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RISK MANAGEMENT PROPER MANAGEMENT OF DEFINED BENEFIT PLAN ASSETS & LIABILITIES

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Risk is a necessary part of investing. Investors are rewarded over long periods of time by placing their assets at risk, “investing” in a stock, bond, or ideally, a pool of stocks and bonds. In exchange for the use of the assets, and the risk that they will not be returned, investors demand a return that is at a premium to risk-free investments such as T-Bills backed by the full faith and credit of the U.S. government.

Defined benefit plans provide a guarantee of a determined future value to participants based on any of a number of factors, ranging from years of service to hours worked or income earned. By guaranteeing those benefits at retirement, based on a current pool of assets, the sponsoring organization or business accepts the investment risk (and reward opportunity) associated with the pool of assets. This risk, and the current uncertainty related to necessary future contributions to the plan by the sponsor, has been one of the primary forces driving sponsors from defined benefit plans to defined contribution plans, where investment risks are borne by the participant.

Sponsors of defined benefit plans have often not been well-served by their service providers, who seem to work independently in providing distinct and separate elements of service to the plan. An actuary annually reviews the value of trust assets, changes in the demographics of the organization, and changes in capital market assumptions to evaluate the current funding status of the plan. Administrators provide day-to-day service to participants related to benefit payments and tax filings for the trust. Investment managers invest the assets. Trustees custody the assets and make benefit payments and provide participant tax reporting.

For their part, brokers, investment consultants, and others have extended to the defined benefit marketplace a promise of enhanced returns and reporting for sponsors. These entities provide services ranging from asset manager selection through to individual stock selection, all in hopes of providing returns in excess of general market returns. The failure of investment consultants and

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brokers to understand the liability characteristics inherent in defined benefit pension plans greatly increases the volatility of the funding required from the employer on an annual basis.

For the purpose of this paper, we will address the two key market risks for defined benefit plans:

Contribution risk – This is the risk that the assets in the portfolio will underperform the return required to fund the pension liabilities for its participants, causing the sponsor of the pension plan to have to contribute additional funds to make-up the shortfall.

Correlation Risk – This is the risk that corporate performance is correlated with the performance of the defined benefit trust. In downward cyclical periods, this correlation could indicate a likelihood of the defined benefit trust value declining at a time when the sponsoring organization is also unable to generate excess free cash to offset deficits.

Value at Risk (VAR)

As part of every pension plan's investment policy statement there should be a reference to the management of contribution risk. By specifically referencing contribution risk in the investment policy statement, it creates a broad understanding from the sponsor, to the actuary, and through the investment managers, as to what the objectives are. The most consistent measure of this risk is Value-at-Risk (VAR). VAR is defined as the maximum amount of money that one could expect to lose with a given probability over a specific period of time.

For instance, in the case of a defined benefit plan, a corporate finance officer should know that based on the investment policy statement, the trust has a one-year VAR of \$200,000 at the 95% confidence level. This would mean that in 95% of one-year time horizons the worst loss anticipated in the trust would be \$200,000. Organizations that desire more certainty may wish to see losses projected at the 99% confidence level. A plan with a one-year VAR of \$200,000 at the 95% confidence level may have a one-year VAR of \$300,000 at the 99% confidence level.

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By combining VAR measures with the current funding status of the plan, corporate finance can better budget for the likelihood and magnitude of future funding requirements. For example, the fictitious plan above with a one-year VAR of \$200,000 at the 95% confidence level may carry a current asset surplus of \$300,000. Accordingly, a finance officer should predict with 95% accuracy that there will be a surplus of \$100,000 or more at year end. Likewise a plan with a \$100,000 deficit should know with 95% certainty that the plan's deficit will not exceed \$300,000 at year's end.

With this information, a finance officer should be able to successfully budget the sponsor's ability to sustain risk. The sponsor of a plan with a current deficit and cash-flow constraints would choose an asset allocation that did not provide a high likelihood of debilitating contributions to the plan.

As a measure, VAR must be looked at in concert with the expected return of the trust. By its very nature, expected return should increase with increases in risk. Therefore, the more VAR is minimized, the lower your expected return. Assuming no short-term volatility, a plan sponsor must always select an asset allocation that has a higher expected return than the growth assumptions stated by the plan. Minimizing VAR while growing the trust at a rate slower than the actuarial assumptions will eventually lead to plan deficits and accordingly, mandatory increasing contributions. The critical job of a plan sponsor is identifying a point that provides the highest expected return while keeping VAR at a level that allows the sponsor to ensure liquidity to meet current expenses and capital investment opportunities.

Defined benefit VAR budgeting completed after the close of typical fiscal budgeting for the organization should provide a view as to an organization's ability to accept risk given the short-term estimates of cash flow and profitability for the organization.

Sponsors should be cautious of using VAR models in conjunction with an active asset management strategy wherein money managers are trying to outperform an indexed allocation. While a debate can be had as to whether attempting to outperform a market is possible given the overwhelming data that active managers incur far greater fees and in turn lower performance, what must be stated is that active management will reduce the effectiveness of VAR as a risk management tool. VAR, as calculated, looks at allocations to specific asset classes and the covariance of those asset classes to

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generate a portfolio. VAR is most effective as a management tool when elements of the portfolio resemble closely the elements of the index that they are tracking. Excessive turnover that changes the underlying nature of the asset class and thereby its unique risk characteristics can break down the VAR measure.

Earnings Correlation

Another liability measurement to minimize the chance of a catastrophic funding shortage is an analysis of the free-cash flow correlations of the sponsor. Frequently in plan asset allocations sponsors over-allocate to sectors with which they are familiar. For example, technology companies allocate to the technology sector a disproportionate share of their plan's assets. Doing so can increase the severity of a funding shortfall when it occurs.

If you take the technology example above, a chip manufacturer may choose to allocate 25% of their plan's equity allocation to the technology sector given their optimism about the direction of the sector as a whole and anticipated growth in technology expenditures at both the retail and commercial level. It is likely that free cash generated by the chip manufacturer will depend on its predictions about expenditures being accurate. Assuming the prediction is an accurate one, the chip manufacturer will generate profits and free cash and the portfolio of the defined benefit plan will likely also benefit as technology sector stocks increase in value to reflect their growing earnings.

However, if estimates of technology spending are not met, the chip manufacturer is more likely to have a lean year and may not be profitable or may not generate much free cash above its current debt and expenditure levels. At the same time it is not unlikely that technology stocks during this period of lower than expected demand depreciate in value over the period, thereby increasing the possibility of a plan deficit that might necessitate additional funding. When correlations of portfolio performance to company performance are high, it dramatically increases the likelihood that the company will face a mandatory contribution at a time when their own corporate performance might make it difficult to do so.

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Sponsors should examine the macroeconomic and industry issues that contribute to the success of their own business. If any of these correlations are statistically significant, the investment policy should address this fact and guide towards under-allocating to that sector.

To successfully manage a defined benefit plan there must be harmony between:

- Corporate Finance – The ability of the organization to fund the plan
- Human Resources – The desire of the organization to maintain or enhance benefits
- Actuary – Guiding future expectations and funding
- Investment Consulting – Managing the growth of assets and cash flow risks to the sponsor

Only by managing these elements together can sponsors once again take control of their defined benefit plans and the potential liabilities that may arise. Failure to adequately manage any of these elements will increase the likelihood of shortfall or increase the economic impact of a shortfall when it occurs. Looking at these critical values in concert with the plan's current funding status and market expectations should provide corporate finance an accurate view of the plan's prospects and the likelihood that the sponsor may have to make funding contributions, as well as the potential size of those contributions.

From planning inception through the plan year, continuous feedback should be provided from the investment consultant to corporate finance that will allow them to further refine their anticipated contribution as the market and plan values fluctuate throughout the year.

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