Municipal Employees' Retirement System

Defined Benefit Investment Policy Statement

Board approved on February 17, 2022

MISSION
Partner with those who serve Michigan communities to provide retirement benefits and related services to support a secure retirement.

VISION
Through exceptional service and comprehensive solutions, MERS will deliver a seamless experience that engages and enables customers to achieve their financial goals.

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I. INTRODUCTION

Statutory Authority and Mission

The Municipal Employees' Retirement System of Michigan (MERS or System) is an independent, professional retirement services company created to administer the retirement plans for Michigan municipalities on a not-for-profit basis. MERS is a statewide voluntary organization created in 1945 by the Michigan Legislature. In 1996, the System was granted independence by the Legislature.

MERS offers a Defined Benefit Plan (DB), Defined Contribution Plan (DC), Hybrid Plan, Health Care Savings Program (HCSP), 457 Deferred Compensation Program (457), Deemed Individual Retirement Account (IRA), Retiree Health Funding Vehicle (RHFV), and Investment Services Program (ISP) (the "Plans"). MERS' investments are made through its IRS Rev. Rul. 81-100 group trust, Municipal Employees' Retirement System of Michigan Group Trust, which aggregates the Plans' assets for investment purposes.

The Retirement Board (Board) has delegated all investment management operations and activities to the Chief Executive Officer (CEO) and the Board's Investment Committee, except those specifically reserved by the Board. The CEO is directly responsible for all day-to-day activities of MERS. The CEO has delegated management of MERS' trust assets to the Office of Investments (Office), including all investment management activities. All transactions undertaken on behalf of the Plans are for the sole interest of the Plans' participants and beneficiaries.

Investment Policy Statement

This Investment Policy Statement (IPS) outlines the investment goals, objectives, and policies of the MERS' Total Market Portfolio (Portfolio). The purpose of the IPS is to ensure that the investment activities are carried out within the framework established by the Board in accordance with applicable law. The IPS assists the Board, Investment Committee, and Office of Investments in effectively and prudently monitoring and administering MERS' investment program.

The IPS is designed to provide sufficient flexibility in the management and oversight process to reflect the dynamic nature of the capital markets and facilitate proactive decision making. It is a working document and may be modified as needed or as market conditions change. At a minimum, the IPS will be reviewed and approved annually by the Board.

II. GOVERNANCE

The fiduciary duty of the Board, Investment Committee, CEO, and the Office of Investments requires that the System's assets be managed prudently and exclusively in the best interest of the System's participants and beneficiaries. A functional governance framework supports the fiduciary activities of the Board, Investment Committee, and Office of Investments.

To accomplish this, the governance structure is designed to provide adequate flexibility and autonomy to ensure that investment objectives are met, while maintaining a prudent level of oversight. Regulatory compliance and robust governance structures operate in tandem with the investment process to protect the integrity of the System and its assets. This level of compliance is accomplished through a clear delineation of duties. MERS has a long history of having appropriate separation of investment policy and investment management decision-making.

Fiduciary Duty

The Board, as "investment fiduciary" under the Public Employee Retirement System Investment Act (PERSIA), MCL 38.1132 et seq., has the fiduciary responsibility and authority to direct the investment of MERS' trust assets. Board members must discharge their duties for the exclusive benefit of plan participants and beneficiaries. PERSIA requires that the Board "act with the same care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a similar capacity and familiar with those matters would use in the conduct of a similar enterprise with similar aims." MCL 38.1133(3).

The Board, Investment Committee, CEO, and Office of Investments oversee and guide the investment of System assets and execute their fiduciary duty subject to the following principles provided in Section 13 of PERSIA, MCL 38.1133(3):

- Act with due regard for the management, reputation, and stability of the issuer and the character of the particular investments being considered
- Make investments for the exclusive purposes of providing benefits to participants and participants' beneficiaries, and of defraying reasonable expenses of investing the assets of the System
- Give appropriate consideration to those facts and circumstances relevant to the particular investment or investment course of action involved, including the role, the investment or investment course of action plays in the System's investments, and act accordingly.
    - Appropriate consideration includes, but is not limited to, a determination that a particular investment or investment course of action is reasonably designed, as part of the investments of the System, to further the purposes of the System, taking into consideration the risk of loss and the opportunity for gain or other return associated with the investment or investment course of action; and consideration of the following factors as they related to the investment or investment course of action:
        - The diversification of the investments of the System
        - The liquidity and current return of the investments of the System relative to the anticipated cash flow requirements of the System
        - The projected return of the investments of the System relative to the funding objectives of the System

To achieve these goals, MERS invests in the necessary resources to build and maintain an appropriate organizational infrastructure.

Discretionary Authority

The Board has delegated discretionary investment authority to the Investment Committee to authorize investment of MERS' assets and manage those investments, including hiring and terminating investment managers, reinvesting MERS' assets and selling out of investments.[1] The Investment Committee delegates certain discretionary investment authority through the CEO to the Chief Investment Officer (CIO) and the Office of Investments as stated below, subject to approval by the Office's Portfolio Review Committee (PRC). This discretionary authority is subject to the following limitations:

- Separate account or fund investments up to $100 Million
- Co-investments[2] depending on the asset class
  - $50 Million for each Real Asset investment
  - $25 Million for each Private Equity or Diversifying Strategy investment
- Private placements[3] (direct investments) up to $25 Million each
- Follow-up fund[4] investments up to 2% of the Portfolio, not to exceed 5% of the Portfolio in aggregate funds' exposure at any point in time
- Follow-on funding up to 30% of the original commitment[5]
  - Follow-on funding is a natural and expected occurrence for direct investments in order to support company growth, restructuring, or protect existing interests

The Chair of the Investment Committee is authorized to expand or suspend these limitations on an investment by investment basis if prevailing extenuating circumstances prevent the Investment Committee from convening as intended. The CIO shall request such expansion or suspension in writing as needed and approval shall be granted by the Chair in kind.

Any investments made under the Discretionary Authority provision above are reported to the Investment Committee at the Committee's next scheduled meeting.

The authority delegated to the CIO and the Office of Investments includes authority to manage all approved investments in all respects, including selling out of such approved investments.

With increased internal, direct, private investing, the System may incur upfront expenses to determine the suitability of a potential investment for the System. Such expenses may include, but are not limited to, deal sourcing, market analysis, exploratory due diligence, and other expenses. The Office of Investments will in every case look to avoid such expenses by either having the potential seller or potential partner fund such expenses. The Office of Investments will seek to have any upfront expenses incorporated into the cost basis of completed investments. The approval process for exploratory third party due diligence expenses for potential private investments will be as follows:

[1] The Board issued a May 8, 2014 resolution delegating investment authority to the Investment Committee; the Board reaffirmed this delegation via a February 28, 2019 resolution.

[2] A co-investment is an investment alongside an existing fund investment.

[3] A private placement or direct investment is an equity or debt investment held directly by MERS and typically unaffiliated with any other investment.

[4] A follow-up fund investment is a subsequent fund investment with the same manager and in a substantially similar investment strategy to one in which MERS already has an investment.

[5] A follow-on funding is an additional investment in an existing direct investment beyond the original commitment.

- Third party due diligence expenses up to the lesser of $1.5 Million or 2% of the expected commitment may be funded with PRC approval
- In situations where anticipated third party due diligence expenses are expected to be greater than $1.5 Million or 2% of expected commitments, Investment Committee approval is required

Roles and Responsibilities

MERS' BOARD

- Is the System's fiduciary;
- Appoints public members with investment expertise to serve on the Investment Committee;
- Appoints one Board member for two years to observe Investment Committee meetings (observer does not have voting privileges);
- Monitors the activity of the Investment Committee;
- Approves investment governance documents (Investment Guidelines, Defined Benefit Investment Policy Statement, and Participant Directed Accounts & Institutional Funds Investment Policy Statement);
- Sets the Portfolio's asset class allocation ranges;
- Establishes the long-term actuarial investment return assumption; and
- Approves the Portfolio's Policy Benchmark.

INVESTMENT COMMITTEE

- Contains three voting Board members, including two public members with investment expertise;
- Includes the CEO and CIO (both non-voting members);
- Serves as the Board's investment policy development arm;
- • Monitors investment management activity and policy recommendations developed by the Office of Investments;
- Approves PRC investment recommendations to hire/terminate investment managers;
- Approves investments above PRC discretionary size limits;
- Provides advice on investment activities including: industry best practices, fiduciary duties, and Portfolio risk expectations of the Board; and
- Monitors Portfolio risk, asset allocation and investment performance.

PORTFOLIO REVIEW COMMITTEE

- Office of Investment's decision-making body chaired by the CIO and consisting of Office staff;
- Voting members are appointed by the CIO;
- Reports decisions and provides recommendations to the Investment Committee;
- Determines and implements the Fund's asset allocation within Board-approved allocation ranges;
- Approves and implements investments up to discretionary size limits provided in this Policy; and
- Develops and maintains PRC operating guidelines.

OFFICE OF INVESTMENTS

- Carries out all investment activity on behalf of the System, including policy documentation for Board approval;

- Hires/terminates investment consultants, vendors, and the custodial bank with CEO approval;
- Provides a quarterly report on the Portfolio's investment activities, allocation and performance;
- Reports any material changes within the Portfolio to the Investment Committee and the Board;
- Internally manages a portion of the Portfolio across both Public and Private Investments;
- Monitors performance and determines courses of action for external investment managers;
- Monitors compliance with all statutory, regulatory and policy limitations; and
- Trade execution, settlement, and daily cash movements as needed;
- Conducts its affairs in a manner that reflects the highest standards of ethical conduct and complies with the CFA Institute Code of Ethics and Standards of Professional Conduct (Appendix).

MERS' INVESTMENT MANAGEMENT RISK AND COMPLIANCE COMMITTEE

- Provides investment and compliance oversight outside of the Office of Investments;
- Monitors operational, market, and regulatory issues that may materially impact portfolio performance or put MERS at risk of regulatory sanctions;
- Promotes cross-office discussion regarding varying potential risks including prevention and solutions; and
- Consists of the CEO, CIO, Finance Director, Deputy General Counsel for Investments and Compliance, Internal Auditor, Investment and Administrative Officer, and Analysts from the Office of Investments.

III. INVESTMENT APPROVAL PROCESS

- Prospective investments are intended to be discussed at least twice by the PRC before a vote is taken.
  - An investment memo or presentation shall be distributed to the PRC members to facilitate all discussions.
- PRC approval requires a majority vote of the members. All PRC votes are recorded in the PRC's meeting minutes.
  - Members are allowed to give another member their voting proxy in the event they will miss a meeting; but a quorum of the PRC is needed to hold a vote.
- The CIO retains veto power for all voting decisions by the PRC.
- The CIO may unilaterally approve an investment without PRC approval when and if the CIO determines that, due time constraints outside of MERS' control, investment approval is needed before the investment can be approved by the PRC. The CIO will only approve investments under this sub-clause when the Office's underwriting supports approval of the investment.
- MERS, or a representative of MERS, will conduct an onsite due diligence visit for the investment or at the manager's office, using virtual means if necessary, before the investment is finalized.
- If Investment Committee approval is required (i.e., due to size of the investment), best efforts will be made to send materials to the Investment Committee members one week before the Investment Committee meeting.
  - Investment Committee approval is determined by a majority vote of the voting members. A quorum of the Investment Committee is required to hold a vote.

IV. STATEMENT OF INVESTMENT PHILOSOPHY AND PRINCIPLES

Investing in today's financial markets is becoming increasingly more complex as a result of the rapid exchange of information, increased volatility, and global interconnectedness. Thus, it is important to identify core principles in order to simplify the investment decision making process. Following is a list of MERS' investment principles:

- Capital preservation is paramount;
- Keep it simple — if it can not be understood, do not invest in it;
- A clearly defined and sound governance structure is a prerequisite for the successful management of any investment strategy;
- Asset allocation is the most important decision faced by investors;
- A valuation-driven investment process can generate outperformance by exploiting market inefficiencies;
- Low-cost implementation is fundamental to achieving required returns;
- The Fund's long-term time horizon allows it to capitalize on the constraints of short-term focused investors; and
- Diversification is critical because the future is unknown.

The Office of Investments believes that framing discussions around these central tenets will help achieve the stated investment goals and increase the probability of long-term investing success.

V. INVESTMENT GOALS AND OBJECTIVES

In conformity with PERSIA, the primary goal of MERS' investment program is to grow assets at a rate that, when coupled with employer and employee contributions, satisfies promised benefits to MERS' members. To achieve this objective, the Board prudently allocates the Portfolio's assets with a strategic, long-term perspective to reduce risk by:

- Exceeding the actuarial investment return assumption on a long-term basis, which is currently 7.35%;
- Maintaining adequate liquidity to pay promised benefits;
- Adopting an asset allocation approach that reflects current and future liabilities, balances Portfolio risk and maximizes the long-term total rate of return;
- Minimizing costs through the efficient use of internal and external resources;
- Maintaining above-median peer rankings for the 10-year time period; and
- Exceeding the return of the Portfolio's Policy Benchmark, which currently consists of:

Index	Weighting
Russell 3000	45%
MSCI ACWI IMI ex-US[6]	20%
Bloomberg US Aggregate	25%
Bloomberg Global Aggregate ex US	10%

The Policy Benchmark is a passive portfolio designed to have similar long-term risk and return characteristics to MERS' Portfolio. It is intended to aid the Investment Committee and Board in evaluating the investment program, the Office of Investment's decision-making, and the Portfolio's performance. In order to ensure the Policy Benchmark remains an appropriate measure of the Portfolio's performance, the Board reserves the right to adjust it any time there is a material change to the Portfolio's investments or investment strategy.

VI. ASSET ALLOCATION POLICY

The Portfolio's asset allocation is the single most important determinant of achieving the stated investment goals. The 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.

Criteria for Inclusion of Asset Classes

The following criteria are 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.

Valuation Based Allocation

MERS follows a Valuation Based Allocation (VBA) approach to allocate the Portfolio's assets. The VBA approach recognizes that asset prices should be reflective of fundamental economic value over the long-term and fundamental value is best determined through discounted cash flow analysis. Asset prices may disconnect from fundamental value over time for a variety of reasons, but eventually asset prices will likely revert to fundamental value. These deviations from fundamental value over shorter time periods create opportunities for long-term investors to add value relative to static benchmarks through active asset allocation. MERS' Office of Investments believes that this approach provides

[6] Morgan Stanley Capital International All Country World Investable Market Index excluding United States

adequate flexibility to take advantage of attractive long-term opportunities as these deviations occur. Doing so should reduce risk and improve returns over the long-term.

The VBA approach provides a consistent framework for identifying, evaluating, and most importantly, sizing investments based on their risk and return profile. A proprietary model is utilized to evaluate market opportunities across investable asset classes and determine appropriate allocations. There are nine distinct VBA asset classes: US Equity, Europe Equity, Japan Equity, Emerging Market Equity, US Treasuries, US Investment Grade Fixed Income, US High Yield, Emerging Market Debt, and Cash. 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 VBA 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 more asset classes deviate from fundamental fair value, the more active risk will be taken. 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.

The VBA model 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 outlined below.

Asset Class Allocation Ranges

MERS' Board has approved the following asset class allocation ranges:

	Base Allocation	Minimum Allocation	Maximum Allocation
Global Equity	60.0%	35.0%	70.0%
Global Fixed Income	20.0%	10.0%	60.0%
Private Investments	20.0%	No Minimum	30.0%

The Board sets target allocations to various asset classes that are designed to meet MERS' long-term objectives and establishes minimum and maximum allowable allocations for each asset class. These asset class allocation ranges are meant to provide sufficient flexibility to execute the VBA approach while also ensuring the Fund maintains adequate diversification and liquidity at all times. An allocation to Private Investments is expected, however, due to the illiquid nature of most of these strategies, a minimum allocation to these assets is unnecessary. Private Investments will only be made if compelling market opportunities are available and in lieu of comparable public market investments.

Aggregate investments with any investment management firm is limited to 10% of the total Portfolio to reduce external manager concentration. ETFs are excluded from this limit.

Valuation Based Allocation Program Monitoring and Reporting

Adequate oversight and monitoring of the VBA program is critical to ensure portfolio performance and positioning is within established parameters and risks are well understood and incorporated into the investment decision-making process. A dedicated Asset Allocation Team (AAT) is responsible for maintaining and enhancing the VBA model on an ongoing basis. The VBA model is updated on a weekly basis and the AAT meets monthly to review the model and recommended positioning. The AAT provides formal recommendations to the PRC as frequently as necessary, but quarterly at a minimum.

The PRC is responsible for implementing the recommended allocation in compliance with the PRC Guidelines. The AAT conducts a VBA model input review annually to evaluate all economic assumptions which drive asset class fair values as well as risk and correlation estimates. If it is determined that model inputs need revision or model changes are necessary, they are approved by the PRC and communicated to the Investment Committee. The Office of Investments provides and presents a formal asset allocation report to the Board on an annual basis. The report summarizes asset class valuations, long-term expected returns, the Fund's asset allocation, and portfolio performance (including risk) and attribution. The report also includes the forward-looking long-term absolute risk and active risk (vs Policy Benchmark) of the Fund including and excluding Private Investments.

A formal review of the VBA program will be conducted every five years, starting from program inception, to ensure performance is within modeled expectations and to re-validate Board support. In conjunction with this review, the Policy Benchmark will also be reviewed by an independent, third-party consultant to assess suitability. Any recommended changes to the Policy Benchmark will be reviewed and approved by the Board.

Active Management Philosophy

The distinction between active and passive management has always been nuanced but it has become increasingly blurred in recent years with the proliferation of new investment products and vehicles. Factor based strategies, enhanced and custom indices, sector/industry specific funds, etc. have been popularized, providing investors with nearly unlimited choices regarding the specific type of exposure they desire. Indices can be broad based, representing diverse exposure to a specific asset class or region, or more narrowly focused on an individual sector or industry. Even indices tracking the same market segment such as US large cap equities differ in their selection criteria, construction methodology, and rebalancing process, resulting in different performance characteristics and risk/return profiles. At the highest level, any deviation from the Global Market Portfolio can be viewed as an active decision. ***Thus, the selection and intentional use of passive or index linked investment products is in fact an active management decision.*** MERS' Office of Investments utilizes a combination of index/collective investment trust (CIT) funds, exchange-traded funds (ETFs) and other publicly traded products designed to track different indices to carry out the Portfolio's asset allocation, manage risk, and implement internally managed strategies.

MERS considers liquidity, cost, and performance characteristics when selecting passive or index linked products and the type of investment instruments it uses. The use of a passive investment approach versus active management also varies based on the characteristics of the asset class. In efficient markets, such as US Large Cap equities, passive exposure is favored in order to reduce management fees. In less efficient markets, such as emerging markets or US micro cap equity, active management is favored in order to reduce risk and add value over a purely passive approach.

Portfolio Rebalancing Policy

In conducting Portfolio rebalancing activities, the AAT, Office of Investments and PRC is responsible for the following:

- Approving all rebalancing transactions;
  - As necessary, the AAT (with CIO approval) has discretion to rebalance up to 5% (total notional) of the Portfolio. All shifts are communicated to the PRC and larger shifts require PRC approval.

- Running the VBA model on a weekly basis or any time there is an equity market decline or increase in excess of 5%;
- Reviewing the asset allocation at least monthly to ensure compliance with the asset class allocation ranges set by the Board;
- Initiating rebalancing transactions to bring all asset class allocations inside the approved range or promptly seeking Board approval to remain outside of the range in the event that an asset class falls out of said range;
- Rebalancing the Portfolio on a quarterly basis in line with the VBA model-recommended allocations;
- Initiating a rebalancing transaction when an asset class or sub-asset class deviates more than 5% from the VBA model-recommended weight;
- Implementing rebalancing activities at a reasonable cost using index futures via an external derivatives manager, ETFs, CITs or other index funds, or active managers; and
- Initiating approved rebalancing transactions in a timely manner (generally within 24 hours of approval).

Global Equity Portfolio Construction

The Global Equity allocation is the largest driver of return and risk for the total Portfolio. The portfolio 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.

Equities are the most volatile asset class and the largest driver of both absolute and active risk within the Portfolio. The Valuation Based Allocation approach establishes recommended allocations for the broad VBA equity asset classes but does not dictate underlying allocations to each equity market capitalization segment. In order to mitigate taking unintended risk at the sub-asset class level and ensure total Portfolio active risk remains in line with stated parameters, the following allocation and active risk targets have been established for equity sub-asset classes:

Asset & Sub-Asset Class	Sub-Asset Class Target	Active Risk (Tracking Error)
US Equity		**1.0 – 2.0%**
Large Cap	70% of US Equity Allocation	
Mid Cap	15% of US Equity Allocation	
Small/Micro Cap	15% of US Equity Allocation	
International Equity		**1.0 – 2.0%**
Large Cap	70% of US Equity Allocation	
Mid Cap	30% of US Equity Allocation	
Emerging Market Equity		**1.0 – 4.0%**
Large Cap	50% of US Equity Allocation	
Mid Cap	30% of US Equity Allocation	
Frontier Markets	20% of US Equity Allocation	

Global Fixed Income Portfolio Construction

The Global Fixed Income allocation plays a vital role for the total Portfolio. This portfolio 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 is utilized within the Global Fixed Income portfolio.

Internal management within Global Fixed Income focuses on investment grade core fixed income and involves active decisions regarding duration, sector allocation, and security selection within US Treasuries, corporate bonds, and other sectors. External managers may also be used within core fixed income. Risk characteristics (such as duration and credit quality) are monitored on an aggregate basis, including both internal and external portfolios. External managers are used in the management of sub-investment grade securities. The Office of Investments will utilize specialized managers to opportunistically invest in certain portions of the sub-investment grade fixed income market. ETFs and other index-linked products may also be used to cost-effectively implement bond strategies in lieu of using active managers.

Private Investments Portfolio Construction

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 portfolio 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 publicly 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 portfolio 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.

Examples of Real Asset investments include:

- Real Estate;
- Commodities (Hard and Soft);

- Infrastructure;
- Timber; and
- Agriculture/Farmland.

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. Due to the unique nature of these strategies, they are often managed by managers with unique skillsets in niche or capacity-constrained areas of the market. The allocation may include equity or debt investments, as well as hybrid security structures with characteristics of both.

Examples of Diversifying Strategies investments include:

- Private Credit;
- Insurance-Linked Investments; and
- Intangible Assets.

Currency Management

Foreign currency risk is a consequence of global investing. Due to short-term speculation, central bank actions, and economic uncertainties, currencies add volatility to a global portfolio.   The Office of Investments strategically manages currency risk in order to reduce risk and enhance returns in the long-term. Currency risk is viewed in the context of fundamentals such as currency valuations and economic conditions. Overvalued foreign currencies pose higher risk to the System's investments and undervalued currencies offer the potential to enhance long-term returns. Consideration is also given to the type of asset class (equity, fixed income, or private investments) that the currency risk is derived from because currency volatility has differing impacts on each asset class. The Office of Investments monitors global currency risk and valuations, and implements hedges when risk is high or exposure is unwanted. The PRC has the discretion to make hedging decisions.

Liquidity

MERS' primary goal is ensuring the benefits promised to the System's participants are honored. Maintaining adequate liquidity is paramount to achieving this goal. Adequate liquidity is also essential to facilitate Portfolio rebalancing in stressed market environments. As such, the Office of Investments favors liquid instruments such as ETFs and futures to implement the Fund's asset allocation. Every investment is analyzed in terms of the impact it will have on the Fund's overall liquidity. MERS recognizes that certain investments with a greater degree of illiquidity, such as private equity, real estate, infrastructure, etc., offer the potential for higher returns and/or enhanced Portfolio diversification. As a long-term investor, MERS has the ability to bear illiquid investments. When allocating to illiquid asset classes, the Office of Investments considers projections of the net annual cash flows of MERS and determines a prudent level of assets that can be committed to illiquid investments. An investment is not made if the anticipated liquidity premium of the investment is deemed inadequate for the liquidity risk being assumed. Additionally, the Fund's liquidity level is managed such that the Fund maintains at least one and a half months of pension payments in cash or cash equivalent securities.

Leverage

Leverage is a condition where the net potential monetary exposure of an obligation exceeds the value of the underlying assets. Use of leverage is permitted by the System, except that the System may not "invest in derivatives for the purpose of leveraging [its portfolio] or shorting securities as a sole investment." See MCL 38.1133(8)(b) and 38.1140j(3). MERS recognizes that prudent use of leverage is an appropriate tool to enhance overall returns and is inherent in several asset classes such as real estate and private equity. Underlying portfolio managers may use leverage so long as it is used in a manner consistent with the approved investment strategies and is in compliance with the System's obligations under PERSIA. Use of leverage is controlled by individual manager guidelines and is subject to review by the Office of Investments.

Derivatives

The System may invest in any of the following:

- A derivative that hedges positions of a non-derivative component of a portfolio that clearly reduces a defined risk;
- A derivative that replicates the risk/return profile of an asset or asset class;
- A derivative that rebalances the country or asset class exposure of a portfolio;
- A derivative in which the System has examined the price, yield, and duration characteristics in all market environments both at the time of investment and on an ongoing basis;
- A commingled or pooled investment fund that uses derivatives, if the fund's use of derivatives is consistent with this policy; and
- Over-the-counter derivatives if, in the case of an over-the-counter security, a minimum of two competing bids or offers are obtained. All counter-party risk in over-the-counter derivative transactions shall be examined at the time of investment and on an ongoing basis.

The aggregate market value of the underlying security, future, or other instrument or index made under this section shall not exceed 15% of Fund assets.

For the purposes of this policy, *derivatives* include, without limitation: futures contracts, options, options on futures contracts, forward contracts, swap agreements, including swap contracts with embedded options, any instrument or contract intended to manage transaction or currency exchange risk in purchasing, selling or holding investments, and any other instrument commonly used by institutional investors to manage institutional investment portfolios. However, for purposes of the asset limitation in this section only, "derivatives" does not include:

- Asset backed pools, mortgage backed pools, or collateralized mortgage obligations that are otherwise qualified under PERSIA and are no more exposed to prepayment risk or interest rate risk than the underlying collateral including planned amortization classes and sequential-pay collateralized mortgage obligations;
- Convertible bonds, convertible preferred stock, rights or warrants to purchase stock or bonds or notes or partnership interests, floating rate notes, zero coupon securities, stripped principal securities, or stripped interest securities, which items are otherwise qualified under PERSIA;
- Exchange-listed derivatives trading on a daily basis and settling in cash daily or having a limited and fully defined risk profile at an identified, fixed cost, including futures contracts and purchased options; and

- Currency forwards trading on a daily basis and settling in cash daily or having a limited and fully defined risk profile at an identified, fixed cost.

The System may not invest in derivatives for the purpose of leveraging a portfolio or shorting securities as a sole investment. See MCL 38.11.40j(3).

External managers may be permitted to utilize derivatives to implement their investment strategies. Each individual manager's guidelines shall specify restrictions regarding derivatives usage. Under no circumstances may derivatives or leverage be used to circumvent the intent or limits otherwise prescribed by this Policy.

VII. INVESTMENT MANAGER DUE DILIGENCE AND SELECTION

In order to conduct proper due diligence and objectively evaluate prospective managers, a disciplined, well-defined process is necessary. The goal of this process is to provide a consistent, systematic framework for investment manager due diligence and selection.

A successful due diligence process should:

- Result in hiring best-in-class investment strategies and teams;
- Seek to identify what will likely contribute to poor performance before it happens;
- Identify managers that have a greater likelihood of repeating success; and
- Result in a true partnership providing market insights and research to help the Office of Investments manage the entire Portfolio.

Simple performance evaluation is imprecise and the connection between past performance and future performance is tenuous at best. Thus, the due diligence and selection process must incorporate both quantitative and qualitative components in order to consider all factors that contribute to an investment manager's success. The Office of Investments considers the following factors indicative of the likelihood of a manager's continued success:

Organization

- Stable ownership structure (preferably employee owned);
- Experienced, dynamic leadership;
- Sound financial condition;
- Company registration with the appropriate regulatory authorities;
- Key employee turnover;
- Adequate staff resources and infrastructure;
- Compensation structure that creates an alignment of interest with clients;
- Cultural fit with MERS;
- Demonstrates value add outside core investment mandate;
- No material legal or regulatory issues; and
- Firm history of ethical behavior.

People

- Experienced and skilled investment personnel;
- Depth of the investment management team;
- Contribution to the strategy’s track record;
- Sufficient backup and ongoing training;
- Collaborative, team environment; and
- Strong alignment of interests with investor goals.

Investment Process

- Well-articulated philosophy as to how value is added in a particular market;
- Systematic, focused, and consistent across strategies;
- Exploits a perceived competitive advantage;
- Successful implementation in different market environments;
- Research-driven investment process;
- High-quality deal flow and provides access to additional investment opportunities;
- Detailed portfolio construction process;
- Clear sell discipline; and
- Thoughtful consideration of strategy capacity.

Procedures

- Strong compliance and internal control systems;
- Firm-wide focus on risk management that is incorporated into the investment process;
- Clearly delineated lines of authority and responsibility;
- Well-defined trade management process that ensures best execution and minimizes cost; and
- Strong reporting capabilities that promote transparency and accountability.

Performance

Performance is reviewed based on both qualitative and quantitative measures, and must be consistent with the manager's stated investment style or approach. Managers are encouraged to present performance in accordance with the Global Investment Performance Standards (GIPS) in order to assure an accurate and consistent comparison. Performance is compared to relevant market indices as well as a peer universe. Risk characteristics are evaluated to determine whether the manager has delivered solid returns given the level of risk taken. Special attention is also paid to strategy capacity and whether or not additional assets may adversely affect future performance. It is understood that investment managers go through performance cycles so it is important to understand how recent performance relates to where managers are in their respective cycle.

Price

Since management fees directly affect the net returns of a manager, best efforts are made to achieve the lowest fee agreement possible. The Office of Investments leverages the scale of the investments to negotiate deals that are at the lower end of industry standards and highly competitive with peers. Managers with a long track record of success often have higher fee structures, but performance expectations and cost are carefully balanced. Future investment performance is uncertain, but fees constitute the only investment variable determinable beforehand; thus, it is critical to minimize fees to the extent possible. All else being equal, managers with lower fees will be favored.

Although each one of these broad criterion is important, some are more important than others in the manager selection process. Thus, each broad criterion is considered according to its relative importance in the manager selection process.

Criteria for Manager Selection	Importance
Organization	**Moderate**
Structure, size, financial condition, client base	
People	**Highest**
Investment professionals, experience, compensation	
Process	**Highest**
Investment philosophy, style, portfolio construction, sell discipline	
Procedures	**High**
Trading, risk management, compliance, reporting	
Performance	**High**
Results relative to an appropriate benchmark and peers	
Price	**Moderate to High**
Investment management fees	

Portfolio Impact

Managers are evaluated and selected by how they "fit" into the overall Portfolio structure. In an effort to diversify risks and allow for disciplined rebalancing, the goal within each asset class is to hire complementary managers that harvest differentiated sources of return. Analyzing qualitative and quantitative factors helps determine whether a particular manager will help achieve this goal. These factors include, but are not limited to:

- Investment philosophy and process;
- Correlation of returns;
- Correlation of excess returns;
- Portfolio beta and standard deviation;
- Scenario analysis and stress testing;
- Investment style; and
- Back-tested composite return series and blends (using various weighting schemes).

Manager Search Process

The PRC determines when an investment manager search is necessary, primarily due to a manager termination, the need for a complementary manager, or the addition of a new asset or sub-asset class. The PRC designates a member of the investment team to lead the search. To identify prospective managers, the search lead will screen an investment manager database to identify potential managers. Media and industry contacts can be utilized to promote the search and allow prospective managers to express interest. The search will generally include a number of investment managers representative of the asset class universe, except in the case of a niche asset class where few managers exist or the Office of Investments decides that a sole sourced manager is in the best interest of the System. The search lead will present the recommendation and supporting analysis to the PRC for selection of finalist(s) (one to four managers).

VIII. INVESTMENT MANAGER MONITORING AND RETENTION POLICY

Ongoing manager evaluation is paramount to successfully implementing the desired asset allocation and meeting overall investment objectives. The Office of Investments holds the following expectations/beliefs with regard to investment manager performance:

- No investment manager or strategy should be expected to outperform its benchmark(s) at all times, in all market environments; such a standard is unrealistic and will likely lead to poor decision-making.
  - Any manager with a superior long-term track record is virtually certain to underperform for multiple periods within that track record.
- The expectation of outperformance by all of the Fund's managers at all times is both unrealistic and at odds with the desirability of risk mitigation through strategy and manager diversification.
- Mean reversion is one of the few certainties in investing and thus it is critical for investors to be aware of a variety of cycles (economic, market, etc.) that have a direct impact on investment performance.
  - Investment manager performance goes through cycles and cycles imply reversion.

Investment and Manager Monitoring

Monitoring of MERS' investments and investment managers is a critical function of the Office of Investments. This constant and deliberate activity provides historical context, market information, and relevant data that can be relied upon for effective portfolio management decisions. In addition to ensuring that MERS receives accurate reporting submitted on a timely basis to the custodial bank, monitoring Portfolio investments provides the Office of Investments with important quantitative and qualitative information upon which manager retention and termination decisions are made.

Investment and manager monitoring differs slightly between public market investments and private markets investments given the different nature of the investments. Public market investments are more liquid than private market investments and are typically priced daily. The necessary data is readily available and reporting is completed shortly following the end of the performance period. Additionally, investment management agreements can be ended routinely and managers terminated at the discretion of MERS allowing for near-term action. By contrast, private market investments are not typically traded in open markets and lack daily pricing, creating elongated reporting timeframes. Furthermore, MERS' capital is committed for long periods of time with limited interim liquidity and management contracts for private market investments cover extended periods of time during which the investment manager has broad discretion and authority over when to buy or sell an investment, and. Given these differences, the monitoring processes and requirements for public and private market investments are distinguished below.

Public Market Investments

- Receipt of monthly and/or quarterly reporting materials within time frames established in investment management agreements and MERS' Investment Guidelines;
- Quarterly detailed review of manager/strategy performance by Office of Investments staff;
- Manager meetings not less than once every year; and
  - At least one meeting every two years shall be on-site at the manager's office.
  - Other meetings shall occur at MERS' office or via video conference.
  - Meeting requirements for managers who are in the process of closing their funds or in final disposition of fund assets shall be at the discretion of the Office of Investments.
- Periodic update calls as determined by the Office of Investments or Investment Committee.

Private Market Investments

- Receipt of quarterly capital account statements (and financial statements, if applicable) within time frames established in limited partnership agreements, investment management agreements, shareholder agreements, or other investment governance documents;
- Quarterly reporting in the format commonly known as the Institutional Limited Partners Association (ILPA) template, as applicable;
- Quarterly detailed review of performance by Office of Investments staff;
- In-person meetings not less than once every two years;
  - Attendance at an annual partnership meeting, advisory board meeting or on-site at the location of an investment will satisfy this requirement.
  - Private placements (direct investments) require one on-site meeting every calendar year.
    - If travel is prohibited to the region, a MERS' contractor or due diligence via virtual means will be utilized.

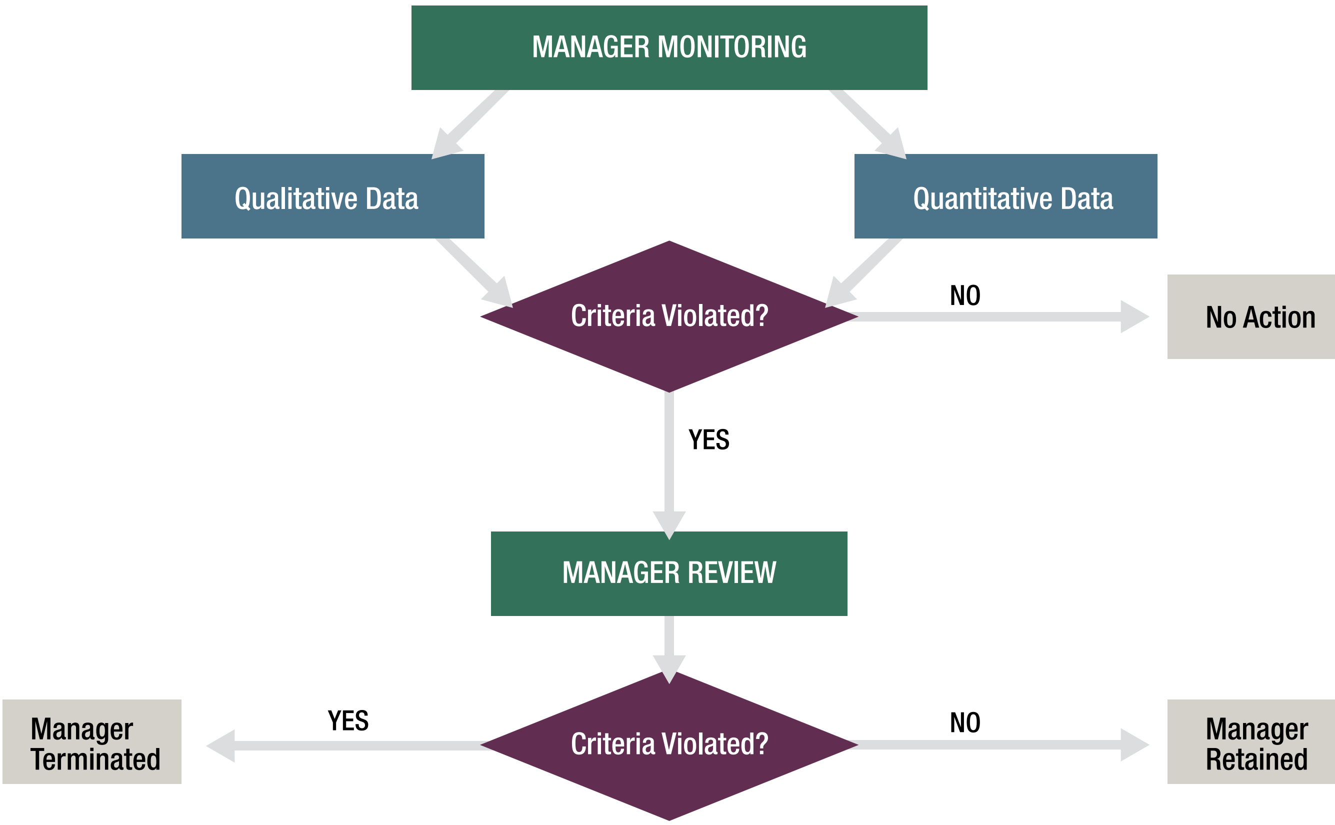
  - Meeting requirements for investments in a wind-down or termination process shall be at the discretion of the Office of Investments.
- Periodic update calls as determined by the Office of Investments or Investment Committee; and
- For private placements and investments held directly by MERS outside of a partnership structure (a "Direct Investment"), where public market prices are not available, the Fair Market Value shall be determined as follows:
  - If a recent transaction involving a material amount of equity in a Direct Investment has occurred, Fair Market Value may be determined from the pricing of the recent transaction according to rights and ownership percentages.
  - If a valuation is provided by an external manager of the investment or if MERS' position in the Direct Investment is alongside an established fund manager, MERS may utilize the market valuation as the Fair Market Value as long as the Office of Investments reviews the valuation approach and agrees with the methodology contained therein.
  - If a manager provided valuation is not available, then the Office of Investments will arrange for a third party valuation firm to establish a baseline valuation in accordance with GASB 72 and FASB Statement ASC 820 for each Direct Investment as follows:
    - Direct Investments acquired between January 1 - June 30 of each calendar year – Baseline valuations shall be done prior to December 31 of that year; or
    - Direct Investments acquired between June 30 - December 31 of each calendar year – Baseline valuations shall be done prior to June 30 of the following year.
  - Baseline valuations are evaluated by the Valuation Committee not less than annually.[7] If the Valuation Committee determines that there has been a material change in the baseline value, a new third party baseline valuation report is ordered. Such new baseline valuation will be reported to the custodial bank as the new Fair Market Value of said Direct Investment.
    - If the Valuation Committee determines that the baseline valuation has not changed materially, a new baseline report shall not be required until December 31 of the 3rd year following the baseline valuation. The new baseline valuation shall then be reported to the custodial bank as the new Fair Market Value.
    - Deviations from this policy (for example if a sale of an investment is pending or if a financing transaction is in progress) shall be documented and reviewed by the Valuation Committee.

Comprehensive Manager Reporting

The Office of Investments shall annually prepare and present for the Board a Comprehensive Annual Performance of Managers (CAPM) report. The CAPM report covers all aspects of manager monitoring and due diligence for the previous calendar year and serves as the basis for initiating retention/termination decisions. It includes a high level summary of each manager's strategy, Office of Investments evaluation, various qualitative assessments, and supporting performance analytics.

[8] Valuation Committee shall consist of the Chief Investment officer, Director of Private Markets, Director of Public Markets, Managing Director of Investments. The Valuation Committee shall meet quarterly with objective of reviewing the valuations of each private investment not less than once per year.

Manager Monitoring and Retention Process



Investment Manager Retention

Investment manager retention and termination decisions have high costs whether it be the decision to retain unskilled managers for too long or the decision to terminate a skilled manager prematurely. Not only are the costs of redeploying assets considerable, but the variability of most manager returns complicates straightforward evaluations of manager skill. Without reliable assessments of manager skill, MERS has little assurance that a new manager will perform better than a previously terminated manager.

This policy provides a systematic, consistent, and rational framework for manager retention and termination decisions, thereby avoiding untimely actions that may adversely affect the Portfolio's returns. In addition, the policy is intended to:

- Foster a long-term approach to manager evaluations;
- Provide a logical and consistent framework to evaluate manager skill;
- Improve client/manager communication by apprising each manager of the quantitative and qualitative standards by which they will be judged, and the near-term and long-term consequences of failing to meet these standards;
- Promote timely and appropriate responses to actual and potential performance issues; and

- Provide flexibility to allow application across all asset classes, management styles, and market environments.

Although quantitative assessments of manager performance are useful in judging whether managers have been successful in the past, they can be poor predictors of future success. Since MERS' goal is to determine the likelihood of future success, it is critical that the ultimate retention/termination decision focus on both the qualitative aspects of each manager relationship and quantitative assessments of past performance. The quantitative and qualitative assessments for the retention/termination decision are designed to mirror the manager's due diligence and selection process.

Qualitative Assessments

MERS' Office of Investments will monitor the qualitative aspects of each manager relationship through frequent oral and written contacts with each manager. Qualitative assessments will focus on organizational and staff stability, adherence to investment philosophy and process, asset/client turnover, the quality of client service (value add), and the cultural fit with MERS.

A significant and potentially adverse event related to, but not limited to, any of the following qualitative issues or events will generally result in a low qualitative score on the annual CAPM report or cause the Office of Investments to place the manager on Probation, depending on the severity of the event or issue. Red flags may include:

- A significant change in firm ownership and/or structure;
- The loss of one or several key personnel;
- A significant loss of clients and/or assets under management;
- A profound shift in the firm's philosophy or process;
- A significant and persistent lack of responsiveness to MERS' requests;
- A change in MERS' investment strategy or capital market beliefs that eliminates the need ;for a particular manager's investment style or strategy;
- A significant decrease in the quality or volume of deal flow and/or a marked change in the investment types or deal terms negotiated by the manager;
- Violations of MERS' Investment Guidelines; and
- Material adverse legal or regulatory proceedings and violations.

Quantitative Assessments

The manager evaluation process should focus on the above qualitative factors and be supplemented with diligent quantitative review. The quantitative review should not only focus on performance, but also on a variety of metrics which should include appropriate peer comparisons, multiple investment cycles (if applicable), and risk assessment. The illiquid and long-term nature of private market investments necessitates a different quantitative assessment methodology from that utilized in the public markets. The sections below describe in detail the methodologies employed in public and private market manager performance evaluations.

Public Market Managers — Because of the large degree of variability in manager returns, it is often difficult to assess whether a manager's over/under performance is the product of randomness or true investment skill. MERS' quantitative skill analysis considers the variability of a manager's excess return, in addition to the absolute magnitude of the excess return, when making judgments about manager skill. Skilled managers often have periods of underperformance, just as unskilled managers often experience periods of outperformance. Over long periods, however, skilled managers will produce a larger average excess return more frequently than their unskilled peers. Skilled managers will also have greater risk-adjusted returns than their unskilled counterparts.

- Active Managers — MERS will utilize a variety of statistical performance measures over various periods when analyzing manager performance and assessing skill. These measures include, but are not limited to the following:
  - Cumulative and rolling returns;
  - Cumulative and rolling excess returns;
  - Cumulative and rolling performance analysis graphs;
  - Upside/downside capture ratios
  - Information ratio;
  - Alpha and beta;
  - Standard deviation and tracking error;
  - Risk-adjusted performance;
  - Peer universe comparisons;
  - Maximum drawdown;
  - R-squared; and
  - T-statistic and significance level.
- Passive Managers — Annually after each calendar year end, the Office of Investments will evaluate each private market manager's performance relative to its performance objective and, when appropriate, to an asset class benchmark. In general, staff will utilize a rolling seven-year evaluation period for MERS' private market investments, and such quantitative analysis is factored into the manager's annual evaluation score as prepared for the CAPM report.

Private Market Managers — Annually after each calendar year end, the Office of Investments will evaluate each private market manager's performance relative to its performance objective and, when appropriate, to an asset class benchmark. In general, staff will utilize a rolling seven-year evaluation period for MERS' private market investments, and such quantitative analysis shall be factored into the manager's annual evaluation score as prepared for the CAPM.

Courses of Action

In addition to identifying existing and potential problems, an important purpose of the investment manager retention and termination policy is to outline how and when MERS addresses specific issues and events. Judgments as to whether a manager has achieved MERS' investment objectives, and whether a manager will achieve MERS' investment objectives in the future, ultimately rest with the Office of Investments and the Investment Committee. Accordingly, the Office of Investments and the Investment Committee reserve the right under this policy to pursue, at any time, any course of action in response to any performance issue.

Depending on the significance of the issue or event, the following are four possible courses of actions:

- Take no formal action and continue to monitor the situation
- Place the manager on Probation
- Conduct a Comprehensive Review

- Under extraordinary circumstances, terminate the manager immediately without a Comprehensive Review

Probation

A manager will be placed on Probation by the PRC because of a significant and potentially adverse development involving the manager, quantitative or qualitative. Probation communicates to the manager MERS' concern about a particular situation. The Office of Investments will meet with the manager within 90 days of being placed on Probation to discuss the situation. A manager will remain on Probation until the issue is resolved to MERS' satisfaction as determined by the PRC. MERS will provide notification to the manager at the beginning and end of the Probation process.

Comprehensive Review

A manager will be placed on Comprehensive Review if both the quantitative and qualitative score for the CAPM scorecard, is rated two or below. This score reflects serious underperformance of a manager relative to its benchmark or a significant and adverse change to the manager's organization, personnel, or investment process. These events cause the Office of Investments to question the firm's ability to achieve MERS' investment objectives in the future. A Comprehensive Review is an in-depth, due diligence effort, similar in scope to MERS' manager selection process and will focus on whether the firm currently embodies the relevant characteristics to provide reasonable assurance that MERS' investment objectives will be achieved in the future. It explores all elements of a manager's organization, personnel, and investment philosophy/process. Comprehensive Reviews are completed within 180 days of initiation. In undertaking a Comprehensive Review, the Office of Investments is ultimately trying to answer the question: Should the firm be rehired today given the current events and prevailing circumstances? Thus, the outcome of a Comprehensive Review is a decision to retain or terminate the manager. MERS will provide notification to the manager at the beginning and, if appropriate, the end of the Comprehensive Review process. Additional monitoring may take place after the Comprehensive Review is completed. Termination may take place after additional monitoring.

Other Termination Conditions

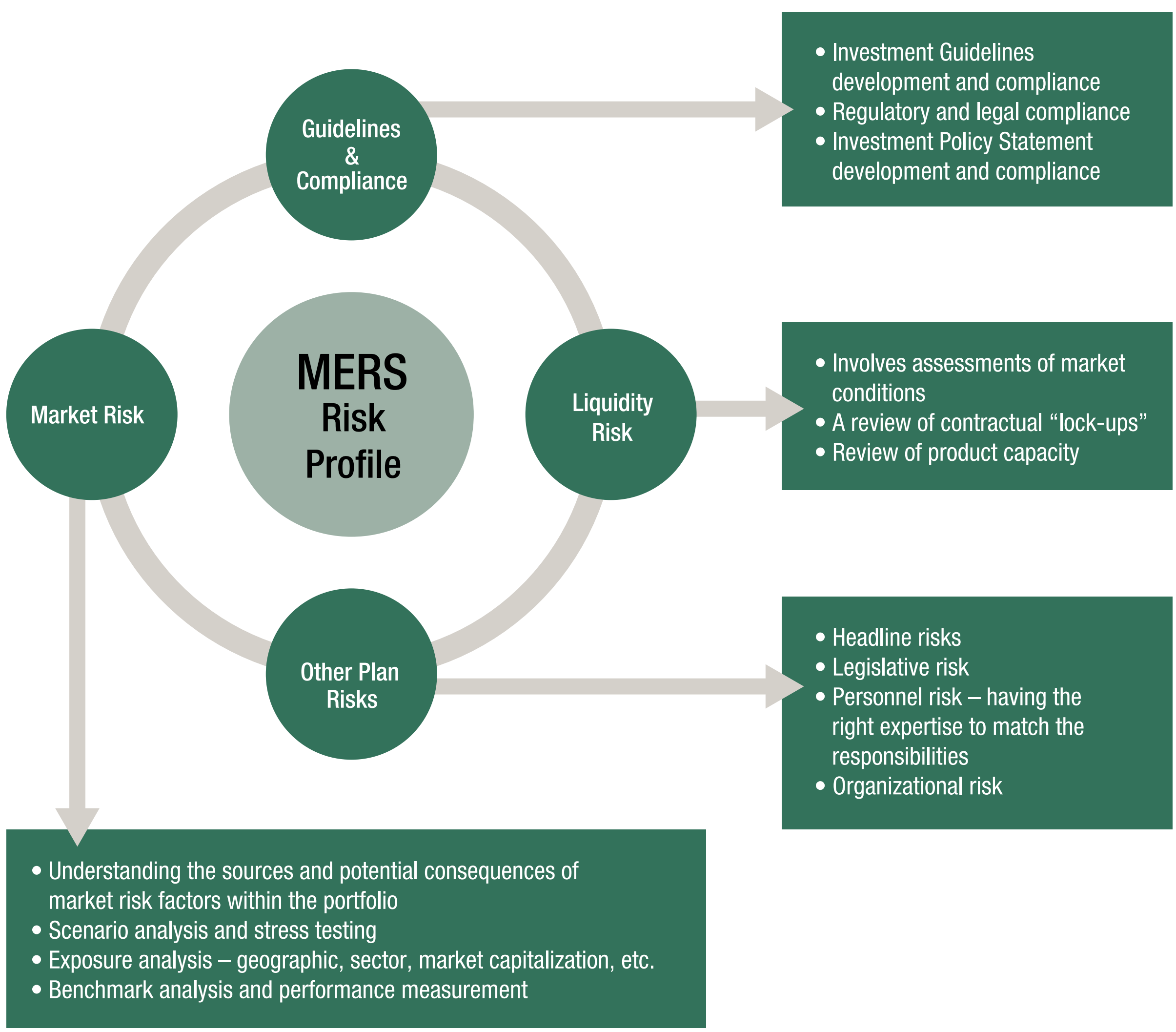
Going forward, MERS' investment management contracts must permit MERS to terminate the manager, with or without cause, after written notice (no-fault termination). Any investment management contract must also permit MERS to terminate a manager for cause upon learning of a manager's malfeasance or breach of contract.

The nature of certain private market investment vehicles may severely restrict or prohibit the immediate withdrawal of funds and/or the transfer of assets to another manager. In such cases, the decision to terminate a manager may be impractical and, therefore, MERS' actions may be limited to filing a withdrawal request with the manager and waiting until the investment is liquidated in a prudent manner, or seeking other disposition strategies.

IX. RISK MANAGEMENT AND CONTROLS

For a public pension fund, risk management is a broad concept that touches every aspect of the Fund. Sound risk management involves identifying the various risks and mitigating unintended or undesired risks to the extent possible. This requires well-documented processes and in-depth analysis of Portfolio positions. Strong communication across the organization and with external service providers such as the custodial bank and investment managers is also essential. The goal is to ensure that risks are monitored, adequately compensated, and appropriate for the stated objectives and market environment. MERS has established an Investment Management Risk and Compliance (Risk and Compliance) Committee as the formal oversight body at the enterprise level, which monitors operational, market, and regulatory issues that could have a material impact on Portfolio performance or put MERS at risk to regulatory sanctions.

Risk Management Framework



Market Risk

The largest source of risk for the Portfolio is market risk. Market risk is unavoidable as it affects every asset class within the Portfolio. There is a general understanding that each asset class exhibits a variety of different risk factors relating to market risk. The most notable forms of market risk include:

- Economic risk;
- Equity risk;
- Interest rate risk;
- Inflation risk;
- Credit risk;
- Currency risk;
- Asset/liability interaction; and
- Geopolitical risk.

As asset managers, it is essential to assess how each risk factor is likely to perform in different economic and capital market environments. How these risk factors interact within the Fund can then be evaluated and managed accordingly. The simplest way to mitigate market risk is through diversification. Thus, careful attention is paid to determining the Portfolio's asset allocation and selecting managers and other investments vehicles to implement the desired asset allocation. The manager due diligence and selection process includes a thorough review of each manager's risk management and operational controls to ensure they are consistent with industry standards. When assessing market risk at the total Portfolio level, the two main considerations are:

1. How much risk is present in the Portfolio, and
2. Where are the risks?

A variety of tools are utilized to monitor and quantify the various market risks present in the Portfolio. Stress testing and scenario analysis are conducted to evaluate the impact of various market risk factors as well as potential worst case outcomes. Additionally, active and total risk ranges have been established by the Board and are incorporated into the asset allocation model and monitored accordingly.

Guidelines and Compliance

The development of guidelines and compliance with those guidelines is an essential component of risk management. The manager selection process includes a thorough review of each manager's internal controls and compliance procedures to ensure adequacy. In addition to BNY Mellon's compliance team and resources, in-house compliance processes and reports monitor each manager's portfolio. The Office of Investments regularly monitors all compliance reports for any significant deviations or breach of stated guidelines. Guidelines and expectations for each manager are reviewed and updated annually. Each public market investment manager with a separately managed account structure is required to adhere to the Investment Guidelines. Requirements for investment strategies that are not separately managed accounts are covered in the strategy's contract documents.

Liquidity Risk

The most straightforward measure of liquidity risk is the deficiency of cash to meet current liabilities. However, a second issue relating to liquidity risk is the opportunity cost relating to the inability to source cash in order to rebalance or take advantage of investment opportunities. The Office of Investments analyzes every investment in terms of the impact it will have on the Fund's overall liquidity. Liquidity risk is mitigated by maintaining a dedicated allocation to cash and other high-quality, liquid securities. The Office of Investments monitors portfolio liquidity via each Portfolio investment's individual liquidity profile. Special attention is made to contractual lockups that restrict the ability to access capital.

Other System Risks

In addition to previously stated risks, there are other System risks that must be managed, including, but not limited to legislative pressures that may adversely affect the System's structure, employee turnover, as well as headline risk from a media event may have an adverse effect on the System and cause members to react negatively before they understand the issue.

X. SHAREHOLDER ACTIVITY

Proxy Voting

Proxy voting is an extension of the portfolio management process with the objective to maximize long-term investment performance. External managers are responsible for voting proxies on behalf of MERS. A third-party Proxy Voting Agent has been contracted to perform all proxy voting and record keeping functions for MERS' internally managed portfolios. The Proxy Voting Agent will vote all proxies in accordance with Glass Lewis Guidelines and PERSIA. Glass Lewis is a leading, independent governance services firm that provides proxy research and vote management services to more than 1,200 clients throughout the world. Glass Lewis serves only institutional clients, for which it actively engages with regulators, investors, issuers, and other stakeholders across the globe for proxy management.

Proxies are voted in accordance with management's recommendation except in circumstances where the proposal could adversely affect shareholder value. The Office of Investments will make a best effort to identify such issues. Examples of such exceptions include, but are not limited to, the following:

- Anti-takeover amendments such as fair price provisions and staggered Board provisions
- Poison pill provisions designed to discourage another entity from seeking control
- Greenmail attempts
- Golden parachutes and related management entrenchment measures
- Oversized stock option grants and strike price revisions

The Office of Investments may add or remove proxy voting restrictions or allowances at its discretion, and shall report any changes to the Board. The Board acknowledges its fiduciary responsibility to vote proxies in a timely manner and maintain accurate records of all proxy voting activity in compliance with all applicable laws.

Class Action Lawsuits

As an institutional investor, MERS is frequently a class member in securities fraud class actions that seek to recover damages resulting from alleged wrongful acts or omissions of others. MERS monitors class action filings and settlements, and evaluates litigation options on an ongoing basis pursuant to a written securities litigation and monitoring policy, to ensure that the interests of the System's participants are protected.

XI. INVESTMENT PROGRAMS

Internal Cash Pool

Residual cash of the Fund is invested in the custodial bank's Short Term Investment Fund (STIF). Cash in the pool may be used as collateral for tactical investments employed by the System, such as swaps, futures, etc. Portions of the cash pool can be segregated and invested to meet the specific requirements of such investment strategies, or invested in fixed income securities. The Office of Investments actively manages the cash pool.

Securities Lending

The System utilizes a securities lending program through its custodial bank, in accordance with Section 20e of PERSIA, MCL 38.1140e. The goal of the securities lending program is to increase Fund income and to help offset investment management expenses.

Investment Procedures/Reporting Calendar

DAILY

- Investment Guidelines compliance monitoring (Office of Investments & BNY Mellon)
- Cash flow management including capital call and distribution processing (Office of Investments & BNY Mellon)
- Asset allocation monitoring (Office of Investments)
- Daily performance reporting (BNY Mellon)
- Trade settlement as needed (Office of Investments & BNY Mellon)

WEEKLY

- Bi-weekly PRC meeting (Office of Investments)

MONTHLY

- Account reconciliation (Office of Investments, BNY Mellon, & Managers)
- Monthly performance reporting (BNY Mellon)
- Asset Allocation Team meeting (Asset Allocation Team)
- Internal Strategies Team meeting (Internal Strategies Management Team)
- Disburse pension voucher (Office of Investments)
- Investment Committee conference call or meeting (Office of Investments & Investment Committee)
-

QUARTERLY

- Asset allocation review and Portfolio rebalancing (Office of Investments)
- Performance reporting to the Board (Office of Investments)
- Manager performance review (Office of Investments & BNY Mellon)
- Calls with managers for portfolio, performance, economic, and market updates (Office of Investments & Managers)
- Review of DC program and fund lineup (Office of Investments)
- Report on DB/participant directed accounts and institutional funds (PDA-IF) portfolio activity (Office of Investments)
- Risk and Compliance Committee meeting (Investment Management Risk & Compliance Committee)
- Public Markets Extended PRC meeting (Office of Investments)
- Private Markets Extended PRC meeting (Office of Investments)
- Pay investment management fees (Office of Investments)

ANNUALLY

- Manager fee summary (Office of Investments)
- Comprehensive Annual Performance of Managers (CAPM) report presentation to the Board (Office of Investments & Board)
- Investment Guidelines update and Board approval (Office of Investments, Investment Committee, & Board)
- DB and PDA-IF Investment Policy Statement update and Board approval (Office of Investments, Investment Committee, & Board)
- Valuation Based Allocation (VBA) model input review and recommendation (Office of Investments & Investment Committee)
- Asset Allocation Report presented to the Board (Office of Investments & Board)
- Benchmarking for peer comparison purposes (Office of Investments & Outside Vendors)
- Annual audit (Office of Investments & External Auditor)
- Comprehensive Annual Financial Report preparation (Office of Investments & Finance)

FIVE YEARS

- Actuarial experience study (Actuary)
- Actuarial audit (Actuarial Auditor)
- VBA program review (Office of Investments and Third Party Consultant)
- Policy Benchmark review and recommendation (Third Party Consultant)

CFA Institute

CODE OF ETHICS AND STANDARDS OF PROFESSIONAL CONDUCT

PREAMBLE

The CFA Institute Code of Ethics and Standards of Professional Conduct are fundamental to the values of CFA Institute and essential to achieving its mission to lead the investment profession globally by promoting the highest standards of ethics, education, and professional excellence for the ultimate benefit of society. High ethical standards are critical to maintaining the public's trust in financial markets and in the investment profession. Since their creation in the 1960s, the Code and Standards have promoted the integrity of CFA Institute members and served as a model for measuring the ethics of investment professionals globally, regardless of job function, cultural differences, or local laws and regulations. All CFA Institute members (including holders of the Chartered Financial Analyst® [CFA®] designation) and CFA candidates must abide by the Code and Standards and are encouraged to notify their employer of this responsibility. Violations may result in disciplinary sanctions by CFA Institute. Sanctions can include revocation of membership, revocation of candidacy in the CFA Program, and revocation of the right to use the CFA designation.

THE CODE OF ETHICS

Members of CFA Institute (including CFA charterholders) and candidates for the CFA designation ("Members and Candidates") must:

- Act with integrity, competence, diligence, respect and in an ethical manner with the public, clients, prospective clients, employers, employees, colleagues in the investment profession, and other participants in the global capital markets.
- Place the integrity of the investment profession and the interests of clients above their own personal interests.
- Use reasonable care and exercise independent professional judgment when conducting investment analysis, making investment recommendations, taking investment actions, and engaging in other professional activities.
- Practice and encourage others to practice in a professional and ethical manner that will reflect credit on themselves and the profession.
- Promote the integrity and viability of the global capital markets for the ultimate benefit of society.
- Maintain and improve their professional competence and strive to maintain and improve the competence of other investment professionals.

STANDARDS OF PROFESSIONAL CONDUCT

I. PROFESSIONALISM

A. Knowledge of the Law. Members and Candidates must understand and comply with all applicable laws, rules, and regulations (including the CFA Institute Code of Ethics and Standards of Professional Conduct) of any government, regulatory organization, licensing agency, or professional association governing their professional activities. In the event of conflict, Members and Candidates must comply with the more strict law, rule, or regulation. Members and Candidates must not knowingly participate or assist in and must dissociate from any violation of such laws, rules, or regulations.

B. Independence and Objectivity. Members and Candidates must use reasonable care and judgment to achieve and maintain independence and objectivity in their professional activities. Members and Candidates must not offer, solicit, or accept any gift, benefit, compensation, or consideration that reasonably could be expected to compromise their own or another's independence and objectivity.

C. Misrepresentation. Members and Candidates must not knowingly make any misrepresentations relating to investment analysis, recommendations, actions, or other professional activities.

D. Misconduct. Members and Candidates must not engage in any professional conduct involving dishonesty, fraud, or deceit or commit any act that reflects adversely on their professional reputation, integrity, or competence.

II. INTEGRITY OF CAPITAL MARKETS

A. Material Nonpublic Information. Members and Candidates who possess material nonpublic information that could affect the value of an investment must not act or cause others to act on the information.

B. Market Manipulation. Members and Candidates must not engage in practices that distort prices or artificially inflate trading volume with the intent to mislead market participants.

III. DUTIES TO CLIENTS

A. Loyalty, Prudence, and Care. Members and Candidates have a duty of loyalty to their clients and must act with reasonable care and exercise prudent judgment. Members and Candidates must act for the benefit of their clients and place their clients' interests before their employer's or their own interests.

B. Fair Dealing. Members and Candidates must deal fairly and objectively with all clients when providing investment analysis, making investment recommendations, taking investment action, or engaging in other professional activities.

C. Suitability.

1. When Members and Candidates are in an advisory relationship with a client, they must:
    - **a.** Make a reasonable inquiry into a client's or prospective client's investment experience, risk and return objectives, and financial constraints prior to making any investment recommendation or taking investment action and must reassess and update this information regularly.
    - **b.** Determine that an investment is suitable to the client's financial situation and consistent with the client's written objectives, mandates, and constraints before making an investment recommendation or taking investment action.
    - **c.** Judge the suitability of investments in the context of the client's total portfolio.
2. When Members and Candidates are responsible for managing a portfolio to a specific mandate, strategy, or style, they must make only investment recommendations or take only investment actions that are consistent with the stated objectives and constraints of the portfolio.

D. Performance Presentation. When communicating investment performance information, Members and Candidates must make reasonable efforts to ensure that it is fair, accurate, and complete.

E. Preservation of Confidentiality. Members and Candidates must keep information about current, former, and prospective clients confidential unless:

1. The information concerns illegal activities on the part of the client or prospective client,
2. Disclosure is required by law, or
3. The client or prospective client permits disclosure of the information.

IV. DUTIES TO EMPLOYERS

A. Loyalty. In matters related to their employment, Members and Candidates must act for the benefit of their employer and not deprive their employer of the advantage of their skills and abilities, divulge confidential information, or otherwise cause harm to their employer.

B. Additional Compensation Arrangements. Members and Candidates must not accept gifts, benefits, compensation, or consideration that competes with or might reasonably be expected to create a conflict of interest with their employer's interest unless they obtain written consent from all parties involved.

C. Responsibilities of Supervisors. Members and Candidates must make reasonable efforts to ensure that anyone subject to their supervision or authority complies with applicable laws, rules, regulations, and the Code and Standards.

V. INVESTMENT ANALYSIS, RECOMMENDATIONS, AND ACTIONS

A. Diligence and Reasonable Basis. Members and Candidates must:

1. Exercise diligence, independence, and thoroughness in analyzing investments, making investment recommendations, and taking investment actions.
2. Have a reasonable and adequate basis, supported by appropriate research and investigation, for any investment analysis, recommendation, or action.

B. Communication with Clients and Prospective Clients. Members and Candidates must:

1. Disclose to clients and prospective clients the basic format and general principles of the investment processes they use to analyze investments, select securities, and construct portfolios and must promptly disclose any changes that might materially affect those processes.
2. Disclose to clients and prospective clients significant limitations and risks associated with the investment process.
3. Use reasonable judgment in identifying which factors are important to their investment analyses, recommendations, or actions and include those factors in communications with clients and prospective clients.
4. Distinguish between fact and opinion in the presentation of investment analysis and recommendations.

C. Record Retention. Members and Candidates must develop and maintain appropriate records to support their investment analyses, recommendations, actions, and other investment-related communications with clients and prospective clients.

VI. CONFLICTS OF INTEREST

A. Disclosure of Conflicts. Members and Candidates must make full and fair disclosure of all matters that could reasonably be expected to impair their independence and objectivity or interfere with respective duties to their clients, prospective clients, and employer. Members and Candidates must ensure that such disclosures are prominent, are delivered in plain language, and communicate the relevant information effectively.

B. Priority of Transactions. Investment transactions for clients and employers must have priority over investment transactions in which a Member or Candidate is the beneficial owner.

C. Referral Fees. Members and Candidates must disclose to their employer, clients, and prospective clients, as appropriate, any compensation, consideration, or benefit received from or paid to others for the recommendation of products or services.

VII. RESPONSIBILITIES AS A CFA INSTITUTE MEMBER OR CFA CANDIDATE

A. Conduct as Participants in CFA Institute Programs. Members and Candidates must not engage in any conduct that compromises the reputation or integrity of CFA Institute or the CFA designation or the integrity, validity, or security of the CFA Institute programs.

B. Reference to CFA Institute, the CFA Designation, and the CFA Program. When referring to CFA Institute, CFA Institute membership, the CFA designation, or candidacy in the CFA Program, Members and Candidates must not misrepresent or exaggerate the meaning or implications of membership in CFA Institute, holding the CFA designation, or candidacy in the CFA program.