Long-Term Expected Rates of Return

Asset Allocation Overview

The Plan's asset allocation is the single most important determinant of achieving the stated investment goals. The MERS' Board adopts and implements an asset allocation policy that is predicated on a number of factors, including:

- Historical and expected long-term capital market risks and returns for each asset class;
- Expected correlations of returns among various asset classes;
- An assessment of future economic conditions, including growth, inflation, and interest rate levels;
- Liquidity requirements with a focus on ensuring monthly pension obligations are met; and
- Risk modeling to ensure long-term, Board-established active risk and total risk targets are satisfied.

The following criteria is used in assessing an asset class for inclusion in the Fund:

- Sufficient size and liquidity to permit an investment by the Fund;
- Staff, investment manager, or consultant expertise to ensure proper due diligence and cost effective implementation;
- The incorporation of the asset class contributes to the return enhancement and/or further diversification of the Fund; and
- Ability to readily measure performance and risk against appropriate benchmarks.

In accordance with MERS' Investment Policy Statement, the Office of Investments follows a Valuation Based Allocation (VBA) approach to allocate the Fund's assets. The VBA approach is centered on asset class valuations across both equity and fixed income asset classes. It recognizes that asset prices should be reflective of fundamental economic value over the long-term. The model uses economic data and assumptions to derive the fair value for the asset classes using discounted cash flow models; expected returns can then be determined. The model evaluates each asset class's return potential versus the relative risk and correlation to other asset classes and tilts the portfolio toward the most compelling return vs risk opportunities. Portfolio risk is dynamic, meaning it is scaled up or scaled down based on opportunity (i.e. the degree to which the various asset classes are over or undervalued). The model is designed to target acceptable levels of both absolute risk (volatility) and active risk (tracking error) relative to the Policy Benchmark on a long-term basis. It is updated on a real-time basis resulting in ongoing asset allocation within established risk parameters and within the Board approved asset class allocation ranges.

The Plan's asset allocation is a long-term proposition, so model inputs are developed using an investment horizon in excess of twenty years. The desired goal of the asset allocation process is to construct a portfolio that adequately balances risk while also providing a reasonable probability of achieving the long-term actuarial required return necessary to fund the Plan's liabilities, currently 7.00%.

The Defined Benefit Plan is invested in the Total Market Portfolio (Portfolio) which is a mixture of three broad asset classes: *Global Equities*, *Global Fixed Income* and *Private Investments*. These assets are combined at the target allocation weight to produce the long-term expected rate of return for the Portfolio. Real rates of return can be calculated by subtracting the long-term expected inflation assumption. The current target allocation, inflation assumption, and best estimates of real and nominal rates of return for each asset class and the Portfolio are summarized in the following table:

Asset Class	Target Allocation	Long-term Expected Nominal Rate of Return	Inflation Assumption	Long Term Expected Real Return	Expected Nominal Return Asset Class Portion	Expected Real Return Asset Class Portion
Global Equity	60.00%	7.00%	2.50%	4.50%	4.20%	2.70%
Global Fixed Income	20.00%	4.50%	2.50%	2.00%	0.90%	0.40%
Private Investments	20.00%	9.50%	2.50%	7.00%	1.90%	1.40%
TOTAL	100.00%	7.00%	2.50%	4.50%	7.00%	**4.50%**

Many local governments are also invested in the Total Market Portfolio for their OPEB obligations. Other municipalities have different investment choices depending on their individual preferences and expected need for resources to fund their OPEB obligations.

Asset Class Summary

The Global Equity allocation is the largest driver of return and risk for the Portfolio. It is designed to provide long-term capital appreciation, generate current income, and provide a hedge against inflation. Global Equity assets are diversified across geographic regions, investment styles, and market capitalization to diversify risk. A core portion of the Global Equity portfolio is invested in highly liquid equity securities including, but not limited to, US large cap equities, US mid cap equities, and developed ex-US large and mid-cap equities. The portfolio may also include higher risk investments such as small cap equities, micro-cap equities, emerging market equities, and frontier market equities. Both internal and external management as well as active and passive strategies are utilized within the Global Equity allocation.

The Global Fixed Income allocation is designed to provide downside protection, diversification, stable income, and liquidity. The core of the portfolio includes cash and investment grade securities such as US Treasuries corporate bonds, and global investment grade debt. The core fixed income portfolio is expected to preserve capital and provide liquidity that may be used for portfolio rebalancing in stressed market environments. The Global Fixed Income portfolio may also include higher risk investments such as high yield bonds, emerging market debt, structured credit investments, and other below investment grade securities. These below investment grade securities entail higher risk, including the potential impairment of capital and low liquidity. However, these securities tend to exhibit equity-like risk/return profiles combined with higher cash yields and are only purchased when risk premiums are high. Both internal and external management as well as active and passive strategies are utilized within the Global Fixed Income allocation.

The Private Investments portfolio provides diversification, capital appreciation, and a hedge against inflation for the total Portfolio. These investments are more illiquid than public market investments, thus requiring a longer time horizon and higher returns as compensation for illiquidity risk. The investments are accessed through a variety of structures including, but not limited to commingled funds, limited partnerships, co-investments, and private placements. The Private Investments portfolio includes three distinct asset classes: *Private Equity*, *Real Assets*, and *Diversifying Strategies*.

The primary role of the Private Equity allocation is to provide the Portfolio with capital appreciation. This allocation complements the Public Equity portfolio by accessing a wider universe of investment opportunities and making equity investments in companies before becoming publically traded. The allocation is diversified by industry, geography, and vintage year as well as by investment strategy (venture capital, growth equity, buyouts, and special situations). The Real Assets allocation provides the Portfolio with some degree of protection against inflation while also providing diversification. Secondary objectives are capital growth, and if possible, current yield through cash dividends. This portfolio is comprised of investments in physical assets that can be managed and sold to generate income. The Diversifying Strategies allocation seeks to provide the Portfolio with downside protection and diversification. This allocation targets strategies that exhibit low correlation with traditional asset classes – specifically equities – and should outperform during stressed equity markets. The allocation may include equity or debt investments, as well as hybrid security structures with characteristics of both.