

# HOW TO REDUCE CONTRIBUTION VOLATILITY IN YOUR PENSION PLAN

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Employers are shying away from defined benefit (DB) pension plans because of volatility in the required contributions. Volatility can be managed provided care is taken in establishing an integrated investment, actuarial assumption and contribution policy.

A DB pension plan that pays meaningful retirement benefits provides valuable retirement income to its participants. However, such a plan also creates challenges for the plan sponsor, who must manage contribution volatility. Through understanding of investment returns, proper selection of the actuarial assumptions and a prudent contribution policy, funding volatility can be managed and a mutually beneficial situation created for both the plan sponsor and the plan participants. This can be accomplished through the leadership of the retirement committee, who has the responsibility to carefully balance the needs of the plan sponsor and the plan participants.

*Note: The contribution policy discussed in this paper is applicable to both public and private sector pension plans. For plans subject to PPA '06, the discussion in this paper can be used to set contribution policy within the contribution range set by PPA '06.*

## INTRODUCTION

In a DB pension plan, a participant's pension benefit at normal retirement age is defined ahead of time and calculated annually for actuarial valuation purposes. A DB plan thus provides an employee with a basic foundation upon which to plan for retirement. In addition, most DB plans pay benefits over the participant's lifetime. This effectively removes the possibility of a participant outliving their retirement savings.

Unlike a typical defined contribution (DC) plan such as a 401(k) or 457 plan, the participant does not have to worry about the investment returns of DB plan assets. The retirement committee has the fiduciary responsibility to prudently invest the plan assets.

A common DB plan benefit formula is  $y\% \times \text{YOS} \times \text{FAE}$ , where  $y$  is a fixed percentage normally in the range from 1 to 2.5%, YOS is total years of service, and FAE is final average earnings. For companies in the private sector  $y$  is usually at the lower end of the range, whereas  $y$  is 1.5 to 2.5% for public sector organizations.

Employers who offer a DB plan have a competitive advantage in attracting and keeping long term employees.

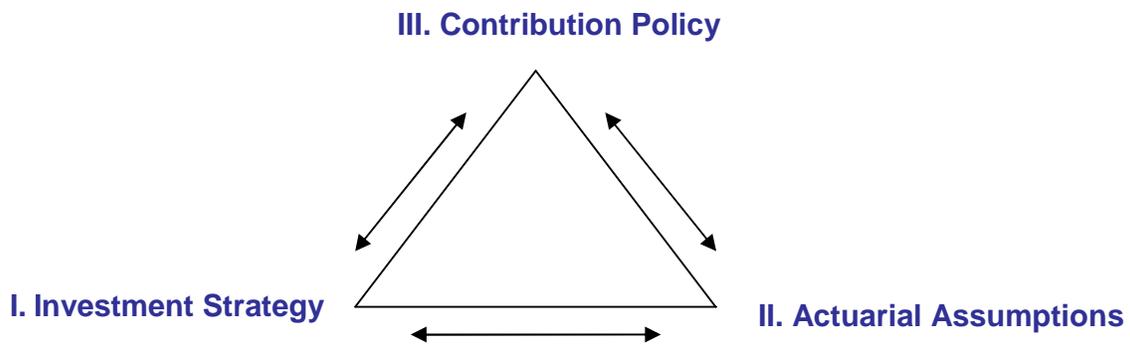
## WAYS TO REDUCE CONTRIBUTION VOLATILITY

A comprehensive approach to manage contribution volatility begins with education at the plan sponsor level. The sponsor should understand that they are ultimately responsible for any funding shortfall. Furthermore, the sponsor should enact prudent procedures for creation and upkeep of a retirement committee, to which are delegated general plan management responsibilities. The retirement committee should be educated on the

potential sources of volatility in the plan and how to manage each source with concern for the big picture.

The potential sources of volatility for a DB plan are investment returns, selection of the appropriate set of actuarial assumptions, and the creation of a realistic contribution policy.

Since these three items are related, the retirement committee should pursue an integrated approach. This requires the retirement committee first to understand the intricacies of these three key aspects, and subsequently to hire the right investment advisor and actuary to help accomplish the task at hand. It is important for the retirement committee to discuss their goals with the consultants and keep their minds open to the consultants' suggestions.



### I. Investment Strategy

Investing pension assets is a very different process from investing personal wealth. Whereas, in personal investment, and within the realm of legal practice there are no limitations, pension asset investment comes with fiduciary responsibility. Upon signature of a trust document, the plan sponsor agrees to enact a policy of prudent investment and rightfully so: many employees are relying on the plan assets for their retirement. PensionAssets proposes setting an investment policy based on a proven set of principles:

- **Markets work.** Capital markets do a good job of fairly pricing all available information and investor expectations about publicly traded securities.
- **Diversification is key.** Comprehensive, global asset allocation can neutralize the risks specific to individual securities.
- **Risk and return are related.** The compensation for taking on increased levels of risk is the potential to earn greater returns.
- **Portfolio structure explains performance.** The asset classes that comprise a portfolio and the risk levels of those asset classes are responsible for most of the variability of portfolio returns.

For the big picture: investment strategy should be based on an understanding of risk and reward to achieve a proper balance between the two.

PensionAssets turn to financial science of capital markets to define the relationship between risk and reward. Specifically, there are three dimensions of risk: (1) equity vs. fixed Income, (2) value vs. growth and (3) small vs. large. In all three cases, the argument simplifies to higher risk, higher return vs. lower risk, lower return, respectively. Plan sponsors should direct the investment advisor to take risks up to a defined comfort zone, with focus directed on the three dimensions of risk.

Studies have shown it is very difficult for active managers to consistently produce investment returns in excess of market returns. In addition active managers incur higher costs, thus reducing net investment return.

There are a few exceptions to active management like Warren Buffett, who is not only a successful, prudent investor, but also an exceptional business man. That having been said, Buffett's model is better suited for investing personal wealth than pension funds because of its portfolio's volatility.

A well-structured, balanced, and globally diversified portfolio of passively managed core asset classes, which are modeled to allow exploitation of the three dimensions of risk, allows a plan sponsor to capture the market returns without taking unnecessary risks. Index funds, by nature, have lower expense ratios as well. Decreased cost directly increases net investment return.

### **Putting the Investment Policy Together**

It is important to have an explicit written investment policy statement prior to investing. The policy statement should be referred to when reviewing the investment performance on a quarterly basis.

Formulating investment policy for a pension fund that backs pension obligation requires careful analysis of the total plan benefit obligations. Furthermore, adherence to an investment policy statement will keep the focus on financing the benefit obligation. The policy statement needs to reflect the plan's objectives, constraints, preferences, and market expectations.

Benefit obligations are divided into three categories: short-, intermediate- and long-term. The first step is to determine the amount of fixed income investments to cover the short and intermediate benefit obligations based on risk preference. This provides an indication of the ratio of bonds to equity to be held. The next step is to select the right asset mix to achieve a globally diversified portfolio.

The portfolio should match the financial characteristics of the plan's benefit obligations. The investment policy statement should include quarterly performance review, and rebalancing. The investment policy statement should be reviewed periodically for any significant changes in the benefit obligations.

### **Common Mistakes when Formulating an Investment Policy Statement**

- Take risks that don't reward;
- Formulate an investment policy without taking into account the plan's benefit obligations;
- Too much leeway in the investment policy statement to allow investment advisors to take unnecessary risks.

## II. Actuarial Assumptions & Funding Method

In calculating the pension plan's benefit obligation, an actuary would first calculate a stream of expected benefit payments for each employee. The second step is to determine the present value of these payment streams using the selected actuarial assumptions. Also, this process involves incorporating the selected actuarial funding method.

The key actuarial assumptions that affect the value of a plan's benefit obligation are interest rate assumption, salary increase assumption, turnover and retirement rates and mortality rates table.

Actuarial assumptions are needed in order to calculate the plan's liability and the normal cost each year. These two key numbers are used to calculate the annual contribution. Because we do not know what will actually happen in the future, we encourage plan sponsors and actuaries to select each assumption carefully (*or conservatively or reasonably*) to provide a margin of safety.

The funding method is used to allocate total plan liability due to past service and future service. Without getting into too many details, Entry Age Normal (EAN) is appropriate in most cases for large pension plans. This funding method provides a margin of safety in determining plan contribution.

### Interest Rate Assumption

This is usually the most important assumption. The interest rate assumption is used to value the benefit obligation in today's present value. For example, a one-time \$100 benefit payable 30 years from now is worth \$11.42 today, based on an interest rate assumption of 7.5%. In other words, if we have \$11.42 today, and if we know it can earn 7.5% investment earnings per year, we will have an accumulated value of \$100 in thirty years.

The interest rate assumption is based on the expected return, as developed in the investment strategy, and other market factors.

For example, if the expected return of investment portfolio put together is 8.35%, then an appropriate interest rate assumption is 7.5%. We recommend a margin of safety of 50 - 100 basis points. Other factors we take into considerations are what were the past investment returns, and what other investment experts are saying and their justifications.

### Common Mistakes

- Set the investment policy based on the actuarial assumption, it should be the other way around;
- No provision for a margin of safety.

### The other Actuarial Assumptions

The second most important assumption if the plan's benefit formula is based on final average earnings is the salary increase assumption. Again, this assumption needs to reflect the best estimate of future salary increases with a margin of safety.

The remaining key assumptions are also important and should be selected to closely reflect the best estimates of future trends.

### III. Contribution Policy

The final step in reducing volatility in contributions is to carefully develop a good long-term contribution policy.

In general, the annual contribution is the normal cost, plus an amortization of the unfunded liability. Normal cost is the cost of funding the benefit earned by the active participants in a given year. If the plan has unfunded liability, then there will be an amortization payment to pay off this unfunded amount in a certain number of years. Some funding methods combine the amortization payment into the normal cost calculation. The first step is to determine the contribution range for the year.

In a plan that utilizes the EAN funding method, the minimum is usually the normal cost plus a 30-year amortization of the unfunded liability. The maximum is the normal cost plus a shorter amortization of the same liability.

A good contribution policy is to establish a conservative contribution level that will not only pay off the unfunded liability in less than 30 years, but will also maintain the same contribution level even when actual experience is worse than assumed for most years. For example, an organization has 1,000 active employees (for simplicity, let us assume that none are retirees or terminated with vested benefits) with \$50M in payroll. Let us assume the interest rate is 7.5%, the normal cost is \$5M, the plan liability is \$100M, and the plan assets, \$80M and that the unfunded liability is \$20M. The 30-year amortization payment of the unfunded liability is \$1,693,423.

The minimum contribution is calculated as follows:

Normal cost:	\$5,000,000
30-Year Amortization payment:	1,693,423
Total:	\$6,693,423
Percent of payroll:	13.4%

The maximum contribution is calculated as follows:

Normal cost:	\$5,000,000
10-year amortization payment:	2,913,719
Total:	\$7,913,709
Percent of payroll:	15.8%

In this scenario, we would recommend the client contribute \$7.5M or 15% of payroll. This contribution policy should suffice for a few years, barring extreme or unforeseen circumstances like the current economic crisis.

#### Common Mistakes

- Most investment advisors are too eager to earn business and will agree with the plan sponsor's request to achieve an arbitrary target of investment return;
- Many actuaries are afraid to challenge clients when the assumptions used are not realistic;
- No margin of safety is built into each level.

### CONCLUSION

The plan sponsor is ultimately responsible for any shortfall in the future whether consultants are there to help or not. It is the ultimate responsibility of the retirement

committee to evaluate carefully the three areas discussed above if you want to successfully create win-win situations for the employer and employees involved.

*In order to keep the paper concise, we have simplified many of the factors discussed above. You are welcome to contact us for more information.*