

The Defined-Benefit Plan's Many Problems

By [Troy Adkins](#)

Over the past 20 years, there has been a significant shift in retirement plan schemes, from the traditional [defined-benefit plan](#) (DB plan) to the more contemporary [defined-contribution plan](#) (DC plan). As a result of this change, the primary responsibility for preparing for retirement has been removed from employer plan sponsors and placed upon employees. The ramifications of this change are profound, and many people have questioned the readiness of the general populace to handle such a complex responsibility. This in turn has spurred the debate about which type of retirement plan structure is best for the general populace.

History of the Defined-Benefit Plan

DB plans were first instituted in the U.S. when promises to provide retirement benefits were made by the U.S. government to veterans that served in the Revolutionary War. Subsequently, the number of DB plans increased throughout the country as the workforce in the U.S. became more industrialized.

DB plans gained popularity as a result of four primary factors:

1. DB plans tend to afford employees a greater retirement benefit than what employees can expect to receive through other retirement schemes, particularly if employees live for a long period of time following retirement.
2. DB plans place the investment risks associated with market fluctuations upon the employer instead of the employee.
3. DB plans place the investment decision-making responsibility upon the employer instead of the employee.
4. Corporations tend to have a much longer [time horizon](#) than the life expectancy of employees. Therefore, it is believed that employers have a much greater capacity to absorb wide market fluctuations over various market cycles.

Notwithstanding the benefits of the DB plan structure, DC plans have gained momentum and popularity. The transition from the DB plan structure to the DC plan structure over the last 20 years is a product of five primary factors:

1. Corporations typically save a significant amount of money by switching their DB plan scheme to a DC plan scheme because the benefits afforded by DC plans are typically lower than what is offered by DB plans.
2. Due to the complexities associated with estimating DB plan liabilities, it's difficult for corporate executives to budget for retirement benefit expenditures.
3. The [off-balance sheet](#) accounting provisions used by corporations to account for DB plans raises issues that corrupt the corporation's financial statements and distort the financial condition of the company.
4. The complexities associated with investing plan assets requires a significant amount of investment knowledge. As a result, third party [institutional investment](#) consulting firms, actuarial firms and accounting firms have to be retained to handle this responsibility.
5. The relative size of DB plan assets and liabilities is typically very large. This requires corporate executives to focus on their retirement plan administration, instead of focusing on core business endeavors. (For more, read [The Demise Of The Defined-Benefit Plan.](#))

Inaccurate Estimates

The primary issue associated with offering a DB plan begins with the estimation of the employee's [pension benefit obligation](#) (PBO). The PBO represents the estimation of the present value of a future liability of an employee's pension benefit. In order to understand the complexity associated with estimating this liability, we have provided the following simplified example of the computation. (For more, see [Pension Plans: Pain Or Pleasure?](#))

An Example

Let us assume that Company ABC was created by Linda. Linda is 22 and recently graduated from college. She is the only employee, has a base salary of \$25,000 and recently completed one year of service with the firm. Linda's company offers a DB plan, and the DB plan benefit will provide her, after she retires, an annual retirement benefit equal to 2% of her final salary, multiplied by the number of years she has accumulated with the firm.

Given her age, let us assume that she will work 45 years before she reaches normal retirement eligibility. Let's also assume she will receive a 2% annual growth rate in compensation for every year that she works for Company ABC. Based on these assumptions, we can estimate that Linda's projected annual pension benefit after one year of service will be \$1,219 ($\$25,000 * 1.02^{45} * .02$). Notice that this pension benefit estimate takes into account Linda's estimated future salary increase over her estimated working career of 45 years. However, the computation does not take into account Linda's anticipated future service with Company ABC. Instead, the benefit estimate only takes into account her accumulated service to date. Once this benefit amount is determined, it is assumed that Linda will receive, at the beginning of each year after she retires, a benefit of \$1,219 per year over her life expectancy, which we will assume is 30 years.

We can now determine the value of the PBO. To accomplish this goal, Linda's annual retirement benefit needs to be converted into a lump sum value at Linda's anticipated normal retirement date. Using a 4.0% yield on a 30-year Treasury bond as a conservative discount factor, the present value of Linda's annual pension benefit over her 30 year life expectancy at her normal retirement date would be \$21,079. This amount represents what Company ABC would have to pay Linda to satisfy her company's retirement benefit obligation on the day that she retires.

To determine the PBO, the present value of Linda's retirement benefit at her normal retirement date would then have to be discounted back 44 years to today's valuation date. Again, using the yield on the 30-year treasury bond of 4% as the discount factor, the present value of Linda's benefit would be \$3,753. This amount is known as the PBO, and is the amount that corporate executives set aside in an account at the end of Linda's first year of employment in order to be able to pay Linda's promised retirement benefit of \$1,219 per year, payable in 45 years, over her life expectancy following retirement. If Company ABC sets aside this amount of money, the Company ABC DB plan would be fully funded from an actuarial point of view. (To learn more, see [Understanding The Time Value Of Money](#).)

Additional Problems

This example represents a simplified case of the complexities associated with the estimation of pension liabilities. Additional actuarial assumptions and accounting mandates would have to be taken into account in order to estimate the PBO in accordance with accepted guidelines. With that in mind, let us now look at 10 assumptions that we would have to take into account in order to estimate the PBO, and how they would impact the accuracy the pension liability estimate.

DB Plan Assumptions	Issues to Consider	Impact on PBO
1. Retirement benefit formula	Benefit formula may change over time.	Any type of benefit change will materially affect the estimated PBO.
2. Employee salary growth rate estimate	Future compensation growth rates are impossible to accurately project.	A higher salary growth rate will increase the PBO.
3. Estimated length of working career	It is impossible to know how long an employee will work for an organization.	The more years of service the employee accrues, the greater the PBO.
4. Years of service used to make the PBO calculation	Actuarial guidelines mandate that the PBO take into account future salary growth estimates, but ignore any potential future service.	If actuarial guidelines required the inclusion of potential future service, the estimated PBO would increase dramatically.
5. Vesting uncertainties	It is impossible to know if employees will work for the employer long enough to vest their retirement benefits.	Vesting provisions will increase the uncertainty in the estimate of the PBO.
6. Length of time employee will receive a monthly retirement benefit	It is impossible to know how long employees will live after they retire.	The longer retirees live, the longer they will receive retirement benefits, and the greater the impact on the estimate of the PBO.
7. Retirement payout assumption	It is difficult to know what type of payout option employees will select, because their beneficiary status may change over time.	The election of survivor benefits will affect the length of the time horizon benefits are expected to be paid. This in turn will affect the estimate of the PBO.
8. Cost of living adjustment (COLA) provisions.	It is difficult to know if a COLA feature will be made available in the future, what the future COLA benefit rate will be, or how frequently a COLA will be granted.	Any type of COLA benefit will increase the estimate of the PBO.

9. Discount rate applied to benefits over the retirement period to the employee's retirement date	It is impossible to know what discount rate should be applied to determine the present value of the retirement benefit at retirement.	The higher (lower) the assumed discount rate, the lower (higher) the estimated PBO. The flexibility afforded to management to set the discount rate increases the ability of corporate management to manipulate their company's financial statements by manipulating the net pension liability amount recorded on the company's balance sheet.
10. Discount rate applied to annuity value of retirement benefit at retirement date to the current valuation date	It is impossible to know what discount rate should be applied to determine the present value of the retirement benefit today.	

Off-Balance Sheet Pension Accounting Issues

The second issue with the DB plan structure pertains to the accounting treatment of the company's DB plan assets and liabilities. In the U.S., the [Financial Accounting Standard's Board \(FASB\)](#) has established FASB 87 Employer Accounting for Pensions guidelines as part of the [generally accepted accounting provisions \(GAAP\)](#). FASB 87 allows the off-balance sheet accounting of pension assets and liability amounts. Subsequently, when the PBO is estimated for a company's DB plan and plan contributions are made, the PBO is not recorded as a liability on the company's balance sheet, and plan contributions are not recorded as an asset. Instead, the plan assets and the PBO are netted, and the net amount is reported on the company's balance sheet as a net pension liability.

This type of accounting flexibility affords many significant problems for both companies and investors. As previously stated, the estimated PBO and plan assets are large in relation to the debt and equity capitalization of the company. In turn, this means that the financial condition of the company is not accurately captured on the company's balance sheet, unless these amounts are included in the financials. As a result, important financial ratios are distorted. Therefore, many corporate executives as well as investors may reach erroneous conclusions about the financial condition of the company. (To learn more, see our [Financial Ratio Tutorial](#).)

Conclusion

DB plans were instituted by people who had the best intentions for helping employees experience a wonderful life during their retirement years. Moreover, the removal of retirement planning burdens from the employee's responsibility and placing them upon the employer is also a significant advantage of the DB plan structure. However, upon examination, it becomes obvious that valuation errors associated with the estimation of pension liabilities poses an unavoidable problem. In addition, the accounting provisions associated with booking net pension liabilities on the balance sheet of a company, instead of booking both the pension asset and pension liability, raises many additional issues that fly in the face of prudent [corporate governance](#). (To learn more, check out our [Investopedia Special Feature: Individual Retirement Accounts](#).)