

# Defined-Benefit Plan: Rise, Fall, and Complexities

Why traditional pensions have lost ground to defined-contribution plans

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Over the past 25 to 30 years there has been a major shift in retirement plan schemes offered by private-sector employers, from the traditional defined-benefit plan (DB plan) to the more contemporary defined-contribution plan (DC plan).<sup>1</sup>

Traditional DB plans, commonly referred to as pensions, typically provide a guaranteed monthly income to employees when they retire and place the burden of funding and choosing investments on the employer.<sup>2</sup> DC plans, such as a 401(k), are primarily funded by employees who pick investments and, as a result, end up taking on investment risk.<sup>3</sup>

Below, we'll take a look at the reasons why DB plans have lost ground to DC plans and at DB plans' complexities—in particular, estimating pension liabilities.

#### KEY TAKEAWAYS

- Defined-benefit plans pay a guaranteed income to retired employees and are funded by employers, who choose the plan's investments.
- In the private sector, DB plans have been largely replaced by defined-contribution plans, which are primarily funded by employees who choose investments and bear the burden of investment risk.
- Companies opt for DC plans because they are more cost-effective and less complex to manage than traditional pension plans.
- Estimating the liabilities of a pension plan is complicated, which can lead to errors.

## History of the Defined-Benefit Plan

DB plans go way back. They were first introduced in the U.S. when the government made promises to provide retirement benefits to veterans who served in the Revolutionary War.<sup>4</sup> Subsequently, the number of DB plans increased throughout the country as the workforce in the U.S. became more industrialized.

These are the primary reasons DB plans gained popularity:<sup>5</sup>

- They tend to afford employees a greater retirement benefit than other retirement plans, particularly if employees live for a long time following retirement.

- DB plans place both the investment decision-making responsibility and the investment risks associated with market fluctuations on the employer instead of the employee.
- Corporations tend to have a much longer time horizon than the life expectancy of employees. As a result, it is believed that employers have a much greater capacity to absorb wide market fluctuations over various market cycles.

## Why Defined-Contribution Plans Gained Momentum

Notwithstanding the benefits of the DB plan structure, DC plans have gained momentum and popularity. As a result of the shift, the primary responsibility for preparing for retirement has been removed from employer plan sponsors and placed on employees.<sup>3</sup>

The ramifications of this change are profound, and many 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.<sup>6</sup>

### IMPORTANT

DC plans were initially designed to supplement DB plans, although generally, this is no longer the case.<sup>5</sup>

The transition from DB plans to DC plans over the past few decades is a product of the following:

- 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.
- Due to the complexities associated with estimating DB plan liabilities, it's difficult for corporate executives to budget for retirement benefit expenditures.
- The off-balance-sheet accounting provisions used by corporations to account for DB plans may create issues that corrupt the corporation's financial statements and distort the financial condition of the company.

- The complexities associated with investing plan assets require 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.
- The relative size of DB plan assets and liabilities is typically very large. This requires that corporate executives focus on their retirement plan administration instead of on core business endeavors.<sup>7</sup>

## The Complexity of Estimating Pension Liabilities

The primary issue associated with offering a DB plan begins with the estimation of an employee's projected benefit obligation (PBO). The PBO represents the estimation of the present value of a future liability of an employee's pension benefit.<sup>8</sup> In order to understand the complexity associated with estimating this liability, take a look at the following simplified example of how it is calculated.

### Estimating PBO: A Simple Example

Let's assume that Company ABC was created by Linda. Linda is 22 and a recent college graduate. 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. The DB plan benefit will provide her an annual retirement benefit equal to 2% of her final salary, multiplied by the number of years she has accumulated with the firm.

Let's also say she will work 45 years before she retires and 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 as follows:

- \$1,219 ( $\$25,000 \times 1.02^{45} \times .02$ )

Take note that this pension benefit estimate takes into account Linda's estimated future salary increase over her estimated working career of 45 years.

However, it 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.

**\$9.3 trillion**

*The amount of assets in defined-contribution plans in the United States in Q2 2022, according to the Investment Company Institute.<sup>9</sup>*

## **Pension Amount at Retirement**

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 her anticipated normal retirement date.

Using a 4% 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 retirement date would be \$21,079. This 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 the PBO. It 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 her 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.

## Estimating Liabilities: Additional Assumptions

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's 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 of the pension liability estimate.

<b>DB PLAN ASSUMPTIONS</b>	<b>ISSUES TO CONSIDER</b>	<b>IMPACT ON PBO</b>
1. Retirement benefit formula	The 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	The election of survivor benefits will affect the length of the time horizon over

DB PLAN ASSUMPTIONS	ISSUES TO CONSIDER	IMPACT ON PBO
	their beneficiary status may change over time.	which 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.	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.

# 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 Standards Board (FASB) has established the FASB 87 Employer Accounting for Pensions guidelines as part of the Generally Accepted Accounting Principles (GAAP).<sup>10</sup>

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.<sup>11</sup>

This type of accounting flexibility creates 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 a company. In turn, this means that the financial condition of a 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, and many corporate executives as well as investors may reach erroneous conclusions about the financial condition of a company.

## The Bottom Line

DB plans were implemented by people who had the best intentions for helping employees experience a financially sound life during their retirement years. Removing retirement planning burdens from employees and placing them on an employer is also a significant advantage of the traditional pension plan. Nonetheless, DC plans have overtaken DB plans as the retirement plan of choice offered by companies in the private sector.<sup>12</sup>

Valuation errors associated with estimating DB plan pension liabilities pose 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 other issues that fly in the face of prudent corporate governance.