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Sustainability for Defined Benefit Pension Plans

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"What gets measured gets done."

When people are looking to make a judgment regarding the "health" or long-term "sustainability" of a defined benefit (DB) pension plan, the plan's funded ratio is commonly the first (and sometimes the only) thing that is quoted. As generally known, a plan's funded ratio is determined by dividing the plan's value of assets by the plan's accrued liability (assets divided by liabilities). A funded ratio of 80% or higher is typically considered "good." However, practitioners know in the real world there are "healthy" plans that have funded ratios less than 80% and "unhealthy" plans that have funded ratios in excess of 80%.

When the Pension Protection Act of 2006 (PPA) was adopted for private sector plans, it reinforced the belief that an 80% funded ratio was the golden metric. Above 80% funded, the pension plan is doing great. However, a plan that is 79.9% funded has significant consequences. Never mind if the plan sponsor had skipped the last four contribution cycles, or if the funded ratio was 50% in the previous five years, and thus the "health" is improving quite quickly. Context introduces complication, and it is challenging to write good headlines with complicated concepts.

While a plan's funded ratio may be a significant measure of a plan's condition, it only tells part of the story and may, indeed, be a misleading single point in time measurement. This misconception also has been discussed in various articles, including "The 80-percent threshold: Its source as a healthy or minimum funding level for public pension plans" written by Keith Brainard and Paul Zorn (2012)[1] and "The 80% Pension Funding Myth" prepared by the American Academy of Actuaries (2014).[2]

Determining "success" or "health" may require more than one metric. For example, in determining "healthy," a health care provider would not determine an individual's entire overall health based merely upon a cholesterol level, but instead a physician would likely incorporate multiple metrics, trends in the metrics, as well as professional judgment. Similarly, a pension plan's actuary and the plan's decision makers should be using a much broader scope when assessing the health of a DB plan.

This article will provide an overall definition of sustainability and introduce a more qualitative tool that can be used in discussions of sustainability or qualitative discussions of risk.

What is Sustainability?

Sustainability is a complex concept. DB plans create promises of future benefit payments that are only secure if they are sustainable. Regarding funding for pension

[1] Keith Brainard is the Research Director at the National Association of State Retirement Administrators (NASRA) and Paul Zorn was the Director of Governmental Research at GRS until his retirement in March 2016. https://www.nasra.org/files/Topical%20Reports/Funding%20Policies/80_percent_funding_threshold.pdf

[2] https://www.actuary.org/files/Pension%20Funding.pdf

plans, a sustainable plan can be defined as a plan that can reasonably be expected to provide retirement benefits indefinitely. Practitioners are often asked, "Is this plan sustainable?" In this context, the questioner is essentially asking, "Can this plan continue in its current format for a long time period?"

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If it can be assumed that the plan sponsors can meet any obligation put before them, then the solution becomes trivial. However, many sponsors are already struggling to meet obligations over the short term and are clearly at risk of falling short of the goal. In addition, a plan that seems to be sustainable today may only appear so based on previous experience that may not be expected to continue.

Accordingly, any analysis of sustainability likely needs to examine current metrics as well as projected future metrics and possible outcomes to ensure that the plan is expected to remain "sustainable" over the longer term.

What are the Criteria for Sustainability?

AN OPTIMAL RETIREMENT PROGRAM IS ONE IN WHICH:

1. Participants can dependably retire with appropriate benefits at reasonable retirement ages;
2. Human capital goals of the plan sponsor are continuing to be met;
3. All generations of members receive their expected retirement benefits;
4. All generations of members receive the same value of benefits, regardless of the economic and interest rate environment they live in;
5. All generations of taxpayers make similar contributions to fund the program, in real terms or as a percentage of an ongoing budget (often referred to as "intergenerational equity"); and
6. Efficiency is optimized to minimize the amount of contributions needed to provide the benefits while balancing risk across generations.

This entire list for an optimal retirement program may seem somewhat overwhelming since it is truly an ideal that may be impossible to achieve given the status of some DB plans today. However, by persistently and dynamically approaching this ideal, the process can result in a sustainable DB plan.

In order to assess sustainability, an observer should attempt to ascertain whether or not the plan is moving toward or away from this ideal. Or perhaps more applicably, is the current combination of situation, environment (political, economic, or otherwise), asset levels, benefit provisions, demographics, governance policies, and funding procedures likely to move the plan toward the ideal or away from it?

While the authors believe that a strong governance structure is crucial to creating and maintaining a sustainable plan, some of this discussion is outside the scope of this article. We will be focusing mostly on the funding policy and economic impacts, namely, appropriate cost allocation. For example, a critical factor in assessing the sustainability of a DB plan is the comparison of the size of the plan to the revenue that supports it. For large plans with larger budgets and resources, quantitative analysis can help educate stakeholders and measure future possible outcomes. Quantitative analysis includes scenario or stress testing and may also include more robust stochastic modeling.

However, thorough quantitative analysis can be costly and time consuming to prepare. As an initial alternative, this article focuses on a much more basic, yet effective, qualitative assessment tool that can be used even for smaller plans, or as a tracking platform for larger plans, to provide a broader perspective for ensuring fiscally sustainable DB pension plans: ***A Sustainability Checklist.***

What is a Sustainability Checklist?

A Sustainability Checklist contains a list of metrics (which will likely vary from plan to plan) that can be used to assess the sustainability of a DB plan. Based on years of past experience modeling various situations and plans, a Sustainability Checklist can provide several useful metrics that have shown to have an impact on the outcomes of a

much more robust scenario or stress testing process. By working together with our clients in a collaborative effort, GRS' use of a Sustainability Checklist can be utilized as a tool to facilitate a discussion about a DB plan's overall sustainability and provide a comprehensive overview of potential sources of current and future risks to the plan.

Engaging in an in-person dialog about individual items on the checklist can help to reinforce effective policies as well as provide a framework for recommending modifications to current policies in an effort to create innovative solutions. To illustrate, we provided an example of using a Sustainability Checklist for a sample client on page 4.

The individual categories of a Sustainability Checklist score the plan in the areas of: 1) funding policy governance and adherence; 2) contribution volatility; 3) actuarial assumptions; 4) benefit policy; 5) investment policy and cash flow management; and 6) plan demographics. It utilizes a five-star rating system with five stars being the highest rating in a particular category.

Funding policy items are located at the top of the checklist since they are by far the most important. Without an appropriate and achievable funding policy, a DB plan with the best designed benefit, actuarial, and investment policies will ultimately fail. Therefore, the first items listed are based on the source of, adherence to, and goals of the funding policy.

The checklist may need additional modifications on a case-by-case basis specific to each plan. Although different practitioners may create their own checklists, which vary in length or content, most of these main items will likely remain. In the sample checklist, we provided comments on how this sample client achieved certain "grades" for each metric. The grades are not necessarily as important as the process of discussing the checklist items. The grades in the example are the authors' opinions and may certainly be graded differently by other practitioners.

There are several common metrics that have been excluded or de-emphasized in the checklist. The authors eliminated these for various reasons. In most cases, it is likely these metrics were previously discussed with the stakeholders elsewhere in the actuarial valuation report and/or the presentation of the actuarial valuation results to the stakeholders.

It is important to note that achieving a five-star result on each item on the checklist is certainly not required for the plan to be considered "sustainable" and, conversely, achieving high scores across the board is not a guarantee that a plan will remain sustainable in the long run. In fact, this type of result may suggest either excessive conservatism or a too "soft" scoring system. We would also caution attempting to use a total or even a weighted average as an overall "score" to be able to compare to other plans. A straight average would be inappropriate since not all metrics have equivalent impact and attempting to produce a weighted average would be difficult as the parameters would, at best, be subjective and, at worst, could be arbitrary and easily manipulated.

Therefore, it is important to clarify what a Sustainability Checklist is and what it is not. Essentially, a Sustainability Checklist is a means by which practitioners can engage stakeholders in a comprehensive discussion of the DB plan's overall sustainability. Moreover, it can offer a means for some basic stress testing of the plan. However, we would also caution against an overreliance on this basic tool; it is not the absolute and unchallenged measurement of a pension plan's overall "health." A Sustainability Checklist can merely provide a means to facilitate a discussion regarding the longer-term sustainability of a DB plan and may also be used to track progress over time through subsequent discussions.

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SUSTAINABILITY CHECKLIST — SAMPLE CLIENT

ITEM	ANSWER	RATING	SCORING CATEGORY
1. Is there a legally required contribution amount based on accepted actuarial practices?	Yes	*****	0 stars if contribution amounts are at the discretion of the plan sponsor
2. Does the employer contribution have automatic minimum adjustments when necessary?	Yes	*****	5 stars if "Yes" and actuarial valuations are performed annually
3. Has the plan sponsor demonstrated a 10-year history of meeting the required contribution?	Yes	*****	5 stars if plan sponsor has made all actuarially determined employer contributions
4. What is the current funded ratio?	84%	***	5 stars if 100%
5. Is the funded ratio higher than it was 10 years ago?	Yes	*****	
6. Based on current practices and assumptions, is the funded ratio expected to be higher 10 years from now?	Yes	*****	
7. Based on current practices and assumptions, is the unfunded liability expected to be lower 10 years from now?	Yes	*****	
8. What is the remaining amortization period for the current UAAL based on the current funding policy?	19 years	*****	1 star if 30 years, 3 stars if < 25 years and 5 stars if < 20 years
9. What is the amortization period for new experience losses, plan amendments, and assumption changes?	25 years	****	5 stars if 15-20 years
10. What is the sum of the amortization period and asset smoothing period?	35 years	**	5 stars if ≤ 25 years
11. Does the retirement board regularly review actuarial assumptions?	Every 4 years	****	5 stars if every 3 years or macro-economic every 2 years
12. What is the likelihood of meeting or exceeding the assumed annual rate of return over the duration of the liabilities based on actuarial analysis?	~ 50%	****	5 stars if > 55% confirmed by multiple sources
13. What is the annual percentage change in active population for the last 10 years?	+0.5%	****	1 star if negative growth, 3 stars if 0% and 5 stars if > 1%
14. What is the assumed rate of payroll (revenue) growth for amortization purposes?	2.75%	*****	5 stars if equal to the wage inflation assumption with a stable active population and supported by a historical 10-year average of past payroll growth
15. What is the amortization period for benefit enhancements?	25 years	***	3 stars if 25 years and 5 stars if 15 years or less for open plans
16. Are there any benefits that are likely to be paid, but not reflected in the liabilities and contributions? (i.e., ad hoc COLAs that occur regularly, but are not advanced funded; subsidized service purchases; or pay spiking patterns)	No	*****	
17. Are any of the liabilities contingent on future experience (meaning future liabilities will be lower if actual experience fails to meet the assumptions)? (i.e., contingent post-retirement benefit enhancements and cash balance interest credits based on actual market returns)	No	**	Determined on a case-by-case basis
18. What is the short-/intermediate-term negative cash flow as a % of assets?	1.00%	*****	5 stars if < 3.50%
19. What is the longer-term negative cash flow as a % of assets?	3.75%	****	5 stars if < 3.50%
20. What is the current active to retiree ratio?	1.8	*****	5 stars if > 1.7
21. What is the longer-term active to retiree ratio?	1.1	**	3 stars if > 1.4

Sample Analysis

On page 4, we have provided an example Sustainability Checklist to illustrate how the concepts could be used in practice to facilitate discussion. This sample DB plan's Sustainability Checklist demonstrates a plan that grades well in the following areas:

Legally required, actuarially determined contributions

As discussed previously, a sound funding policy is critical for creating a sustainable DB pension plan. A review of current DB plans across the country shows a direct correlation between the health of the plan, across several metrics, and the history of the plan sponsor making consistent contributions and adjustments to the amount, when necessary.

Closed amortization period for current Unfunded Actuarial Accrued Liability (UAAL) less than 20 years

Today, most DB plans have a significant portion of their contribution requirement going toward amortizing their current UAAL. Many papers and best practices have discussed the issues created by using long amortization periods, especially when combined with level percentage of payroll financing. When the periods are long, contribution levels are likely not large enough to cover the interest accruing on the UAAL. Therefore, the plan will be in a position of "negative amortization," meaning the nominal UAAL will actually increase from year-to-year. Most combinations of investment return and payroll growth assumptions will begin to move into "positive amortization" around the 20-year mark. Thus, having an amortization period at or below 20 years will allow the UAAL to decline year-over-year.

Closed amortization period for new gains and losses in the 20-25 year range

A funding policy has to be able to respond to new experience deviating from an expected outcome. In actuarial terms, this will create a "gain" or a "loss." The period utilized for this purpose, which may be different than the one used to amortize the current UAAL from any point in time, will heavily influence the level of contribution volatility. Shorter periods will create more volatility, while longer periods will create less volatility. However, as with most decisions, there is a tradeoff and a rule of diminishing utility. Similar to a home mortgage, a longer amortization period will require more overall contributions to pay the interest charges. In addition, every additional year increases most risk metrics approximately by the same amount, while the decrease in volatility generated by each additional year gets smaller and smaller. Finally, a longer period exposes the plan to a higher probability of another loss occurring before the first one is fully amortized, potentially causing a stacking of losses and even higher contributions. The setting of this period should attempt to strike a balance between all of these considerations.

Reasonable payroll (revenue) growth assumptions

If the UAAL is being amortized using level percentage of payroll financing, the payroll growth assumption is used to determine the annual rate of increase in the underlying payroll. A higher assumption will anticipate much more payroll to collect future contributions and, thus, result in a smaller contribution amount today. However, this same higher assumption may create a larger potential gap between the assumption and the actual experience, especially if the active population contracts. In the sample checklist, an annual payroll growth rate assumption of 2.75% appears to be supported not only by forward looking assumptions, but also by the actual payroll growth over the last 10 years. In addition, the actual robust population growth over the last decade has been positive, and looks to be continuing unabated. However, it will still be prudent to show some sensitivity to this assumption to decision makers to ensure they understand the possible ramifications if this level of growth is not actually realized.

In addition, there are a few categories that could be items for further consideration including:

Current funding policy recalculates a contribution requirement annually

Consequently, by design, the current funding policy creates annual contribution rate volatility since the contribution rate (as a percentage of payroll) is recalculated each year based on that year's specific experience. Contribution volatility itself is a considerable risk factor for creating a sustainable DB plan. A short period of good experience which pushes the contribution rate down will typically be followed by a period of poor experience which will bring contribution rates back up and vice versa. In our experience, a period of increasing contribution rates, even at nominal levels, may cause friction. There are various policies for proactively managing this issue, the most effective of which would "hold the contribution rate" at the originally higher amount during periods of positive experience, anticipating potential future adverse experience may later occur. This type of rate stabilization discipline can have a profound impact on the ability of a plan to sustain itself over the longer term.

Current assumption policy places a macro-economic assumptions review between the regularly scheduled experience studies so that the inflation, wage inflation, and investment return assumptions are reviewed at least every two years

This sample plan has a regularly scheduled review of all assumptions every four years, which is consistent with current best practices. However, as increased scrutiny is placed on public sector pension plans, it has become preferable to review the macro-economic assumptions even more often. A pattern of assessing all actuarial assumptions every four years, with a macro-economic review every two years, allows for more defendable assumptions and for more frequent, smaller adjustments, if necessary.

Current policy for funding benefit enhancements extends beyond the average working career of active members

Benefit enhancements that increase the value of a member's retirement benefit for a year worked in the past will create a new UAAL, or a "loss." If the amortization schedule for this newly established liability is for a period longer than the future working career of the active employee, it may become difficult to support this extended amortization policy in the spirit of intergenerational equity.

Conclusion

This particular sample DB plan grades very well on the checklist. While there may be a few current policies that could be improved (as there always will be), most of the salient categories are effectively being managed; namely, a legally required funding policy that will adjust to adverse experience, an investment return assumption that is defensible to the median outcome by multiple sources, reasonable payroll (revenue) growth assumptions, and manageable cash flows. As previously discussed, contribution volatility may well become an issue as this plan continues to mature. We would recommend continuing to monitor the prospective 10-year outlooks, possibly implementing an enhanced rate stabilization funding strategy to manage any anticipated increased volatility in the future. Finally, a regular and thorough discussion of sustainability, along with robust financial measurement of all of the checklist metrics, should continue to occur at least annually.

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About GRS

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