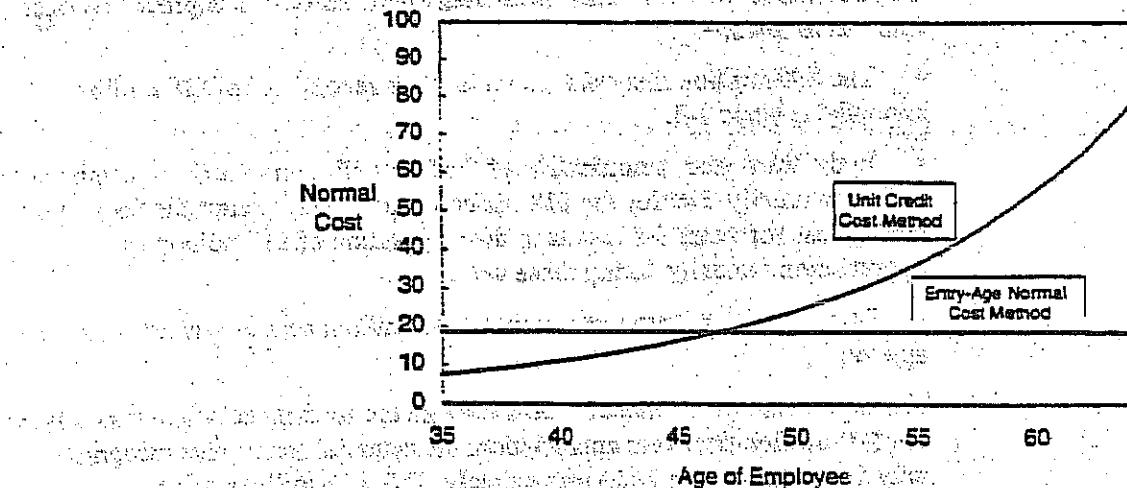
The entry-age normal cost method is commonly used by companies with a conservative attitude toward debt, regulated companies needing to stabilize the pension contributions included in their rate base, and Government contractors seeking Government reimbursement for their pension contributions on a level and conservative basis over the contract period.

In Figure 2, we compare the funding pattern under these two actuarial cost methods over an employee's career. The two methods are analogous to two methods of purchasing individual life insurance: term insurance, with the premium rising at each renewal, and level-premium whole life insurance.

The other actuarial cost methods are variations of the unit credit or projected unit credit cost method and the entry-age normal cost method; they differ in how they determine accrued liabilities and amortize actuarial gains and losses. Other acceptable cost methods specified in ERISA are the frozen initial liability method, aggregate method, attained-age normal method, and individual level premium method.

Sponsors require IRS approval for changes in the actuarial cost method used for funding the plan.

Figure 2. Comparison of Actuarial Cost Methods



#### Asset Valuation Methods

Actuarial valuations may reflect plan assets at market value. More commonly, however, they use a basis that smoothes market fluctuations over a period of years in order to moderate year-to-year changes in pension costs. A commonly

<sup>11</sup> Various circumstances can disrupt the normal relationship. Such as a "front-loaded" benefit formula — for example, 25% of pay for each of the first 20 years of service, and nothing thereafter. The unit credit method would pack the funding into the first 20 years of service, while the entry-age normal method would give a lower initial payment by spreading the funding over the employee's entire career.

used method immediately recognizes contributions, benefit payments, interest, and dividends, but recognizes only one-fifth of any change in market value in the year of occurrence and one-fifth in each of the succeeding four years.

In Figure 3, we depict such a method for a fund with an initial market value of \$300 million. Contributions, interest and dividends, less benefit payments and expenses, amount to \$30 million annually and are labeled "net receipts." (Net receipts do not reflect capital gains or losses.) The fund appreciates by \$90 million in the first year and incurs a \$30-million loss in the third year. The *market value* recognizes these amounts immediately, whether or not they are realized. The *actuarial asset value*, however, recognizes each year only one-fifth of the current year's and prior four years' market appreciation.

**Figure 3. Five-Year Average Market Value (Dollars in Millions)**

Year	Value at Start of Year	All Receipts	Net Receipts	Net Appreciation	Value at End of Year
<b>Market Value</b>					
1	\$300	30	30	\$90	\$420
2	420	30	30	0	450
3	450	30	30	(30)	450
4	450	30	30	0	480
5	480	30	30	0	510
6	510	30	30	0	540
7	540	30	30	0	570
<b>Actuarial Value</b>					
1	\$300	30	30	\$18	\$348
2	348	30	30	18	396
3	396	30	30	12	438
4	438	30	30	12	480
5	480	30	30	12	522
6	522	30	30	(6)	546
7	546	30	30	(6)	570

The actuarial asset value recognizes net receipts immediately in determining the actuarial asset value, while spreading appreciation and depreciation over time, as follows:<sup>12</sup>

- The \$90-million first-year appreciation is recognized at \$18 million annually in years 1-5.
- In the third year, amortization of the \$30-million depreciation begins at \$6 million annually. Netting the \$18-million annual gain against the \$6-million annual loss for years 3-5 results in the recognition of \$12 million of appreciation annually during those years.
- During the final two years, only the \$6-million annual loss recognition is applied.

The investment performance works through the funding calculation slowly. Of the \$90-million first-year appreciation, the actuarial asset value recognizes only \$18 million (one fifth) immediately. This \$18-million gain may be amortized (with interest) over a period of five years in determining the company's contribution, producing a \$4.5-million annual credit if the

<sup>12</sup> Because the interest and dividends are usually less than the expected return (which also reflects expected appreciation), the method described in the text above is biased toward trailing the market value. An alternative is to determine an expected return based on the investment return assumption. The expected return is credited immediately to the actuarial asset value, and the difference between the expected and actual returns ("the investment gain or loss") is spread over five years.

investment return assumption is 8%. The \$90-million first-year appreciation, therefore, produces only a \$4.5-million reduction in the second-year contribution because of the double smoothing: five-year averaging of market value changes and five-year amortization of the gain or loss that results when the performance of the *average* market value is compared with the actuarial assumption.

IRS regulations require that the asset value used in the funding determination be within 20% of the current market value. Sponsors require IRS approval for changes in the asset valuation method.

#### **Amortization of Unfunded Liabilities**

Plan assets and accrued liabilities will rarely be equal, for several reasons. Besides a decision by the plan sponsor to fund more rapidly or slowly than the rate at which liabilities accrue, the two principal reasons for surpluses or deficits are *past service credits* and *actuarial gains or losses*.

• Past service credits can arise when a plan is initiated with no assets but with an accrued liability arising from the granting of pension credit to employees for their service before the initiation date. They can also arise from plan improvements. For example, if a plan with assets equal to its liabilities is amended to increase all benefits by 10%, it will suddenly be in a deficit position.

In determining the *minimum* funding requirements, liabilities arising from plan changes are amortized over 30 years.

To make the *maximum* tax-deductible contribution, a company can amortize its total unfunded liability over ten years. Any unfunded *current* liability may be funded and deducted all at once. Contributions that exceed the deductible limit are generally subject to a 10% excise tax.

Amortization is generally by level annual payments that include interest and principal, like a conventional mortgage.

• Actuarial gains and losses are changes in the deficit or surplus that reflect either deviations of plan experience from that anticipated by the actuarial assumptions ("experience gains or losses"), or changes in the assumptions themselves ("assumption change gains or losses").

An example of an experience loss is a shortfall in investment performance. Suppose a \$300-million fund that is expected to earn 8%, or \$24 million, actually earns only 2%, or \$6 million; the result is a \$18-million shortfall or experience loss. Experience losses can also reflect increases in liability, for example, because of unanticipated early retirements.

An example of an assumption change gain or loss is a change in liability resulting from a change in the discount rate used to determine the actuarial value of the projected pension benefit payments.

Experience gains and losses are amortized over five years, while assumption changes are amortized over ten years to determine the minimum funding requirement. Both types of gains and losses are amortized over ten years to determine the maximum tax deductions.

**Funding Standard Account**

Special tax deduction limits apply to combinations of defined benefit and defined contribution plans.<sup>13</sup> Companies need not fund their plans on a consistent basis, and they can shift between minimum and maximum funding as financial conditions dictate.

**Full-Funding Limitation**

Compliance with the minimum funding rules is monitored through a "funding standard account," which tracks the plan funding against the minimum requirements on a cumulative basis. The cumulative tracking enables an employer to build up a credit balance by contributing more than the minimum, and then draw it down by reducing or omitting contributions in later years. Failure to meet the minimum funding rules subjects the plan sponsor to excise taxes and liens (see "Responsibility for Making Contributions," page 16).

Sponsors of *underfunded plans* may amortize the deficits over a period of years. In an *overfunded plan*, however, surplus is applied immediately; a "full-funding limitation" comes into play to prevent companies from making tax-deductible contributions to overfunded plans. Surplus, therefore, reduces both the minimum and maximum deductible contributions dollar for dollar. Several examples follow:

(1) Suppose a plan is *underfunded*: The accrued liability exceeds the assets by \$30 million, and the normal cost (cost for current service) is \$50 million. The sponsor can amortize the \$30-million deficit over time—for example, at \$3 million annually. The total contribution would be the \$50-million normal cost plus the \$3 million deficit amortization, or \$53 million.

(2) Suppose, however, the plan is *overfunded* by \$30 million. The total contribution would then be the \$50-million normal cost offset by the entire \$30-million surplus, or \$20 million. Although a deficit is amortized, as in Example (1), a surplus is applied in full, which should leave the plan exactly fully funded. If the plan's funded position does not change, the following year's contribution would be the full \$50-million normal cost.

(3) If the surplus exceeded \$50 million, the contribution would be zero, and some surplus would remain to reduce the following year's contribution. A surplus is still amortized for accounting purposes; thus, a company with a modest surplus might report a net pension expense in its earnings statement, while making no contribution.

The full-funding limitation reflects a comparison of (1) plan liabilities; and (2) assets, as follows:

(1) The plan liability is the lesser of the following:

- (a) The accrued liability determined under the actuarial cost method and assumptions used in funding the plan; and
- (b) 150% of the current liability (the value of all accrued benefits), determined using an actuarial discount rate consistent with annuity purchase rates, but constrained between 90% and 110% of the interest rate on 30-year Treasury securities, averaged over the previous four years.

<sup>13</sup> If participants in the defined benefit plan are also covered by a defined contribution plan, the total deduction for the combined plans is limited to the greater of the following: (1) 25% of covered payroll; and (2) the amount deductible for the defined benefit plan alone. Deductions that are disallowed by this rule are not subject to the 10% excise tax.

(2) The plan assets are taken at the lesser of their market value and their actuarial (smoothed) value.

A company whose contribution is controlled by the full-funding limitation may be far more sensitive to market value changes than a company in a deficit position, where changes are averaged into the actuarial asset value and then amortized over five years. To illustrate using the previous examples, suppose that the market value is below the actuarial asset value and depreciates by \$25 million. The contributions would change as follows:

(1) In the first example, where the full-funding limitation does not apply, the \$25-million depreciation would have a modest effect on cost (assuming that the deficit is not large enough to bring the accelerated minimum funding rules into play). If the depreciation were subject to five-year averaging, the existing \$30-million deficit would increase to \$35 million (\$30 million plus one-fifth of the \$25-million depreciation), and the \$3-million amortization cost would rise to \$4.25 million. (The \$1.25-million increment represents five-year amortization, with interest, of the \$5-million increase in the deficit resulting from an actuarial loss.) The total contribution would rise from \$53 million to \$54.25 million — a \$1.25-million increase brought about by the \$25-million depreciation.

(2) In the second example, the depreciation would lower the surplus from \$30 million to \$5 million. The \$50-million normal cost would be offset by only \$5 million, rather than \$30 million, and the contribution would rise from \$20 million to \$45 million — a dollar-for-dollar increase in the contribution brought about by the depreciation.

#### Special Rules for Underfunded Plans

Additional contributions may be required for plans whose assets are less than 90% of their current liabilities. In determining those contributions, the investment return assumption must lie between 90% and 109% of the four-year-average interest rate on 30-year Treasury securities. (The 109% is phasing down from 110% in 1994 to 105% in 1999.) The mortality table is also specified, and certain plan sponsors with substantial unfunded liabilities need Treasury approval for changes in other assumptions that would significantly reduce their current liabilities.

The unfunded current liability is subject to accelerated amortization under very complex formulas that reflect the funding ratio of the plan and a patchwork of transition rules. In the worst case, a sponsor could have a contribution requirement equal to 30% of the unfunded current liability, plus other cost elements.

In addition, a liquidity test may apply to plans that are poorly funded or have substantial illiquid assets. This test requires plans with assets that are less than 100% of their current liabilities to maintain cash and marketable securities equal to three times the prior year's disbursements (with an adjustment for nonrecurring disbursements).

#### Timing of Contribution Determinations

Plans must be valued annually, and contributions are usually determined as of the start of the plan year, based on the plan's population and assets at that time. Changes in the population or assets during the year are reflected as actuarial gains or losses, which are amortized over later years, as are plan amendments made after the valuation date. (Amortization of plan amendments

made after the valuation date can instead begin during the year of amendment with a pro rata amortization payment; under a consistent practice of the company.

#### Timing of Contributions

The timing of funding requirements is similar to that of income taxes — quarterly installments during the plan year, covering 90% of the current contribution requirement or 100% of the prior-year requirement, with any balance due at the date the tax return is due (including extensions — generally eight and a half months after the close of the year). This schedule applies only to the minimum ERISA-required contributions; contributions in excess of the minimum requirements can be paid up to the tax return date. The liquidity test, requiring underfunded plans to maintain liquid assets equal to at least three times the prior year's disbursements, must be met each quarter.

The company can take tax deductions for contributions made up to the date when the tax return for the year is due.

#### Responsibility for Making Contributions

The employer sponsoring the plan is responsible for making the contributions required by ERISA and the IRC. If the employer is a member of a *controlled group of companies* (companies under common control, control being defined as 80% ownership), each member of the group is liable for the contributions.

Late payments by plans that have unfunded current liabilities carry interest at 175% of the Federal midterm rate (or at the plan's actuarial interest assumption, if greater). In addition, the IRC imposes a 10% excise tax on any missed contribution that is not paid within eight and a half months after the end of a plan year, and the tax rises to 100% if the plan sponsor does not correct the deficiency after receiving IRS notification.

If contributions to a plan with an unfunded current liability fall into arrears, a lien arises against each member of the controlled group for the total arrearage. The lien has the priority of a Federal tax lien and is enforceable by the PBGC.

#### Funding Waivers

An employer unable to meet the minimum funding requirements because of "temporary substantial business hardship" may seek a waiver. Business hardship is determined by the Secretary of the Treasury, who must consider such factors as whether the employer is losing money, conditions in the industry and the likelihood that the employer will continue the plan only if the waiver is granted. The Secretary must also consider any input provided by any affected union or employees. Both the employer and any controlled group of which the employer is part must satisfy the temporary hardship criteria.

The IRS may grant up to three waivers in a 15-year period; substantive plan improvements are forbidden while a waiver is in effect. Each waiver must be amortized over the succeeding five years, with interest charged at 150% of the Federal midterm rate (or at the plan's funding assumption, if greater). If waived contributions exceed \$1 million, the Secretary of the Treasury may require security for the waiver. Because a waiver could hurt the PBGC if the plan is later terminated in a deficit position, the PBGC participates in negotiations over the granting of waivers and the amount and nature of the security. In these negotiations, the employer has the delicate task of simultaneously demonstrating business hardship and persuading the PBGC that the waived contributions will ultimately be paid.

The contribution of qualifying employer securities in lieu of cash contributions is an alternative to a waiver (see "Fiduciary Standards," page 28).

**Security for Plan Amendments in Underfunded Plans**

A plan sponsor who amends a severely underfunded plan to increase accrued benefits substantially must post security for the plan. This security requirement applies to plans whose assets cover less than 60% of the current liability, excluding unfunded amounts attributable to pre-1988 liabilities. The security — in the form of a surety bond, cash or acceptable securities — is equal to the lesser of the following:

- The increase in the current liability; and
- The amount required to achieve a 60% funding level, reduced by \$10 million.

**Funding Targets**

Legally, employees must fund toward the accrued liability under a funding method allowed by ERISA. In theory, however, many targets are possible for the funding level of a pension plan. The appropriate funding target for a particular company should reflect its cash flow needs, the anticipated returns on the pension fund (tax free) compared with those available on other corporate investments, possible employee demands that might arise if a substantial surplus develops, the difficulties of recouping surplus, and benefit security considerations. Some possible funding targets are as follows:

- Assets cover all accrued benefits (the first four portions of the pie in Figure 1, the current liability).
- Assets cover accrued benefits plus an allowance for future salary increases (the first five portions — in accounting terms, the projected benefit obligation).
- Assets include an additional margin to avoid the need for increasing contributions as the participant group ages (the accrued liability under the entry-age normal cost method).

Measurement can be on a liquidation basis, reflecting immediate retirement by all eligible employees, current market interest rates and no future pay increases. Measurement could also be on a going-concern basis, reflecting retirement rates appropriate to an ongoing plan, a longer-range estimate of interest rates and expected future pay increases. The assumptions can be conservative or aggressive and appropriate for the moment or for the long term. The target may reflect a nominal (fixed-dollar) or real (inflation-protected) obligation. Thus, it may or may not reflect expected future plan amendments, such as periodic increases for retirees.

Numerous targets are plausible, and no one target is suitable for all companies. Every company should, however, have a target in mind when setting its funding and investment policies. The target selected need not be one that is legally acceptable. For example, the IRS requires advance recognition of future salary increases and forbids advance recognition of future plan amendments, rules that might prevent a company from explicitly funding toward a desired target, such as coverage of all accrued benefits with a 5%-20% margin. A company taking this view would use the target merely as a guide. When it is below the target, for example, the company might use

conservative actuarial methodology and a short amortization period to accelerate funding; it might take the opposite course when it is above the target.

#### Volatility of Contributions

Sponsors can generally keep their contributions to moderately well-funded plans stable from year to year. Actuarial assumptions can be changed gradually, in light of long-term trends, to avoid producing any sudden surprises. Investment gains or losses may be relatively slow to affect contributions (see "Asset Valuation Methods," page 11). Actuarial gains and losses from salary increases and demographic changes will rarely produce severe unexpected cost swings. Plan changes and business acquisitions or dispositions can change costs substantially, but these effects result from voluntary actions by the company.

The predictability of contributions is considerably less for plans at both ends of the funding spectrum. Underfunded plans can be subject to significant cost swings because of the accelerated funding requirements for plans in deficit. Very well funded plans can also have significant swings as they drift in and out of the full funding limitation. At these two extremes, the actuarial discount rate becomes subject to specific legal limits and cannot be artificially stabilized.

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#### EXPENSE

##### FASB 87 Liabilities

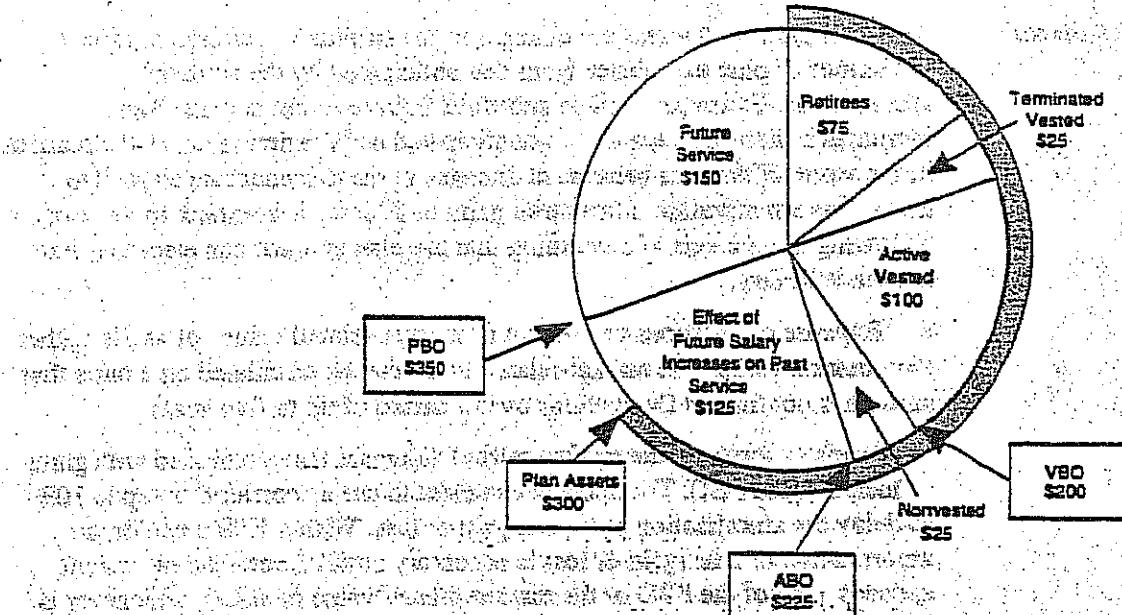
The pension expense charged against corporate earnings is determined under FASB 87 and 88. These standards do not follow funding practices. Instead, they set forth detailed rules that leave some room for judgment, but greatly limit companies' flexibility in determining expense.

The basic concepts underlying expense calculations are similar to those used in funding, as shown in Figure 4:

- The *vested benefit obligation* (VBO) is the value of all benefits vested at the valuation date.
- The *accumulated benefit obligation* (ABO) is the value of all benefits earned to date. It includes nonvested as well as vested benefits and plan changes negotiated or otherwise committed to, even if they are not yet effective. It may approximate the value of benefits payable on a plan termination (see "Plan Terminations," page 35) and is the basis of a potential balance sheet liability (see "Balance Sheet Liability," page 25).
- The *projected benefit obligation* (PBO) is a measure of the liability for accumulated service, but reflects future salary increases. ("Projected" refers to the projection of salaries.) The PBO is a key figure in financial statement disclosure, the determination of annual pension expense and accounting for acquisitions. Some financial analysts view the PBO as the true economic measure of the pension obligation for a going concern, because it does not reflect the level of accrued benefits but the level at which those accruals will ultimately be paid, given the normal operation of the business.<sup>14</sup>

<sup>14</sup> Some analysts go beyond these accounting measures to consider more comprehensive definitions of plan liability—the *total benefit obligation* (TBO), which includes the future services of current employees, and the *ultimate benefit obligation* (UBO), which includes future hires.

**Figure 4: FASB 87 Pension Liabilities (Present Value of Projected Benefits = \$500; Dollars in Millions)**



ABC Accumulated benefit obligation. PBO Projected benefit obligation. VBO Vested benefit obligation.

#### Components of Pension Expense

The determination of the pension expense is similar to the determination of a plan contribution under the projected unit credit method. The expense consists of several elements, which are grouped into four categories: service cost; interest cost; return on plan assets (a subtraction); and the net amortization and deferral.

- The service cost is the value of benefits expected to be earned during the current year.
- The interest cost is the interest on the PBO.
- The return on plan assets reflects the *expected long-term rate of return on plan assets* (see "Actuarial Assumptions," page 21) and the asset value, which may be the market value or a market-related value. (FASB 87 calls for the *actual* return on plan assets to be shown, but includes an adjustment under the net amortization and deferral, so that the pension expense reflects only the *expected* return, greatly reducing expense volatility).
- The net amortization and deferral includes the adjustment of actual to expected return on plan assets and the amortization of the surplus or deficit of assets measured against the PBO. This surplus or deficit is divided into three categories, with slightly different amortization rules applied to each:

#### Transition Amount

The transition amount is the surplus or deficit that existed at the date of transition to the new accounting rules (generally in 1985-1987). It is amortized on a straight-line basis over the average future service of employees who were active at the transition date and were expected to receive benefits. Plan sponsors were permitted to use a 15-year period if that was longer.

#### Prior Service Cost

The liability resulting from plan amendments is amortized similarly, based on the employees who are active at the date of amendment and are expected to

### Actuarial Gains and Losses

receive benefits. Once set, the amortization schedules of the transition amount and prior service cost are not changed, except in special circumstances that are dealt with in FASB 88 (settlements or curtailments — see "Curtailments, Settlements and Termination Benefits," page 40).

Actuarial gains and losses are changes in the surplus or deficit that reflect deviations of plan experience from that anticipated by the actuarial assumptions. Examples include shortfalls in investment performance, increases in liability because of unanticipated early retirements, or fluctuations in the value of benefits because of changes in the discount rate applied to them. The amortization of actuarial gains and losses is complex because of the following three levels of smoothing that the plan sponsor can elect to use to reduce volatility:

- Expense calculations can reflect a "market-related value" of assets, rather than market value. The market-related value can be calculated on a basis that smoothes out market fluctuations over a period of up to five years.
- Gains or losses in the market-related value are then combined with gains or losses in the PBO. The sponsor can elect to use a "corridor" of up to 10% to delay the amortization of the net gain or loss. With a 10% corridor, no amortization of a net gain or loss is necessary until its cumulative amount exceeds 10% of the PBO or the market-related value of assets, whichever is larger.
- Gains and losses outside any corridor must be amortized over a period that does not exceed the average future service of active employees who are expected to receive benefits. The amortization is redetermined each year, based on the new relationship between accumulated gains and losses and the corridor.

This amortization method defines the *minimum* amortization under FASB 87; gains and losses may be consistently amortized on a more rapid basis.

In summary, pension expense combines four elements: service cost; interest cost; expected return on plan assets; and amortization cost (see Figure 5).

Both the return on plan assets and the amortization cost can produce credits rather than charges in the expense calculation, resulting in "pension income" rather than pension expense for well funded plans.

Figure 5. FASB 87 Pension Expense

Service Cost	Benefits Earned During the Year.
Plus	
Interest Cost	Interest on the PBO.
minus	
Return on Plan Assets	Expected Return on Market Value or Market-Related Value.
plus/minus	
Amortization Cost	Amortization of the Transition Amount (Initial Surplus or Deficit); Amortization of the Prior Service Cost (Plan Amendments After Transition); and Amortization of the Actuarial Gains and Losses (Possibly After Smoothing Market Values and Applying 10% Corridor).
PBO Projected benefit obligation	

Although basically similar to the funding calculation, the expense calculation differs with respect to the actuarial basis: actuarial assumptions, actuarial cost method, asset valuation, and amortization.

#### Actuarial Assumptions

For FASB 87 expense calculations, each assumption must represent the best estimate of plan experience, as follows:

- The discount rate used to determine the service cost, PBO and interest thereon should reflect the rate at which the benefit obligations could be "settled," for example, through an annuity purchase. The SEC requires that this rate reflect the yield of a portfolio of double-A or higher-rated bonds whose cash flow matches the benefit payment schedule underlying the liabilities.<sup>15</sup> This rate is likely to change each year, sometimes substantially, bringing considerable potential volatility to the expense calculation.
- The expected long-term rate of return on plan assets should reflect the earnings expected on the current and future investments made by the fund to provide the benefits included in the PBO. This rate is typically higher than the discount rate and more stable, and may be the same as the investment return assumption used for funding the plan.
- The assumption regarding future salary growth should reflect productivity, seniority, promotion, and rates of inflation consistent with the other assumptions.

The following are several important distinctions between the assumptions used for funding and expense:

- In determining the funding requirements, the liabilities are discounted at the investment return assumption. In determining the expense, the liabilities are discounted at a market interest rate that may differ from the return expected on plan assets.
- The assumptions used for funding under ERISA are legally the actuary's responsibility. The assumptions used for financial reporting under FASB 87, however, represent management's judgment. These assumptions must also be acceptable to the auditor, who is likely to want the assent of the actuary. (Assumption changes in the expense calculation do not require any regulatory authorization.)
- Unlike the funding calculations, the expense calculations reflect anticipated increases in the \$120,000 benefit limit and the \$150,000 cap on covered compensation.

#### Actuarial Cost Method

Although a range of choices is available for funding, the expense must be determined under the projected unit credit method, which usually produces lower costs than the other methods.

#### Asset Valuation

The market value of the assets must be used under FASB 87 for disclosure, determining the balance sheet liability, and acquisition accounting. The annual expense determination can reflect changes in the market value over a period of up to five years (see "Asset Valuation Methods," page 11).<sup>16</sup>

FASB 87 permits companies to use different valuation methods for different asset classes. For example, companies may wish to spread fluctuations in

<sup>15</sup> For details on how to determine this rate, see *The Salomon Brothers Pension Discount Curve and the Salomon Brothers Pension Liability Index*, Salomon Brothers Inc., January 1992.

<sup>16</sup> If an annuity contract has been purchased, both the assets and the associated liabilities are excluded from the expense calculation. The plan assets do, however, include the value of any "participation rights"—the right to receive dividends under a participating annuity contract. Insurance contracts other than annuities, such as GICs, must be valued at market.

equity values, while reflecting changes in bond values immediately, because bond value changes should correlate closely with liability changes caused by discount rate movements.

Any change in the asset valuation method constitutes a change in accounting policy; if material, it requires disclosure in the financial statements and an SEC preferability letter.

#### Amortization

The amortization of overfunding or underfunding is generally over the future service of active participants. The key differences between the amortization for funding and for expense are as follows:

- The amortization for funding is over fixed periods specified in the law. The amortization for expense is generally over the future service of active plan participants, typically 10-20 years.
- The amortization for funding is generally by *level total installments* that include interest and principal, like mortgage payments. The amortization for expense is generally by *level total installments* of principal, with interest being handled separately — a more rapid amortization method.
- The amortization of gains and losses for funding is similar to the amortization of other items. Amortization of gains and losses for expense is not required until the cumulative gains and losses exceed the 10% corridor (if elected). The amortization is not then fixed, but is redetermined each year based on the new levels of gains and losses, the 10% corridor and the average future service.
- Although funding calculations amortize any deficits as described, surplus is not amortized but is applied in full to reduce contributions under the full-funding limitation. Expense calculations amortize deficits and surpluses identically to avoid erratic expense patterns as plans swing between deficit and surplus.

For example, suppose a plan has a normal cost of \$50 million and a surplus of \$150 million. In this example, we ignore interest and assume that there are no future actuarial gains and losses or changes in the normal cost. The full-funding limitation requires the surplus to be applied in full against the normal cost. Contributions, therefore, are zero for three years, until the surplus is exhausted; thereafter, they would be \$50-million annually. Reporting this pattern as pension expense in the company's earnings statement would not, however, give a fair picture of year-to-year profitability. Under FASB 87, the surplus might be amortized over 15 years, for a smoother expense pattern of \$40 million annually for 15 years (\$50-million normal cost less \$10-million surplus amortization over 15 years) and \$50 million thereafter.<sup>17</sup>

- For expense calculations, more rapid amortization is required in some situations involving a pattern of recurring plan amendments. For example, a flat-benefit plan in which the benefit unit is negotiated upward every three years may require amortization of the increases over periods shorter than the average future service of the employees, perhaps as short as three years.

<sup>17</sup> This amortization pattern would apply to a transition surplus; the amortization of a surplus that arises from actuarial gains is more complex but would generally be spread even further.

Plan sponsors have certain limited options in determining the amortization amounts. Any change in the methodology would be a change in accounting policy; if material, it would require disclosure in the financial statements and an SEC preferability letter.

#### Timing of Expense Determinations

The expense is generally determined as of the *beginning* of the company's fiscal year, using the actuarial assumptions appropriate at that time. The company will have used the same assumptions for disclosing the plan's funded status at the *end* of the prior fiscal year. The company may, on a consistent basis, use a measurement date up to 90 days earlier to facilitate preparation of the financial statements.<sup>18</sup>

The expense for a year is, therefore, determinable at the start of the year and need not change to reflect any subsequent changes in market conditions.

Certain other significant events, such as plan amendments, settlements or curtailments, require a revised expense calculation.

#### Volatility of Expense

The expense rules set forth in FASB 87 carry the potential for substantial volatility.<sup>19</sup> The problem is in the annual redetermination of the discount rate, which must reflect current market rates. Changes in those rates can cause large fluctuations in the PBO and service cost and, consequently, in the pension expense.

Sponsors can moderate this volatility somewhat by adopting certain actuarial and investment policies.

**Actuarial Policy.** The expected long-term rate of return on plan assets is a key assumption. Unlike the discount rate used to determine liability values, it can be set in accordance with long-term expectations, rather than current market conditions. Keeping this rate relatively stable even when long-term bond yields (and presumably equity return expectations) have changed will often help to stabilize pension expense significantly.

The salary growth assumption is also important. A decline in market interest rates triggers a decrease in the discount rate and an increase in costs. Usually, however, such a decline would be associated with a decline in expected inflation, which should lower the salary growth rate. Reduced salary growth rates would decrease costs, offsetting part of the increase caused by the lower discount rate. Moving the salary growth assumption in tandem with the discount rate will, therefore, reduce expense volatility.

**Investment Policy.** Liability increases that result from interest rate declines can be balanced by appreciation in bonds and other interest rate-sensitive assets. Because pension obligations stretch out over many decades, they tend to be much more sensitive than plan assets to interest rate changes; that is, they have longer durations than typical pension fund holdings. This asset duration shortfall exposes most pension plans to adverse expense fluctuations when interest rates decline. Plan sponsors should be aware of any duration gaps and be certain that they reflect an understanding and acceptance of the risks (see "Asset/Liability Management," page 29).

<sup>18</sup> The measurement date — year-end or up to 90 days earlier — must be used for valuing the plan assets and selecting the discount rate and other assumptions. The liabilities may, however, reflect participant data as of an earlier date projected to the measurement date.

<sup>19</sup> For further discussion, see *Volatility of Pension Expense Under FASB 87*, Salomon Brothers Inc., November 1986.

**Differences Between  
Funding and  
Expense**

Figure 6 summarizes the differences between funding and expense. Companies' cash contributions will often differ from their reported expenses because of differences between the actuarial bases used for funding and expense and special events, such as settlements, curtailments (see "Curtailments, Settlements and Terminations Benefits," page 40), surplus reversions (see "Recovery of Surplus from a Terminating Plan," page 39), and mergers (see "Mergers and Spin-Offs," page 42).

**Figure 6. Comparison of Funding and Expense**

	Funding	Expense
<b>General Significance</b>	Cash contribution to pension fund	Charge against corporate earnings.
<b>Governed by</b>	ERISA and IRC.	FASB 87 and 88.
<b>Objectives of the Regulators</b>	Provide benefit security without excessive tax deductions.	Provide fair and consistent picture of earnings impact.
<b>Actuarial Basis</b>		
<b>Actuarial Assumptions</b>	Reasonable individually or in combination.	Each assumption must represent a best estimate.
<b>Investment Return Assumption</b>	Stable long-term estimate, except that special minimum and maximum funding limits must reflect annuity purchase rates, within a specified corridor around the four-year average rate on 30-year Treasury securities.	Stable long-term estimate.
<b>Actuarial Discount Assumption</b>	Same as investment return assumption.	Current market rate on double-A or higher-rated fixed-income securities. Market changes may be smoothed over a period of up to five years.
<b>Asset Valuation Method</b>	Various smoothing methods; results must be within 20% of market value.	Projected unit credit.
<b>Actuarial Cost Method</b>	Six methods specified under ERISA.	Generally over future service of active employees expected to receive benefits.
<b>Amarization of a Deficit or Surplus<sup>a</sup></b>	Deficits generally amortized over specified periods of 5-30 years, by level annual installments, including interest and principal. Surplus applied immediately to reduce contributions under the full funding method.	Amortization not required for gains and losses totaling less than 10% of the greater of assets and liabilities. Level annual installments of principal; interest is charged separately.
<b>Other</b>		
<b>Year-to-Year Relationship</b>	Cumulative. Contributions in excess of minimum requirements in one year can be carried forward to reduce requirements in subsequent years.	Each year's expense is determined independently and consistently.
<b>Effect on Taxes Paid</b>	Contributions to qualified plans are deductible subject to limits set forth above.	No effect, except that differences between contributions and expense may affect the alternative minimum tax.

<sup>a</sup> Differences in actuarial basis may result in a surplus for funding but not for expense, or vice versa. ERISA Employee Retirement Income Security Act of 1974, IRC Internal Revenue Code.

If the cumulative pension expense exceeds the cumulative contributions at a financial reporting date, the company will have a liability for accrued pension expense. If the contributions are larger, there will be an asset for prepaid pension expense.

Tax deductions generally are based on contributions during the fiscal year, rather than expense, but contributions made up to the tax return due date can be included. (A portion of the pension cost may, however, be allocable to inventory cost and not deductible until the inventory is sold.) In some instances, however, pension expense can also affect a company's taxes. Because differences between contributions and expense would lead to differences between the taxable income and the income reported to shareholders, they affect the alternative minimum tax calculation.

Although the accrual of pension expense without a contribution being made does not create a tax deduction, the accrual would be tax-affected if it is expected to be discharged by a deductible contribution in the future.

Prepayments are handled analogously; therefore, a company's reported expense, rather than its funding decision, generally drives its reported after-tax earnings. (FASB 109 may affect the tax accounting.)

#### BALANCE SHEET LIABILITY

As explained earlier, a pension liability appears on the corporate balance sheet if the company contributes less than the pension expense charged to earnings — or, as we explain later, for special events, such as plant closings, spin-offs or acquisitions. Poorly funded plans, however, may face an additional balance sheet liability, determined by a comparison of the market value of plan assets with the ABO.<sup>20</sup> (The ABO is the value of all benefits earned to date, approximating the liability on a plan termination — see "FASB 87, Liabilities," page 18.) Any shortfall becomes a minimum liability — if the company already has pension accruals on its balance sheet exceeding the shortfall, it recognizes no further liability; if the company has a lesser amount of accruals, or has prepayments, it records an *additional liability* on the balance sheet to offset any prepayments and bring the total accruals up to the minimum liability. The additional liability is, therefore, as follows:

- The ABO, less
- The market value of plan assets plus accruals and less prepayments on the company's books.

There is no corresponding asset for overfunding. Furthermore, the deficit test is made plan by plan; overfunding in one plan cannot offset underfunding in another plan. Many companies that have well funded plans in aggregate must record liabilities for individual plans that are unfunded or underfunded.

Often the additional liability is partly or wholly attributable to a plan improvement for which the liability has not yet been fully amortized. If so, the company recognizes an "intangible asset" to offset the additional liability. The intangible asset reflects the presumed economic benefit that the employer derives from the plan improvement — for example, in lower wages than would otherwise be paid or in better employee relations. To the extent that the additional liability is attributable to an actuarial loss, rather than an unamortized plan improvement,<sup>21</sup> no intangible asset is recorded, and the liability reduces the company's net worth. The company's earnings are affected only by the calculation of expense (see "Component of Pension Expense," page 19), not by these liability calculations, which exclusively affect the balance sheet. Figure 7 shows four examples of the recognition of the additional liability and intangible assets.

In Column 1, the assets are \$100 million short of the ABO. Because it has no accruals or prepayments, the company records a \$100-million liability. Of this liability, plan amendments (unamortized prior service cost) have created \$75

<sup>20</sup> The comparison takes place at the company's fiscal year-end, or at a consistently used measurement date up to 90 days earlier.

<sup>21</sup> The shortfall existing at the date of compliance with FASB 87 — that is, any transition liability — is assumed to have arisen from plan improvements.

million; therefore, the company records an intangible asset of \$75 million. The remaining \$25-million liability decreases the company's net worth.

In Column 2, there is also a \$100-million asset shortfall. The company already has accrued pension expense of \$75 million; it must record another \$25 million to bring its balance sheet liability up to \$100 million. Because there is no unamortized prior service cost (that is, the shortfall must have resulted from actuarial losses), there is no intangible asset, and the entire \$25 million is debited to net worth.

In Column 3, the company has contributed more to the pension fund than it has expensed; it has a \$100-million asset on its balance sheet for prepaid pension expense. With the help of the \$100 million of extra contributions, the plan assets cover the ABO, and no liability is recorded. (Note that the company is effectively double-counting the \$100 million, including it as a corporate asset and also including it as a pension asset to avoid recording a pension liability.)

Column 4 indicates what could happen if the situation in the third column is followed by a \$1-million loss in the market value of plan assets. The company's balance sheet must now show a \$1-million net liability, the shortfall of plan assets against the ABO. The company must therefore record a \$101-million liability to offset the \$100-million prepayment and produce the \$1-million net liability. Because there is no unamortized prior service cost, the entire \$101-million additional liability reduces net worth — a surprising and unhappy result for a \$1-million actuarial loss. Because the plan is no longer fully funded, the company has lost the ability to double-count its prepayment.

**Figure 7. Recognition of Liabilities and Assets Under FASB 87 (Dollars in Millions)**

	1	2	3	4
I. Accumulated Benefit Obligation	\$500	\$500	\$500	\$500
II. Assets (Market Value)	400	400	500	499
III. Minimum Liability: I - II, Not Less than Zero	100	100	0	1
IV. Accrued	0	75	0	0
V. Prepayments	0	0	100	100
VI. Additional Liability (only if II. Greater than Zero): II. - IV. + V., Not Less than Zero	100	25	0	101
VII. Unamortized Prior Service Cost (Including Unamortized Transition Liability)	\$75	\$0	\$0	\$0
VIII. Intangible Asset (Lessor of VI. and VII.)	75	0	0	0
IX. Decrease in Net Worth: VI. - VII.	25	25	0	101

This is an anomalous and potentially disastrous outcome, and vulnerable plan sponsors should understand and protect against it. In determining whether a balance sheet liability for an unfunded ABO must be recorded, FASB 87 recognizes all pension fund assets, including prepayments, even though they belong to the plan sponsor rather than the pension fund, in accounting terms. Once it is determined that a balance sheet liability is required, however, the prepayments are, in accounting terms, removed from the pension fund and put back with the plan sponsor. Prepayments help to avoid an additional liability, but do not reduce one if, despite the prepayments, assets fall short of the ABO. A seemingly insignificant shortfall can, therefore, trigger a balance sheet liability of many millions of dollars for a plan sponsor with large prepayments that had been serving to protect against deficit. Plan sponsors in

this position may have to go to extreme lengths to protect their ABC surplus by making extra contributions and following an immunization strategy for the plan assets.

The additional liability and intangible asset are recalculated each year, with the plan assets taken at market value, and the ABC discounted at a current market interest rate. These balance sheet entries may be quite volatile, causing significant disturbances in net worth and other measure of fiscal health used by financial analysts in evaluating companies and by lenders in setting loan covenants.

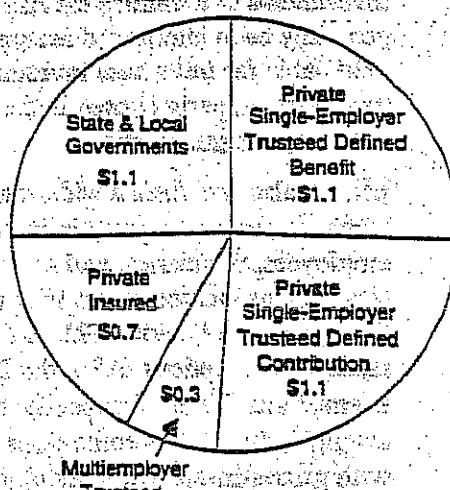
## INVESTMENT

### U.S. Pension Funds in Aggregate

The assets held in trust by private U.S. single-employer defined benefit pension plans amounted to \$1.1 trillion at year-end 1993.<sup>22</sup> As Figure 8 shows, U.S. pension assets of all types (excluding Federal pension plans) exceed \$4 trillion and play a critical role in the U.S. capital markets.

Focusing on the private single-employer trustee defined benefit plans, we find a distribution of 42.0% in equities, 27.5% in bonds and 30.6% in cash and other assets (for example, real estate, venture capital, private loans, mutual funds, and guaranteed investment contracts (GICs)). Including the equity-like investments that are counted as "other assets," 60% equity is often thought of as a typical holding. In aggregate, these plans have been paying out more in benefits than they have been collecting in contributions for the past decade, with the shortfall now running about \$60 billion annually. Dividends and interest have always covered the shortfall, but by narrowing margins.

Figure 8. 1993 U.S. Pension Plan Assets (Dollars in Trillions)



Source: *Quarterly Pension Investment Report*, Vol. 2, No. 4, Employee Benefit Research Institute, March 1994.

The investment of a qualified pension fund is similar to the investment of other tax-sheltered capital pools.<sup>23</sup> In this section, we address only the significant aspects in which pension funds may differ from other such pools:

<sup>22</sup> See *Quarterly Pension Investment Report*, Vol. 2, No. 4, Employee Benefit Research Institute, March 1994.

<sup>23</sup> Unrelated business income tax (UBIT) can apply to certain types of income, such as lease income on personal property and debt-financed income other than from real estate investment.

## Asset/Liability Management

— property that the plan leases to the employer — must meet certain criteria and is also included in the 10% limit. The DOL can grant an exemption from all these requirements in appropriate circumstances.

A plan sponsor may choose to manage the pension fund independently of the liabilities, as a pool of assets whose value should be maximized over the long term. Most companies, however, do not have the luxury of managing exclusively for the long-term and disregarding the effect of short-term asset/liability imbalances on their financial condition.

Managing the asset/liability relationship requires an adequate understanding of how liabilities change with economic conditions. Economic reality, as well as FASB 87, requires that liabilities be measured by discounting future benefit payments at market interest rates. The liabilities, therefore, not only grow with interest as time passes and discount periods shorten, but they also fluctuate in value as market conditions change. The interest rate-related changes in liabilities can be thought of as "liability returns," analogous to asset returns. In times of declining interest rates, the liabilities can surge, producing liability returns that can outpace even exceptional asset returns. The result can be an erosion of pension fund surplus at the very time when plan sponsors are most elated by their funds' investment performance.<sup>24</sup>

Managing pension surplus, rather than pension assets, creates a new framework for asset allocation.<sup>25</sup> In a surplus framework, the risk/reward profiles of various asset classes can change significantly. For example, suppose a plan sponsor has a pension liability (ABO) of \$100 million discounted at a market interest rate of 8%. Because plan assets are \$110 million, the surplus is \$10 million. The sponsor regards the avoidance of a deficit that would appear on the corporate balance sheet as a critical objective. (The objective of avoiding a deficit would be consistent with the interests of plan participants.)

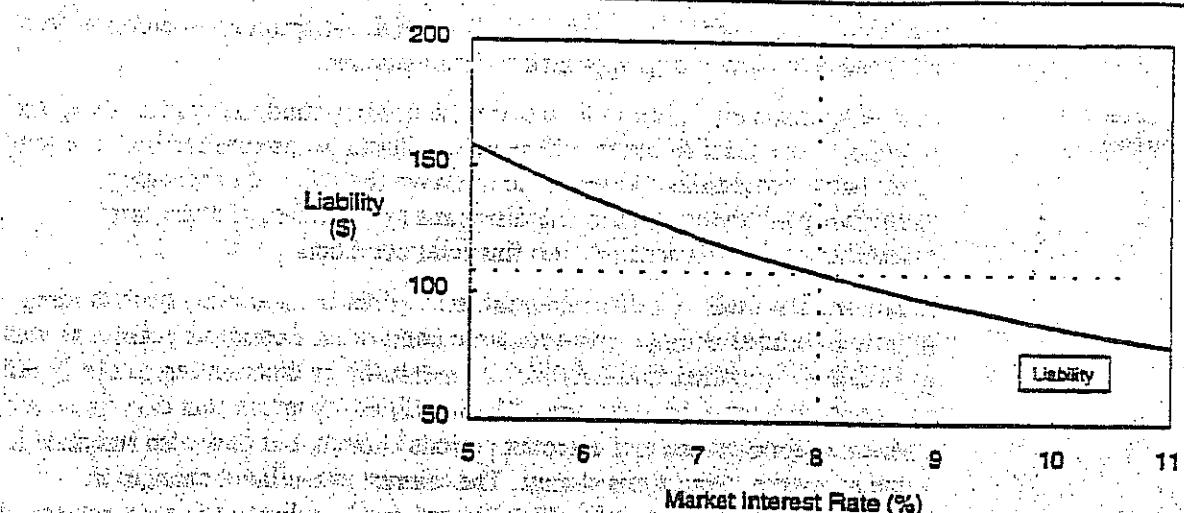
The first step is to recognize that the liability is not fixed, but interest rate sensitive. Ignoring any benefits that may be earned by or paid to participants during the year, the liability in one year will be related to market interest rates (see Figure 9).

If the discount rate remains at 8%, the liability will be \$108 million after one year because of the accrual of interest during that time. If market rates have changed, however, the liability will differ from the expected \$108-million level as shown — dropping to \$88 million at a 10% rate and rising to \$138 million at a 6% rate.

<sup>24</sup> See *Bad Is Good: The Weak Bond Market Strengthens Pension Funds During 1994*. Salomon Brothers Inc., July 1994.

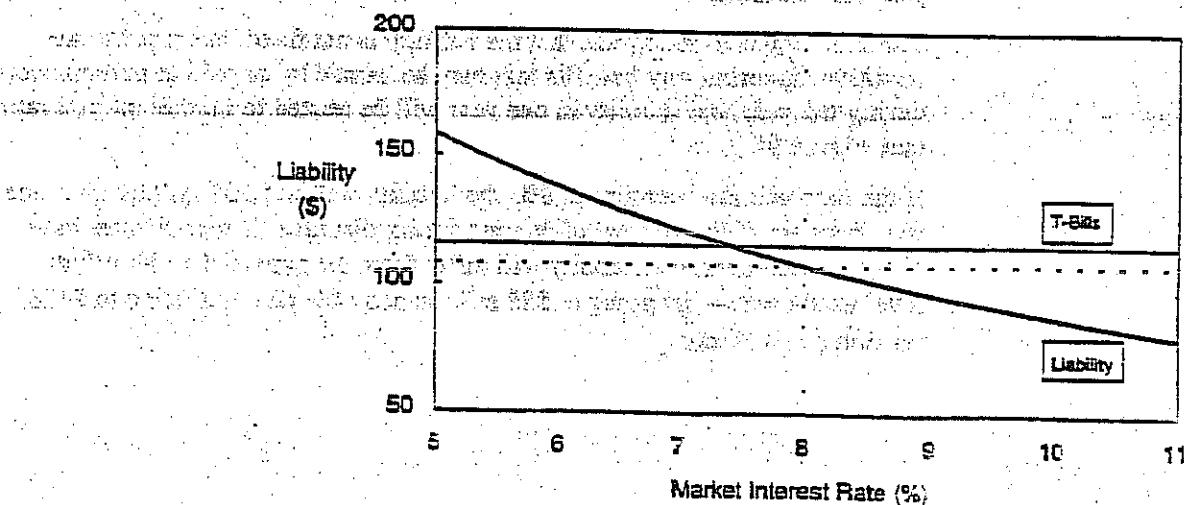
<sup>25</sup> See *Portfolio Optimization Within a Surplus Framework*. Martin L. Leibowitz and Roy D. Henrikson. Salomon Brothers Inc., April 1987.

**Figure 9. Pension Liability versus Market Interest Rate (Dollars in Millions)**



Suppose the sponsor uses the traditional risk-free asset — one-year Treasury bills — which yield 5%. The plan assets at year-end will be \$115.5 million ( $1.05 \times \$110$  million), regardless of the change in market rates. If market rates are unchanged, the fund will continue to show a surplus, although the surplus will have dropped from \$10 million to \$7.5 million (assets of \$115.5 million, minus a liability of \$108 million). With a decline in interest rates, however, the surplus becomes highly vulnerable. As shown in Figure 10, a decline to 6% brings the pension liability to \$138 million, well above the \$115.5 million of assets, creating a \$22.5-million deficit. This deficit would appear as a liability in the company's balance sheet and could reduce its net worth.

**Figure 10. Treasury Bills in a Surplus Framework**

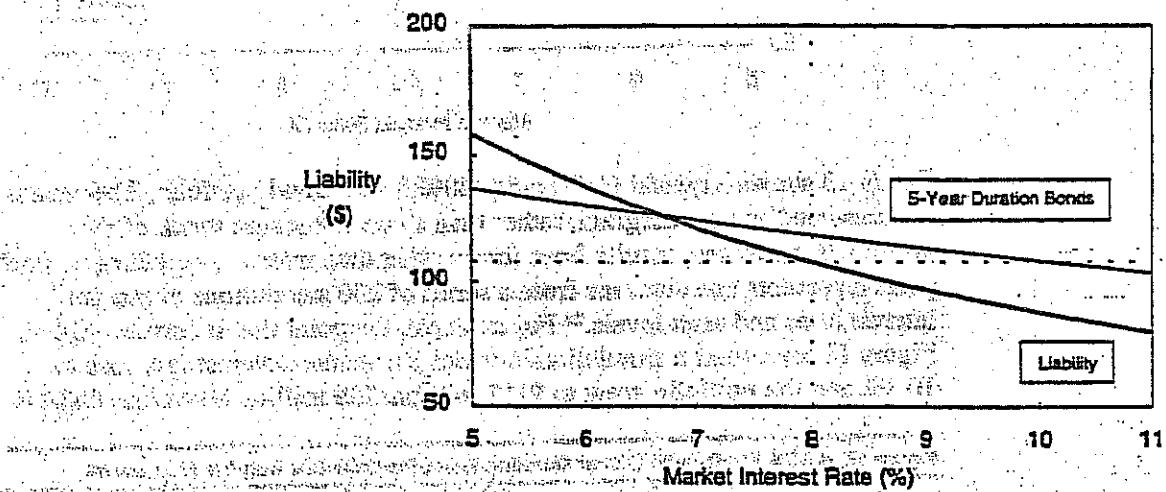


Thus, Treasury bills change their character dramatically, from riskless to highly risky, as the investment framework shifts from managing the assets only to managing the relationship of assets and liabilities. In the asset-only framework, the stability of Treasury bills reduces risk and may compensate for their low expected return. In the surplus framework, the liabilities are discounted at market interest rates and become highly volatile. The Treasury

bills' low expected return remains, but their stability now constitutes a lack of responsiveness to interest rate movements. This makes them highly risky by preventing asset movement that could counter the interest rate-driven volatility of the liabilities.

In Figure 11, we show the same asset-liability comparison for a bond portfolio with an effective duration of five years. (This is a typical bond portfolio duration; it means that a 100-basis-point decline in interest rates will cause the portfolio to appreciate by approximately 5%.)

Figure 11. A Five-Year Duration Bond Portfolio in a Surplus Framework



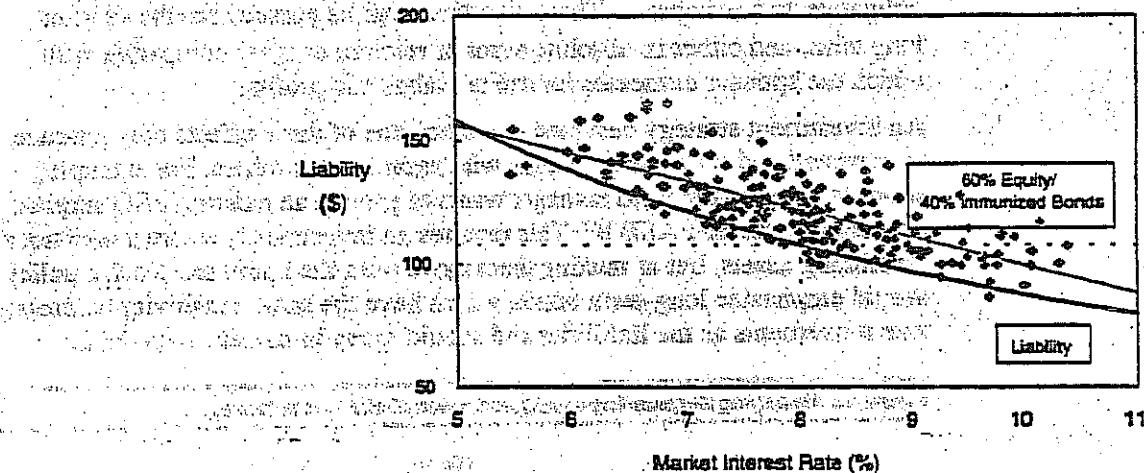
The matching of assets and liabilities improves somewhat, but still fails to ensure a year-end surplus if interest rates plunge by more than 130 basis points. This is because the portfolio's five-year duration is too short to match the interest rate sensitivity of the liability. The risk diminishes, however, and the expected level of surplus improves because the bond portfolio carries a higher yield than that of the Treasury bills, given a positively sloped yield curve.

Figure 12 depicts an immunized bond portfolio, with interest rate sensitivity equal to that of the ABO — an effective duration of 11.2 years when the discount rate is 8%. Assets and liabilities now show substantially the same response to interest rate changes, and the surplus is protected. (With a positively sloped yield curve, the immunized portfolio would also carry a higher yield than the five-year duration bond portfolio). Thus, the immunized portfolio replaces Treasury bills as the risk-free asset in the surplus framework.

disappointing equity return during a period of declining interest rates could have a disastrous impact on the surplus position, as shown by the points in the lower left-hand portion of Figure 13. Here, both sides of the pension plan balance sheet are moving unfavorably, as unsatisfactory equity performance outweighs fairly good bond performance and coincides with soaring liabilities.

As Figure 12 illustrates, the sponsor can eliminate the surplus risk by foregoing equities and adhering to an immunized bond strategy — a solution that will not satisfy a sponsor who wishes to capture the risk premiums that equity promises. To reduce the surplus risk of an equity strategy, the sponsor can greatly lengthen the bond duration. Under the capital market assumptions underlying Figure 13, a 17-year bond duration will match the total portfolio duration to the liability duration and produce the results illustrated in Figure 14.

**Figure 14. A 60% Equity/40% 17-Year Duration Bond Portfolio in a Surplus Framework**



The longer bonds increase the portfolio volatility, but in a way that is helpful for surplus control. It aids the asset performance when rates drop and help is needed to match the liability growth. It hurts the asset performance when rates rise, but falling liabilities make the losses affordable. Overall, the asset return distribution rotates clockwise from Figure 13 to Figure 14, better comporting with the liability distribution and reducing the probability and severity of deficits.

Thus, asset classes undergo radical changes in their investment characteristics and risk/reward relationships, as one shifts from an asset-only framework to a surplus framework. Long-duration bonds replace Treasury bills as the safety asset and are effectively promoted from a buffer asset used to dampen equity volatility to an asset with the positive property of being able to track liability movements. The asset allocation process for bonds no longer ends with setting the percentage of the fund to be invested in bonds. Instead, it focuses on controlling the portfolio's total duration.<sup>27</sup> For example, a 20% allocation to bonds with a duration of 10 years contributes the same interest rate sensitivity

<sup>27</sup> For details of the calculation, see *Total Portfolio Duration: A New Perspective on Asset Allocation*.

to the portfolio as a 40% allocation with a duration of 5 years, while providing more room for equities or other risk assets, if desired.

This is not to say that pension fund management requires total risk elimination through substantial holdings of long-duration bonds. In the asset-only framework, sponsors neither eliminate risk completely — for example, through 100% Treasury bill portfolios — nor embrace it without reservation — for example, through 100% equity holdings. Similarly, sponsors should take a balanced view of risk in the surplus framework. The pursuit of higher returns for the long-term benefit of the participants and the plan sponsor requires the acceptance of risks — such as equity exposure or a tactical mismatching of the interest rate sensitivity of assets and liabilities.

The investment strategist's task is complicated by the multidimensional nature of pension finance, which can affect corporate cash flow, earnings and the balance sheet. A sponsor may seek to maximize assets, minimize the level or volatility of contributions or expense, control ABO or PBO surplus, or regulate other measures — all of course subject to the overriding fiduciary obligation to participants. These objectives can be pursued for the short or long term, and either in absolute terms or relative to other companies with which the sponsor competes for capital, labor and profits.

An investment strategy designed to control one of these effects may produce unexpected and unfortunate results with regard to the others. For example, suppose the pension fund manager wants to protect an existing PBO surplus, as disclosed under FASB 87. This requires an investment posture aimed not at stabilizing assets, but at making them move with the liabilities. Such a policy would emphasize long-term bonds, which have the same sensitivity to interest rate movements as the liabilities and should move in tandem with them.

**Figure 15. Managing Surplus/Expense/Contribution (Dollars in Millions)**

	Expected Status	Effective Duration	Actual Status at Year-End	Calculation
Settlement Rate	10%		8%	
Expected Rate of Return	10		8	
PBO	\$500	12	\$520	124% x 500
Assets	600	10	720	120% x 600
Surplus	100		100	
Service Cost	\$30	15	\$39	130% x 30
Interest Cost	50		49.6	8% x PBO
Return on Assets	(50)		(57.6)	8% x Assets
Amortization Cost	(10)		(10)	
Total Expense	\$10		\$21	

PBO Projected benefit obligation

The manager adopts this investment policy when interest rates are 10%. The first column of Figure 15 shows the company's expectation of the year-end status of the fund and the resulting expense for the following year, if interest rates do not change. The expected surplus is \$100 million, generating a \$10-million amortization credit (10-year amortization) and a \$10-million favorable differential between the interest cost and the return on plan assets for the following year. The PBO has an effective duration of 12 years, meaning that a 1% decrease in the actuarial discount rate will increase the PBO by approximately 12%, or \$60 million. To counter this contingency, the manager sets the portfolio duration at 10 years, so that a 1% decrease in interest rates

will also generate asset appreciation of 10%, or \$60 million, thus preserving the surplus.

Suppose that market interest rates drop by 200 basis points and the actuarial discount rate and expected rate of return on plan assets are adjusted accordingly from 10% to 8%. The results would be as shown in the column of Figure 15 labeled "Actual Status."

- *Surplus has indeed remained constant at \$100 million.*
- *Expense, however, has more than doubled.* This increase arises primarily from the 30% increase in the service cost. (The increase may be moderated through actuarial policy, for example, by holding the expected return on plan assets at or near 10%, while the settlement rate drops to 8%).
- *Contributions (if any) are likely to decline* because of the investment gain. The accrued liability and normal cost used to determine the funding requirement will not necessarily undergo similar changes, because funding assumptions rarely change in full response to one-year swings in market rates, except for plans in particularly weak or strong funding positions. Therefore, the only difference between the expected and actual conditions would be the higher-than-expected assets, and the resulting gain would reduce the contribution requirement.
- *The funding ratio* (assets divided by liabilities) has fallen from  $600/500 = 120\%$  to  $720/620 = 116\%$ . Although the surplus has held constant, the decline in assets and surplus as a percentage of the PBO has left the plan more vulnerable to investment or demographic setbacks, such as a drop in the equity markets or an improvement in longevity.

Whether the company regards these results as successful depends on its priorities and sensitivities. Furthermore, although discount rate changes are the main determinant of liability changes over the short term, a longer-term view must recognize other influences — primarily inflation, which affects benefit levels through changes in pay levels, negotiated benefit improvements and cost-of-living increases granted to retirees. Management not only has multiple objectives but faces multiple risks, some of which may be better hedged with equities than long-term bonds. Satisfying the company's and participants' needs may require a flexible, dynamic policy that can attend to all the objectives, recognizing liability risks, as well as asset risks. Senior management must understand the exposure, so that the risks can either be purposefully accepted or appropriately hedged.

#### **PLAN TERMINATIONS**

Plan terminations are regulated by the Pension Benefit Guaranty Corporation, a Federal agency created by ERISA to ensure the payment of certain benefits from terminating plans. The PBGC guarantees most vested benefits, with the principal exceptions being the following:

- Benefits exceeding certain dollar limits (\$2,574 monthly for 1995 terminations, actuarially adjusted for pensions that are not life annuities beginning at or after age 65);

- Most benefits not payable for the life of the recipient, such as lump-sum death benefits and early retirement subsidies payable only until Social Security eligibility; and

- Benefits attributable to new plans or recent plan amendments, the coverage of which is phased in over five years.

Premiums collected from plan sponsors finance the guarantees. For 1995, the premium is a flat rate of \$19 per participant, plus a risk-related premium equal to 0.9% of the unfunded vested benefit obligation of the plan.<sup>28</sup> A cap that limited the total per capita premium to \$72 is being phased out and will disappear for plan years beginning after June 30, 1996. (A special transition rule applies to utilities.)<sup>29</sup>

ERISA provides for two types of plan termination by the sponsor. (Under certain circumstances, the PBGC itself may terminate a seriously troubled plan — a right that it has rarely exercised but frequently threatened in negotiating with the sponsors of troubled plans.) In no event will the PBGC process a voluntary termination that violates a collective bargaining agreement.

- In the termination of an underfunded plan ("distress termination"), the PBGC takes over the plan and ensures the payment of guaranteed benefits. The plan sponsor is liable to the PBGC for all unfunded benefits, and to the extent that the PBGC can collect that liability, it will pay nonguaranteed benefits as well. (If the plan sponsor belongs to a controlled group of companies, the other members of the controlled group are also liable.)

- In the termination of a sufficiently funded plan ("standard termination"), the plan provides all benefits through the purchase of annuities from an insurance company or, under limited circumstances, lump-sum payments to participants. The employer may be able to recoup a portion of the surplus remaining in the fund (see "Recovery of Surplus from a Terminating Plan," page 39).

A plan's termination surplus or deficit can be estimated by comparing the ABO with the fair value of plan assets as published in the company's financial statements. These figures may give only a rough guide, for several reasons:

- There may be changes because of the lapse of time. (Pension figures in the financial statements may be as of a measurement date that is up to 90 days before the financial statement date.)
- The actuarial assumptions used to determine the ABO for an ongoing plan may be inappropriate for a termination, because the surplus in a fully funded plan (standard termination) is determined by an insurance company's annuity pricing, and the deficit in an underfunded plan (distress termination) is determined by the PBGC rates. The PBGC rates produce higher liabilities

<sup>28</sup> The unfunded vested benefit obligation for this purpose is not the same as the one determined under FASB 87. Vested benefits are discounted not at a "settlement rate" but at a rate equal to 80% of the average interest rate on 30-year Treasury securities during the last month before the plan year, greatly increasing the liability. Also, assets are taken at the value used to determine the minimum funding requirements, which may differ from the market value. Both those differences are scheduled to disappear over the next few years, under a patchwork of transition rules in the Retirement Protection Act. The risk-related premium is eliminated for plans that were at the full funding limitation in the prior year.

<sup>29</sup> The PBGC estimates that underfunded plans will pay an average of \$140 when the cap is removed. ERISA originally set the premium at \$1 per participant in 1974.

than those used by many companies in determining the ABO. The interest rates that underlie the insurance company annuity rates should generally be comparable with those in the ABO calculation, but discrepancies may arise from the insurer's profit margins and conservative stance regarding rates of early retirement or other aspects of the plan.

- A termination triggers full vesting of nonvested benefits, generally a very small cost, which can be estimated by reference to the difference between the ABO and VBO shown in the financial statements.
- Plan terminations often occur during unfavorable business conditions, when utilization of early retirement subsidies runs high and special plant shutdown benefit provisions may come into play.
- A plan termination may trigger special provisions that increase benefits, especially if the termination follows a contested takeover of the employer. (See "Corporate Takeover Issues," page 40.)

To enable the PBGC to perform its oversight and insurance functions, plan administrators must report various specified events that may indicate when a plan is in danger of failing and extensive information on severely underfunded plans. Also, private companies with underfunding that exceeds both 10% of plan liabilities and \$50 million must report, at least 30 days *before* the event, certain corporate transactions that may affect the PBGC's ability to collect for potential plan terminations — for example, the spin-off or liquidation of a controlled group member.

#### **Standard Terminations**

A standard termination can occur when the plan assets are sufficient to meet all benefit liabilities. Sixty days before the plan termination, the plan administrator must give notice of termination and other detailed information to the plan participants, any union representing them, and the PBGC. In the absence of an objection from the PBGC, the sponsor can proceed with the termination. Upon termination, the sponsor must secure all benefits by the purchase of annuities from an insurance company or, under limited circumstances, by payment as lump sums. Years ago, the choice of an insurance carrier commonly centered on cost. Now, the problems of the insurance industry have shifted the focus of plan fiduciaries to benefit security.

#### **Distress Terminations**

If a plan's assets are insufficient to pay all benefit liabilities, only a financially troubled employer can terminate the plan, as a distress termination. The plan administrator must give 60 days' advance notice to the PBGC and the plan participants. The PBGC must then determine that the plan sponsor (and each member of a controlled group of companies to which the sponsor belongs) meets one of the following distress criteria:

- The sponsor is liquidating;
- The sponsor is reorganizing in bankruptcy or insolvency, and the bankruptcy court has determined that without a plan termination, the sponsor will be unable to pay its debts under a plan of reorganization and unable to continue in business outside the Chapter 11 reorganization process; or

• Plan termination is required to enable the sponsor to pay its debts or to avoid unreasonably burdensome pension costs caused by a decline in the work force.

In a distress termination, ERISA sets forth a complex allocation of assets to participants, as outlined below:

- (1) Benefits attributable to employee contributions;
- (2) Benefits payable to participants who were retired or could have retired three years before the plan termination date, excluding the benefits earned in those three years and benefits attributable to plan improvements in the past five years (PBGC limits on guaranteed benefits, such as the \$2,574 monthly cap for 1995 terminations, do not apply at this point; therefore, plan assets may be allocated to nonguaranteed benefits before all PBGC-guaranteed benefits are covered);
- (3) All other PBGC-guaranteed benefits;
- (4) All other vested benefits; and
- (5) Nonvested benefits.

The PBGC pays any PBGC-guaranteed benefits that the plan assets do not cover. The plan sponsor (and all members of a controlled group of companies to which the sponsor belongs) is liable to the PBGC for all unfunded benefit liabilities. The value of unfunded liabilities is determined on rates promulgated by the PBGC for this purpose, rates that tend to produce higher liabilities than those that many companies use in their financial reporting. The unfunded liability is payable to the PBGC at the termination date. Failure to pay this liability gives rise to a PBGC lien that is equivalent to a tax lien, for an amount up to 30% of the controlled group net worth. The PBGC, not the employer's financial statements, determines the employer's net worth. The priority status of the sponsor's liability in excess of 30% of its net worth is determined under generally applicable bankruptcy principles.

The PBGC also pays a percentage of nonguaranteed benefits to participants, equal to the percentage of outstanding benefit liabilities that it has recovered from the plan sponsor. (If the unfunded benefit liability of the terminating plan is less than \$20 million, the percentage of nonguaranteed benefits paid to participants is based on the PBGC's pooled recovery experience, rather than the recovery for the terminating plan itself).

The effect of a distress termination on a participant's accrued benefit depends on the funding status of the plan, whether the benefit falls under the PBGC guarantees, and the PBGC's recoveries. To the extent that the PBGC guarantees the benefit, payment is assured. Any part of the benefit that the PBGC does *not* guarantee will be paid if either of the following conditions is met:

- The benefit is high enough in the asset allocation priority categories to be covered by plan assets; or
- The PBGC's recovery from the plan sponsor (for large unfunded plan terminations) or from all sponsors of terminating plans (for smaller terminations) is sufficient to cover the payment.

**Recovery of Surplus  
from a Terminating  
Plan**

Any surplus remaining in a plan after the satisfaction of all liabilities can revert to the employer,<sup>30</sup> if the plan document has so provided for at least five years (or the life of the plan, if less). The reversion is taxed as ordinary income and, in addition, is subject to a 20% excise tax. (This tax does not apply to nonprofit organizations.) The excise tax increases to 50% for a nonbankrupt company unless the company does either of the following:

- Transfers assets equal to 25% of the surplus to a successor retirement plan (for example, another defined benefit plan or a 401(k) plan) that covers at least 95% of the remaining active employees who were covered by the terminated plan; or
- Provides across-the-board pension increases to participants in the terminated plan that use up at least 20% of the surplus.

A company can recover surplus only from a terminated plan, not from one that is continuing. One method of recovering surplus is to terminate the plan and to provide no further defined benefit plan coverage for the participants. Many companies have used two other approaches that continue defined benefit coverage: *termination/reestablishment* and *spin-off/termination*.

Under a *termination/reestablishment*, the company terminates the plan, purchases annuities, recaptures the surplus and then establishes a new plan covering the same employees. The new plan may provide coverage identical to the old plan, with an offset for the old plan benefits, in which case the employees' benefits would be unaffected by the transaction.

Under a *spin-off/termination*, the retirees are spun off into a separate plan, with assets sufficient to cover their benefits, plus all the surplus. The company then terminates the retiree/surplus plan. Annuities are purchased for the retirees, and the surplus reverts to the company. Active employees remain in the continuing plan with assets covering their accrued benefits, which must be vested and protected by an annuity purchase as well. The end result is that annuities are purchased for all accrued benefits, the company gets the surplus, and the benefits for active employees continue to accrue as before.

In the early 1980s, when the excise tax was nonexistent or much lower than the current 20%/50% level, many companies recovered surpluses through plan terminations. Now, unless the business covered by the plan is being discontinued, the tax, administrative and employee relations costs of a reversion greatly reduce its appeal, and plan terminations for ongoing businesses have become uncommon.

**Other Uses of  
Surplus**

The expenses of surplus reversion have driven the sponsors of overfunded plans to seek other means of using the surplus. Paying administrative and investment expenses out of plan assets rather than employer funds is a common approach. Merging an overfunded plan with an underfunded plan is another possibility. Another potential use for surplus, permitted through the year 2000, is a transfer to an IRC 401(h) account that will be used to pay retirees medical benefits for the year of transfer. Several restrictions limit the appeal of this transfer, for example, all plan participants must vest in their

<sup>30</sup> If the plan has included employee contributions, some of the surplus must be shared with the employees. Also, defense contractors, Medicare providers and regulated companies may have to share the surplus with the government or the ratepayers.

pension rights at the date of the transfer, and the company must maintain substantially the same level of retiree medical benefits for the following five years. An alternative, indirect way to use pension surplus to pay retiree medical benefits is to simply increase the pensions and require pensioners to pay more of their medical costs themselves, using their increased pensions. This approach avoids the restrictions of the 401(h) transfer, but at some cost in tax effectiveness, because the retirees pay tax on the pension increases but would not pay tax on 401(h) payments of medical expenses.

Another important way of using surplus is to finance the early retirement windows that many companies have used to reduce their work forces through voluntary terminations. These plans may offer employees a combination of salary continuance, lump-sum payments and pension sweeteners, such as additional service credits or early retirement supplements. Some of these inducements can be provided through qualified pension plans. To the extent that they are funded by pension surplus, the company can avoid the cash flow drain of paying them from its own coffers.

#### **Corporate Takeover Issues**

Companies with large pension surpluses have historically been concerned that a hostile takeover could be financed partially by terminating the pension plan and using the surplus. The large excise taxes have alleviated that concern, but companies have also tried various defensive measures, including the following:

- A plan amendment may give the employees the right to any surplus remaining upon a plan termination following a hostile takeover, or may automatically increase benefits upon such a termination or takeover to absorb the surplus.
- The company may preemptively terminate the plan and tie up or use the surplus in some other way.
- The surplus may be committed to another employee benefit program, such as post-retirement life or health insurance.

These provisions have not been widely tested in practice, and their effectiveness in achieving their objectives without undesirable side effects is not clear.

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#### **CURTAILMENTS, SETTLEMENTS AND TERMINATION BENEFITS**

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FASB 87 covers "normal" pension accounting, which provides for deferring the recognition of actuarial gains and losses and the cost of plan amendments. These liabilities are amortized over a period of years, in view of the long-term nature of pension obligations. FASB 88 focuses on the accounting for special events that require immediate recognition of costs or credits that are normally deferred.

#### **Curtailments**

Plan improvements that give credit for employees' prior service bring about an immediate increase in the PBO. The company amortizes this added liability over the future service of the active employees, rather than recognizing it fully in current expense. The rationale for amortization is that the plan improvement gives the company economic benefits over the amortization period — for example, in lower wages than would otherwise be paid or in

better employee relations. The presumed economic benefits, however, evaporate in the event of a *curtailment*. A curtailment can take two forms:

- A work force reduction, eliminating part or all of the future service during which the company expected to reap the economic benefits; or
- A cessation of benefit accruals under the plan (which requires 15 days' advance notice to the plan participants).

In either case, the company must recognize as a current-period expense the liability that was being amortized over the relevant future service.

Work force curtailments may also generate actuarial gains and losses, through terminations of nonvested employees,<sup>31</sup> early retirements and the elimination of future salary increases. Such gains or losses are first offset against any losses or gains that the plan is already deferring, and any excess is fully recognized in current expense.

Work force curtailments have no necessary effect on funding, except for plans with an unfunded current liability, which may be subject to accelerated funding requirements. For other plans, prior unfunded liabilities can continue on their existing amortization schedules and any actuarial gains or losses are funded as usual for an ongoing plan. Plan curtailments similarly require no change in funding, except that the usual handling of plan changes may be accompanied by changes to an actuarial cost method and assumptions that are appropriate to frozen plans.

#### **Settlements**

Under the normal operations of a plan, pension expense does not reflect actuarial gains and losses during the year of occurrence. Instead, the gains and losses are deferred until they exceed the 10% corridor (if used), and then they are amortized over the average future service of active plan participants. The rationale for delayed recognition is the expectation that if the actuarial assumptions prove correct over time, future plan experience will reverse the prior gains and losses. The *settlement* of a liability, however, by an annuity purchase, lump-sum payment of benefits or the transfer of the liability to another employer, eliminates the possibility of reversal. FASB 88, therefore, triggers the immediate recognition of gains or losses that were being deferred.<sup>32</sup>

This rule creates an opportunity for companies with substantially overfunded plans. By purchasing annuities for some or all of their obligations, these companies can strengthen their balance sheets and bring into current earnings the gains that they would otherwise have recognized only over an extended period of time.<sup>33</sup> Although a settlement can affect corporate earnings markedly, it does not bring cash back to the company, except as part of a plan termination; an annuity purchase, for example, is simply a shift in the plan's investments and does not affect the company's cash flow.

The purchase of a nonparticipating annuity transfers all the associated risk from the plan to the insurer and clearly qualifies as a settlement. Under a

<sup>31</sup> The IRS may deem a substantial work force curtailment to be a "partial plan termination," requiring the vesting of nonvested employees if the pension assets are sufficient to cover the liabilities.

<sup>32</sup> For further discussion, see *Pension Settlements Under FASB 87 and 88*, Salomon Brothers Inc., October 1987.

<sup>33</sup> Unless the settlement is part of the disposal of a business segment, the gain will not generally be treated as extraordinary income, although it must be disclosed.

participating contract,<sup>34</sup> however, the plan retains some risk and potential for reward, and if the arrangement leaves too much uncertainty — more than 5%-10% of the purchase price — it may not qualify for settlement accounting.

Settlements do not affect the company's contributions to the plan, except that an actuarial gain or loss may be generated by a difference between the cost of the annuities and the value that the plan previously placed on the settled obligation in its funding calculation.

#### Termination Benefits

Special accounting rules come into play when companies use pension incentives to induce early retirements during a limited period of time. The employer must recognize as current-period expense the total present value of pension supplements offered only to employees who retire during such a "window period," regardless of whether they are paid through a pension plan. The same current-period expense recognition applies to termination benefits that are contractually available only on the occurrence of a special event, such as a plant closing.

#### Accounting for Plan Terminations

Plan terminations always involve settlements and require the recognition of any actuarial gains or losses that were being deferred. They may or may not involve curtailments. A termination without replacement is a curtailment, because future benefit accruals are eliminated. Termination/reestablishments or spin-off terminations, however, continue the accrual of benefits and do not trigger curtailment accounting.

The variations in the type of termination and the funding status of the plan make it difficult to generalize about the consequences, and each case should be examined on its own. The amount of reversion to the company, if any, does not determine the effect on the company's earnings, unless the plan is terminated without replacement; otherwise, the recorded gain or loss depends on a detailed calculation under the settlement and curtailment accounting rules.

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#### MERGERS AND SPIN-OFFS

Pension plans have become recognized as an important issue in business combinations and dispositions. A company acquiring another company must examine a host of financial, employee relations and administrative pension matters. The buyer must know what assets, liabilities and contribution obligations it is taking on. The measurement of the obligations should reflect the buyer's actuarial basis and the pension plan as it will evolve after the acquisition. The calculations should, therefore, take into account any upcoming collective bargaining or other imminent plan changes, substantive commitments by the seller concerning retiree benefit increases or other practices that employees may expect to continue, and any plan changes that may be made to conform the seller's plan to the buyer's. There is likely to be a considerable degree of tension between the transferring employees' expectations of continuity in their pension benefits and the buyer's desire or need to integrate those employees into the buyer's existing programs. (IRS nondiscrimination rules, as well as employee relations and administrative

<sup>34</sup> In a nonparticipating annuity arrangement, the plan buys annuities from an insurer and ends its involvement. In a participating annuity, however, the plan pays a higher premium; the employer then participates, by receiving dividends, in any gains that the insurer makes through long-term experience more favorable than that assumed in the purchase price.

convenience, may require some degree of conformity between the benefits of the new employees and those that the buyer provides to his other employees.) The buyer should also assess the pension consequences of any work force restructuring that may ensue. The seller's participation in any multiemployer plans requires particular attention (see "Multiemployer Plans," page 46).

When a company sells part of its business to another company, several alternatives are available for handling a pension plan that covers the employees whose services are being transferred.

#### Retention of Assets and Liabilities

Perhaps the simplest alternative is for the seller to retain the plan. The seller can either terminate the plan or merge it into another of his plans, perhaps after freezing it for some time. The buyer would make suitable arrangements for covering the participants' future service.

If the participants were covered under a final-pay plan, however, the buyer may find it expensive to provide employees with the benefits that they had expected under the seller's plan. This is because the buyer will have to provide not only future service benefits, but also a "salary roll-up" on benefits earned with the seller. The salary roll-up would provide that the benefits for all years of service, pre- and post-sale, would be based on final pay with the buyer (see Figure 16).

Figure 16. Salary Roll-Up on the Purchase of a Business

**Benefit Formula:**  $1\% \times \text{Years of Service} \times \text{Final Pay}$

#### Employee Data

With Seller — 10 Years of Service, \$40,000 Final Pay

With Buyer — 20 Years of Service, \$75,000 Final Pay

#### Benefits

1. If employee had continued with the seller for entire career:

$$1\% \times 30 \text{ years} \times \$75,000 = \$22,500.$$

2. Frozen benefit from the seller:

$$1\% \times 10 \text{ years} \times \$40,000 = \$4,000.$$

3. Benefit from the buyer, if the plan covers future service only:

$$1\% \times 20 \text{ years} \times \$75,000 = \$15,000.$$

4. Total benefit from separate plans: (2) + (3) = \$19,000.

5. Shortfall (required salary roll-up if employee is "kicked whole"):

$$(1) - (4), or 1\% \times 10 \text{ years with seller} \times (\text{final pay with buyer} - \text{final pay with seller}) = \$3,500.$$

A pension plan of the buyer that includes salary roll-up is sometimes called a "wraparound" plan. In terms of the liabilities shown in Figure 4, the buyer is paying benefits based on service with both the seller and the buyer — the entire pie — with a plan that wraps around the portion paid by the seller. Because the seller is paying the accumulated benefit obligation, the buyer is paying the last two portions: future service and the effect of future salary increases on prior service (the difference between the accumulated and projected benefit obligations, or the salary roll-up.) As in Figure 4, this can be a difference of 25% or more.

A seller retaining assets and liabilities may encounter unanticipated expense for early retirements. The extra expense arises because all the transferred employees are terminated from the seller's employment. They may then become eligible to begin drawing benefits from the seller's plan as soon as they reach early retirement age, even though they continue to work in the same job for the buyer. Sellers often try, with mixed success, to implement

"early retirement blocking provisions," which prohibit the collection of an early retirement benefit under their plans until severance of employment with the buyer.

#### Transfer of Assets and Liabilities

Another alternative is to transfer the plan, in whole or in part, to the buyer. The buyer can maintain it as a freestanding plan or merge it with a preexisting plan. Transfer of an entire plan is feasible if all active participants in the plan are terminating their service with the seller. If the participants terminating their service are only part of the active group covered under the plan, this alternative would require the seller to spin-off the liability for the accrued benefits of transferring employees, together with a specified amount of assets.

If the plan is underfunded, complex rules govern the amount of assets to be transferred, and there will generally be no flexibility. Unless the transaction falls under a *de minimis* exception, the underfunding will be shared by a fixed formula between the retained and spun-off portions of the plan.<sup>35</sup> If the plan is overfunded, however, ERISA is generally understood to require only that both the retained and the spun-off portions be fully funded; the disposition of the surplus is up to the parties. This can be a contentious, high-stakes issue to negotiate, reflecting differing views on the appropriate actuarial assumptions and the responsibility for salary roll-up — the difference between the accumulated and projected benefit obligations. Any transfer that the parties agree is appropriate, but that is not feasible under the ERISA rules, can be effectively handled through an adjustment of the overall purchase price.

#### Accounting

In a spin-off, the seller's accounting follows the principles discussed earlier (see "Curtailments, Settlements and Termination Benefits," page 40). A seller choosing to retain all plan assets and liabilities would account for the transaction as a curtailment (eliminating the future service of active employees) and, if the plan is terminated, as a settlement as well. If assets and liabilities are transferred to the buyer, the seller would have both a curtailment and a settlement.

The buyer's accounting is governed by the purchase accounting rules. The purchase price allocation must reflect any pension liability assumed by the buyer. The buyer must record an asset or liability, equal to the surplus or deficit of the market value of transferred assets against the PBO that he accepts. Some examples follow:

(1) The buyer acquires a plan or portion of a plan with assets of \$300 million and a \$360-million PBO, for which the seller was amortizing the shortfall over 15 years. The buyer's balance sheet immediately after the transaction would reflect a \$60-million liability (accrued pension expense) and a corresponding \$60-million increase in goodwill.

The plan still has a \$60-million unfunded PBO, which the buyer must amortize with cash contributions. The annual expense charge for the plan, however, does not include any amortization of this \$60 million, because the purchase accounting recognized the full \$60 million. Contributions will, therefore, exceed expenses by \$60 million over the funding period, so that the accrued pension expense will be written down over this period.

<sup>35</sup> If the buyer terminates the spun-off plan within five years, the seller may have contingent liability to the PBGC and participants (see "Distress Terminations," page 57), if a principal purpose of the transfer was to avoid liability.

The \$60-million pension liability will increase the goodwill that the buyer books in the purchase, and this goodwill is amortized over the appropriate period. Figure 17 summarizes the pretax effects of the merger, assuming 40-year amortization of the \$60-million goodwill, or \$1.5 million annually.

The pension accounting lowers the annual expense of the acquired company by substituting \$1.5 million — a 40-year amortization of goodwill — for \$4 million — a 15-year amortization of the unfunded pension liability.

However, if the plan had \$420 million of assets against the \$360-million PBO, the buyer would book a pension asset (prepaid pension expense) and would decrease the goodwill recorded for the purchase by \$60 million. The post-purchase expense would then be higher, because the transaction converts a pension surplus being amortized over 15 years into a reduction in goodwill being amortized over 40 years.

**Figure 17. Accounting for Pension Liabilities in the Purchase of a Business**

	Pre-Purchase	Post-Purchase
<b>Balance Sheet</b>		
• Accrued Pension Expense	NA	\$60 Million
• Goodwill	NA	\$60 Million
<b>Expenses</b>		
• Amortization of \$60-Million Prior Service Cost (15 Years)	\$4 Million	\$0
• Amortization of \$50-Million Goodwill (40 Years)	\$0	\$1.5 Million
<b>Contributions</b>		
• For Prior Service	Amortization of \$60 Million	Amortization of \$60 Million
• NA Not Applicable		

- (2) The seller retains the assets and the liabilities for accrued benefits; the buyer establishes a plan covering future service only. The buyer records no asset or liability.
- (3) The seller retains the assets and the liability for accrued benefits; the buyer establishes a wraparound plan covering both future service and a salary roll-up for accrued benefits. The buyer records a liability (and corresponding goodwill) equal to the actuarial value of the salary roll-up, because that is the PBO assumed by the buyer, with no plan assets.

#### **REPORTING AND DISCLOSURE**

The sponsor reports the financial condition of a pension plan in various ways, including the following:

- Stockholders and the SEC learn of the funding status and expense of the plan each year in a footnote to the financial statements in the corporate annual report, the 10-K filing and in other filings requiring audited financial statements.
- The IRS receives a detailed annual report (Form 5500) on the holdings and transactions of the pension fund, the actuarial status of the plan and compliance with ERISA's minimum funding requirements.
- The participants receive a "summary annual report" of the information furnished to the Government, with special additional disclosure for certain underfunded plans.

In addition, extensive reporting requirements apply to special transaction such as plan terminations, mergers, spin-offs, funding waivers, and plan amendments that reduce benefits.

## MULTIEMPLOYER PLANS

A multiemployer plan is maintained pursuant to collective bargaining agreements between a union and two or more employers. A joint board of trustees, with equal representation by management and the union, runs the plan. Collective bargaining may set the employer contribution in a variety of ways, such as cents per hour worked or dollars per ton of coal mined or fish caught. The board of trustees then sets the benefit level, based on actuarial projections of the contributions and plan costs. Because both contributions and benefits are then fixed, problems can arise if the actuarial experience is adverse — for example, if investment results are disappointing, or the contribution base declines. The board is also responsible for investing the fund, paying benefits and all other plan administration.

Multiemployer plans provide their participants with advantages over single-employer plans, such as portability of credits when they change jobs within the group of companies covered by the plan and greater security because of the broader contribution base. These plans are also subject to different ERISA rules in several respects, such as vesting, funding and plan termination. We focus in this section on the financial impact of multiemployer plan participation on a contributing company. Ordinarily, a company's only obligation is to make the contributions called for in the collective bargaining agreement. Upon withdrawal from the plan, however, a company must continue funding a *withdrawal liability* — its share of the plan's unfunded liability for vested benefits. Withdrawal occurs when a company's obligation to contribute ceases permanently. Examples include the closing or sale of a covered operation, bargaining out of a multiemployer plan into a single-employer plan and decertification of the union. Events meeting the criteria for a *partial withdrawal* can also trigger withdrawal liability. Certain contribution cessations, however, do not create withdrawal liability, such as an asset sale by a contributing employer that meets a number of legal requirements that protect the plan against loss.

The calculation of withdrawal liability can be an extremely complex and controversial procedure. Plans can use several methods to allocate the total unfunded vested liability among contributing employers. The statute and regulations do not address many details, such as the actuarial assumptions to be used. Withdrawal liability assessments can appear quirky, allocating charges that are disproportionate to an employer's true share of the plan's unfunded liability. These assessments have occasioned numerous legal disputes. Assessments by a multiemployer plan against withdrawing employers are presumed correct unless proven otherwise and are generally upheld.<sup>36</sup>

The financial reporting for an employer participating in a multiemployer plan is straightforward. The expense in a fiscal period is the contribution required

<sup>36</sup> The presumption in favor of the plan has been successfully challenged in the Third Circuit, in a decision upheld by the U.S. Supreme Court. Teamsters Local 115 Pension Plan v. Yahn & McDonald Inc., 7 EBC 1273 (3rd Cir. 1986).

by the contract, rather than the FASB 87 calculation. No liability disclosure is necessary except in the following situations:

- Withdrawal is "reasonably possible," in which case the employer must disclose any potential withdrawal liability; or
- Withdrawal is "probable," in which case the employer must *record on the balance sheet* any potential withdrawal liability.

An employer participating in a multiemployer plan should take the following steps:

- Obtain all relevant information on the plan's financial status and withdrawal liability rules;
- Decide on involvement in managing the plan, either through membership on the plan's board of trustees or association with other participating employers;
- Set guidelines for collective bargaining that reflect the withdrawal liability rules;
- Monitor developments, such as work force reductions, that might trigger withdrawal liability;
- Structure any sales of businesses to avoid or minimize withdrawal liability consequences.

An employer considering entry into a multiemployer plan, by collective bargaining or by the acquisition of a business already involved, should study the same issues.

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#### CONCLUSION: MANAGING PENSION OBLIGATIONS

The management of pension obligations requires the integration of three distinct policy areas:

(1) **Benefit Design.** A retirement benefit program must be consistent with a company's overall compensation and benefit policies. It should respond to the type of employee that a company needs and should reflect a company's philosophy and competitive situation on general levels of benefits, inflation protection and the sharing of financial responsibility between a company and its employees. It should support a company's attitudes toward the desirability of early or late retirement. It is especially important that management recognize its true benefit objectives, which may not be reflected in the plan documents. For example, a company may have an intention, although not a commitment, to provide periodic cost-of-living increases to retirees. The company should design its funding and investment policies to deliver the benefits that the company plans to provide, rather than only those to which it may be legally bound.

(2) **Funding.** The funding policy governing a company's contributions to the plan should reflect management's view of an appropriate target for benefit security and the type of adjustments to be made when the pension fund is above or below the target. In addition, it should reflect whether temporarily funding above the target level at certain times makes financial sense as a method of deploying corporate assets, given the company's financial situation.

and the relationship between anticipated (tax-free) returns on the pension fund and those on other corporate investments.

(3) Investment. A successful investment policy is critical to managing pension obligations, because every dollar of benefits paid must come either from contributions to the fund or investment return on those contributions. A policy must meet the fiduciary requirement to maximize benefit security, while the company will also seek to minimize costs over the long term, subject to constraints arising from its sensitivity to adverse short-term results.

To combine these three policy areas in a way that meets the company's needs, financial executives must understand the possibilities and articulate their priorities. This means, at the least, an in-depth annual review of the financial condition of the plan, including the benefit, funding and investment decisions that the plan currently reflects; historical and prospective views of the plan's performance; and possible alternative policies and their consequences. Only with such periodic reviews can senior management meet its fiduciary responsibilities and fulfill its obligations to participants without compromising corporate financial interests.

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