

Demystifying Pension Liabilities

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Every year, when tax time comes around I dutifully provide my accountant with the requested items needed to complete my tax returns. After a few nail-biting weeks, one of two things happens: I either get a notice to pay the IRS some [seemingly] illogical amount, or, if I am lucky, I receive the positive news that I will be receiving a refund. The arbitrary nature of tax season in my household may sound familiar to you if you are a Defined Benefit (DB) Plan Sponsor.

For many Defined Benefit Plan Sponsors, the uncertainty around the annual pension valuation and the calculation of the pension liabilities can sometimes feel like a mystery—that there is a special secret code to calculating liabilities for which only actuaries know. However, rest assured, the calculations themselves are quite straight forward. Unfortunately, however, the assumptions these calculations are based on is where art and science collide, which can make the simple and straightforward feel complex and overwhelming.

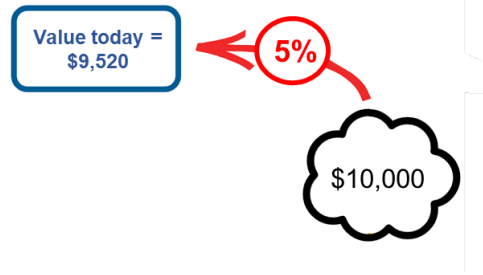
To help demystify pension liabilities, in this paper we break down the liability calculation to its simplest form to help you better understand how various assumptions impact its outcome.

Breaking Down Pension Liability

First, we will define the liability. The pension liability is simply today's values, or the "present value," of all the future benefit payments projected to be paid by the plan to participants over the life of the plan.

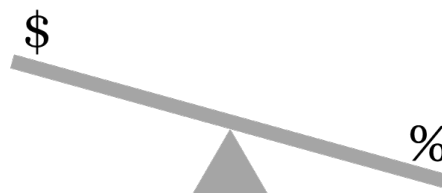
Let us start with a basic example: the present value of one single payment of \$10,000 that will be received one year from today. The \$10,000 received in one year must be "discounted" to today to adjust for the fact that money received today can be invested, earning a rate of interest in the meantime. In our example, assume the money today could earn 5% over the next year. Therefore, the value of \$10,000 received one year from now is about \$9,520 today.

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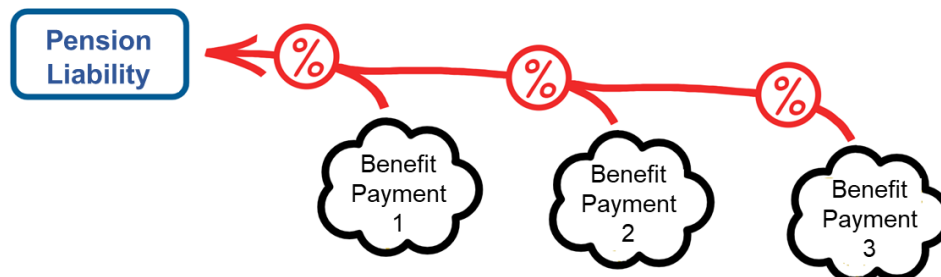
For illustrative purposes only.

Now, if the interest rate is lower than 5%, say 2.5%, the present value of \$10,000 received one year from today increases. Since your investment return is assumed to be lower than in the first example, you need more dollars today to grow to the same \$10,000 in one year from now. At a 2.5% interest rate, the present value of \$10,000 payable in one year is approximately \$9,750, an increase of over \$230. Notice this important relationship — as interest rates decrease, the present value/liability increases and vice versa.



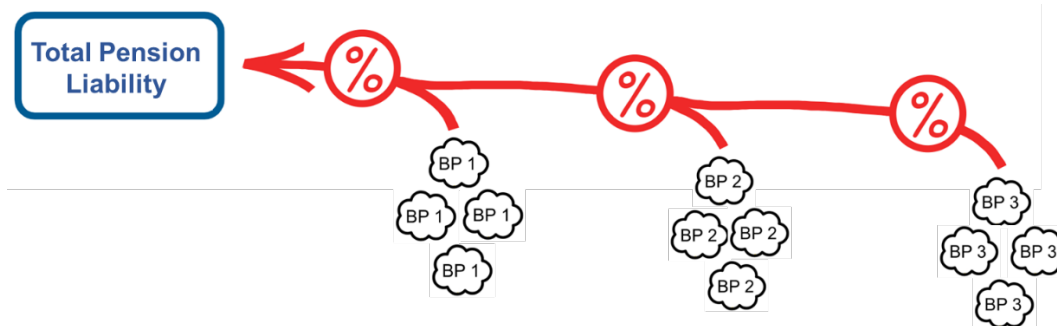
Next let us extrapolate this simple present value calculation into a lifetime of benefit payments, not just one payment received next year. Each participant in a pension plan is expected to receive his or her benefits for a number of years based mainly on the specific plan provisions and mortality expectations.

The present value of all these future benefit payments for this one participant represents the pension liability for this individual.



To calculate the total pension liabilities, the future annual benefit payments for every participant for every year of the plan’s lifetime must be aggregated. These aggregated future benefit payments are then discounted to today following the same method as the present value approach outlined above for one individual. The

present value of all these aggregate future benefit payments results in the total liability of the pension plan today.



Armed with the schedule of the plan’s aggregate future benefit payments, the impact of a changing interest rate environment can be easily assessed and analyzed.

The Collision of Art and Science

Now that you have a better understanding of pension liabilities, your next question may be “*So how are the future benefit payments calculated?*” This is where actuarial art and science collide.

For retirees, the future benefit payments are relatively straight forward. Since these participants are already receiving their benefits, the only unknown is how long each retiree’s benefit will continue, which depends on the type of benefit they elected and their life expectancy based on actuarial models.

For participants not yet receiving their benefits, there are many more unknowns related to their future benefit payments. Not only do we not know how long each participants’ benefit payments will continue once they commence their benefits, we also do not know when they will decide to start collecting their benefit and the form in which they will elect to receive their benefit. For plans that are not frozen, the amount of future benefit accruals is another unknown piece of the puzzle.

To estimate future benefit payments from the plan, the actuary must make assumptions regarding all of these ‘unknowns. Many of the unknowns require the actuary to use their expertise to select appropriate assumptions; however, other assumptions are prescribed by the various regulatory bodies that oversee defined benefit plans (i.e., IRS, PBGC, FASB).

Unfortunately for Plan Sponsors, regulatory bodies have not established consistency across their prescribed assumptions. As a result, various future benefit payment streams for the same plan are generated based on each regulator’s assumption requirements, which generates different liability measures.

While each liability measure is used to determine a specific plan requirement, it certainly adds confusion for the Plan Sponsor.

When thinking about which liability measure a Plan Sponsor should focus on, the short answer is that it depends. For the purpose of evaluating Liability Driven Investment strategies, we suggest looking at the measure that most accurately captures the economic value of the pension plan which tends to align best with the Financial Accounting Standards Board's (FASB) requirements.

For more help demystifying your pension plan or with constructing or evaluating the plan's investment strategy, please reach out to any of the professionals on the Fiducient Advisors defined benefit team.

About the Author



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Kate services institutional clients by providing advice and counsel on all areas of fund oversight including investment policy development, asset allocation, manager research, portfolio structure, rebalancing and performance monitoring. She has significant experience developing and overseeing liability-driven investment strategies, strategic asset allocation, spending policies and plan design considerations. Kate co-leads the firm's Defined Benefit Business Councils for both corporate and municipal plans and is a member of the firm's Investment Committee. She joined Fiduciary Investment Advisors, LLC in 2018, which combined with Fiducient Advisors in 2020. Prior to joining the firm, she was a Managing Director in Hooker & Holcombe's investment advisory group and also served as a Senior Investment Strategist and fixed income portfolio manager for Prime Advisors, Inc. Kate received her BA from Boston University and is a CFA® charterholder. She is also a credentialed actuary experienced in pension valuations. Kate is a member of the CFA Institute, an Associate of the Society of Actuaries, a member of the American Academy of Actuaries, a board member of the CFA Society Hartford and volunteers for Junior Achievement. She enjoys bedtime chats with her daughters, taking advantage of the outdoors (skiing, kayaking, hiking, biking), and playing the piano.