Credit FAQ:

Looking Forward: The Application Of The Discount Rate In Funding U.S. Government Pensions

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*(**Editor's Note:** This commentary applies to state and local government pensions within U.S. Public Finance and is not intended to describe or represent S&P Global Ratings' methodology for analyzing pensions in other sectors.)*

Public pension system costs can have a significant impact on U.S. governments' credit quality. However, the magnitude of these costs can be quantified in different ways. These differences can lead to market confusion and potential misunderstanding that stalls constructive public dialogue on addressing rising unfunded pension liabilities. For example, size estimates of U.S. public pension systems' unfunded liabilities vary widely from as low as $1.9 trillion to as high as $8 trillion. This wide gap presents challenges in properly evaluating the future risks and financial burdens states, cities and other municipal entities may face as a result of underfunded pension plans.

S&P Global Ratings believes a cornerstone for constructive municipal market discussion on pension liabilities is to determine the most relevant and practical use of the discount rate. The discount rate is the value used to discount future cash flows or benefit payments back to their present value. It typically is the most influential factor used in measuring pension liabilities, but there are different methods in arriving at a pension plan's discount rate based on different applications.

In this Credit FAQ, we discuss the two primary approaches used to determine a discount rate. We also discuss our view on the preferred use and treatment of the discount rate on public pension plan funding and how that ultimately factors into our assessment of municipal entities overall creditworthiness. In addition, we further clarify our approach in evaluating discount rates and why we believe that using a more forward-looking methodology provides us with a better view of credit risks.

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Key Takeaways

- Unfunded pension liabilities are an important credit factor that are heavily influenced by the discount rate, which can be applied in different ways.
- Having a forward-looking view enhances our analysis and enables us to evaluate the funding strategies and budgetary ramifications pension plans could have on each government over time.
- In our view, the expected cost methodology to measure government pension liabilities effectively weighs the immediate balance of assets and liabilities and also evaluates the trajectory of pension costs going forward.
- We avoid broad sweeping changes to reported liability measurements, which can lead to an unintended obfuscation of risk factors and negatively affect credit analysis.
- We assess credit-specific demographics, funding discipline, and additional elements such as legal or regulatory factors within our ratings process.

Frequently Asked Questions

What is the expected cost approach to establishing a discount rate and measuring public pension liabilities?

The expected cost (or level cost) approach is a forward-looking methodology that anticipates growth in both earned benefits and assets over time and is designed to measure funding progress over the long term. U.S. public pension plans currently use this approach for funding. Pension liability under this method is defined as the amount of assets needed today to be expected, based on the assets' long-term expected rate of return, to fund future benefit payments that have already been accrued. Therefore, liability tracks the amount of pension plan assets needed today to pay benefits when they come due. If a plan is not on track, contributions into the plan must increase in order to secure the promised benefits. At its core, this methodology is designed to evaluate a government's current and ongoing required costs to adequately fund its pension benefits. The liability measured under the Governmental Accounting Standards Board (GASB) for financial reporting also uses the expected cost basis. GASB Statement 68 states "the amounts that are projected to be provided by pension plan investment earnings represent a reduction in the employer's expected sacrifice of resources to satisfy the obligation for pensions." Put another way, contributions and the return generated from investing them can both be anticipated to be used to pay future benefits.

Expected cost is a forward-looking methodology that is designed to measure funding progress over the long term.

What is the financial economics approach to establishing a discount rate and measuring government pension liabilities?

The application of financial economics (FE) to public pensions has also been used to set discount rates and measure liability, but in a fundamentally different way than the expected cost approach. At its core, FE as applied to government pensions attempts to approximate the value of the benefit obligations to an independent third party in the market through the tenets of market pricing of corporations made popular by the Modigliani and Miller Theorem (see sidebar). Therefore, liability is ideally defined as the fair amount to pay an individual or entity in the market in order for them to agree to cover the pension obligations. To determine the present value of obligations in this context, the future cash flows are discounted according to the earning potential of market instruments that best match the pension payouts in terms of duration and certainty, regardless of

The Financial Economics methodology is not forward-looking but rather a point-in-time estimate.

how plan assets are invested. Practically, this is not fully feasible, especially with the growth in risk sharing and variable benefit features for public plans, but the closest approximations tend to create a discount rate that falls into a category that we call a near risk free rate. The simple argument indicates that because pension benefit payments are relatively fixed and dependable in aggregate, market instruments that best replicate those payouts should also be relatively fixed and dependable (and therefore, nearly risk free), especially from a default risk perspective. This liability measurement is often known as a settlement measure of liability because it approximates the value an insurance company or other party might require to wind up the pension plan. This methodology is not forward-looking but rather a point-in-time estimate essentially presupposing that a transfer of responsibility for the pension obligations to an independent market participant is freely possible.

What approach does S&P Global Ratings believe best aligns with evaluating pension pressures that affect government credit quality?

In our view, underfunded public pensions can pose a credit risk in terms of potential near-term and long-term cost pressures for a government. In the extreme, unfunded pension liabilities can threaten a government's finances and ability to fulfill debt obligations in full and on time. Therefore, we believe the expected cost approach to the discount rate and calculated liability better reflects the anticipated cost to a government on an ongoing basis, and can demonstrate how such costs could change based on risks taken, market experience, and other significant factors. Examining the discount rate in this context allows us to evaluate how appropriate or risky the discount rate might be, and allows us to understand the practical implications to budgets when unraveling the credit story. The FE methodology of approximating the intrinsic value of the benefit payments to an outside and independent third party at a specific point in time fails to provide the information necessary to understand actual cost implications to governments over time. In contrast to corporations addressed by the Modigliani and Miller theorem, a government cannot easily or efficiently be bought out, merged, transferred, or changed by other methods, and its primary stakeholders--the residents--are relatively intransient, leaving the assumptions required to apply FE and treat a government pension plan akin to a corporation difficult to justify. Furthermore, the FE approach inherently assumes the free transfer of benefit obligations from one party to the next (this is necessary for market pricing to function as intended), which relates to why it is often called a settlement valuation. For many state and local governments this is essentially impossible, with bankruptcy as the only remote possibility to enable that transfer. However, our analysis evaluates the events and pressures that could cause credit deterioration for a government, not assume a settlement value within our analysis.

We believe the expected cost approach better reflects the anticipated cost to a government on an ongoing basis.

Corporate plans in the U.S. use a form of FE methodology in measuring liabilities. Why is it appropriate there but not in public plans?

Historically, both corporate and public plans were evaluated on an expected cost basis--using a forward-looking approach of anticipating both liability growth and asset growth over time to manage costs over time. Around the turn of the century, corporations altered their approach based on two primary factors. First, corporations aim to enhance their value to their shareholders, resulting in a need to value all of the corporation's components according to a market price as much as possible. Second, corporations have more avenues for changing hands or dissolving, including but not limited to buyouts, mergers, and bankruptcy, all of which require some immediate assessment of market price. In recognition of these market factors, one of the provisions of the 2006 Pension Protection Act solidified the focus of liability evaluation for their

funding target on a point-in-time estimate based on FE principles. As a result, liabilities are primarily valued without anticipation of growth, typically using what is called a traditional unit credit cost methodology, and asset growth is measured by a yield curve annually updated by the U.S. Treasury and meant to represent high quality corporate bonds. While this may be appropriate given the structure and financial environment of a corporation, we again note that public entities are not market based and cannot be easily or efficiently bought out, merged, transferred, or changed by other methods, and their primary stakeholders are relatively intransient, all of which distinguishes them from corporations and the need to develop some form of total market price.

Today, public plans use a forward-looking evaluation involving projected growth in both assets and benefits, and corporations use an estimate based on static benefits and near risk-free rates. To adequately anticipate changing costs and pressures to a government's budget, it is advantageous to use a forward-looking view whenever possible. This enhances our analysis and enables us to evaluate the assumptions, funding discipline, and strategies that go into funding a pension plan and what budgetary ramifications they could have for each government over time.

Does S&P Global Ratings use a corporate or FE-like discount rate to adjust reported government liabilities?

Note that taking reported government liabilities, which project benefit growth of each member forward into retirement, and applying an FE-like discount rate to adjust those liabilities, does not fall in the expected cost or the FE methodology--it produces a number without basis. Recall that the expected cost method projects growth in both assets and benefits, while the FE position projects neither and is a point-in-time estimate. Therefore, taking the government's pension valuation, which projects benefit growth forward (primarily through salary growth), and applying a corporate-like discount rate to it (which is separated from anticipated asset growth), mixes apples and oranges into one calculation. This would artificially inflate the liability of government plans much higher than we would even see in a comparable corporate plan. S&P Global Ratings does not adjust reported government liabilities using an FE-based discount rate but rather evaluates the appropriateness and inherent risk factors of the actual discount rate used consistent with the expected cost approach.

We evaluate the appropriateness and inherent risk factors of the actual discount rate used.

Why does S&P Global Ratings not adjust reported liability using a single uniform discount rate?

In our view, plan assumptions should be appropriate for the plan's funding scheme, demographics, and other unique characteristics. The following are examples of individual plan factors that could result in varied capacity to withstand or capitalize on volatile assets and therefore are integral to our holistic credit evaluation.

Demographics. Plans that are closed no longer allow new entrants to join and have a limited time until all participants are receiving annuities. These plans will have a retiree-to-active ratio that accelerates over time. Variability in investment returns leads to larger contribution swings in mature plans, which, when compared with less mature plans, have more assets banked up relative to the payroll of their working population. To minimize intergenerational inequity and funding volatility--to which closed plans are more vulnerable--the portfolio will need to shift assets away from the high return-generating category over time and eventually eliminate most or all market risk. As the asset allocation shifts, the discount rate should decline in step to approach a rate that reflects minimal market risk. Plans that are open to new entrants and have an older

population and/or higher retiree-to-active ratio should monitor their investment risk appetite as well, although the asset allocation adjustments may not need to change as rapidly over time as in closed plans. Conversely, a new (or young) plan with only contributions coming in and no benefits being paid out could have a longer investment horizon and an appropriate appetite for more investment risk.

Funding discipline. There should be a stark difference in discount rates between prefunding plans and plans that pay benefits as they come due (pay-as-you-go). Pay-as-you-go plans have no assets and certainly cannot anticipate asset growth, whereas funded plans have assets that can grow and should be managed and assessed accordingly. In general, the better funded a plan is, and will continue to be, the more asset base it will have to generate returns and support the discount rate.

Other environmental factors. A variety of other factors could lead to different investment risk appetites and discount rates for pension plans. Legal, regulatory, or political flexibility in adjusting benefits affects their certainty and stability in different states and could influence funding strategies. Benefit features that are tied to a plan's investment return, such as some employee contribution rates or cost-of-living adjustments, should play a role in balancing risk and return. Support or financial backing from an outside entity could also affect the strategy used to fund plans.

We believe that each public pension plan and its participants has unique characteristics that might call for a divergence of particular assumptions and methods, including an appropriate asset allocation and prudent discount rate. Although we recognize current discount rates used by the majority of state and local plans still remain relatively optimistic at an average of 7.35% based on NASRA's February 2018 report "NASRA Issue Brief: Public Pension Plan Investment Return Assumptions", adjusting all plans in one broad stroke to a single discount rate (near risk free or other) eliminates vital information central to our analysis and establishes a false sense of comparability among plans that are not necessarily similar.

We tailor our credit analysis to highlight the risk factors in plan assumptions and anticipate the resulting cost trajectory. This enables our evaluation to be specific and relevant to each government and the retirement plans in which it participates.

Modigliani And Miller Theorem

The value of a corporation is independent of its capital structure, assuming no effects from second order factors such as taxes, information asymmetry, and transaction costs. This means that there is no inherent value gained by a corporation from adjusting investment allocations between stocks and bonds.

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