SWIB STATE OF WISCONSIN INVESTMENT BOARD

SWIB Investment Committee

WISCONSIN RETIREMENT SYSTEM INVESTMENT GUIDELINES

Revised as of

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INTRODUCTION

The SWIB Board of Trustees (the "Board") has delegated to the investment staff of SWIB standing authority to manage the assets of the Core Retirement Trust Fund (the "Core Fund") and the Variable Retirement Trust Fund (the "Variable Fund"), which together make up the Wisconsin Retirement System (the "WRS"), pursuant to the Board's WRS Investment Policy and to section 25.15(2) of the Wisconsin Statutes and section IB 2.02 of the Wisconsin Administrative Code. The Investment Committee was created to provide oversight of WRS[1] investments within the parameters established by the Board and pursuant to the Investment Committee's Charter approved by the Board. To properly and prudently execute its delegated authority and oversight functions, the Investment Committee has established guiding policies, guidelines and procedures, which are set forth in this document, the Investment Committee Investment Guidelines (these "IC Guidelines"). These IC Guidelines articulate the policies and guidelines that are employed in the day-to-day management of the WRS assets by SWIB's staff. This document will be reviewed periodically and updated as necessary by the Investment Committee to reflect changes in investment strategies and to reflect best industry practices for prudent investors. Notwithstanding the delegation of authority by the Board to the Investment Committee for the establishment, approval, and amendment of the policies, guidelines and procedures included in these IC Guidelines, the Board reserves all rights to modify and amend these IC Guidelines at any time in its discretion. Any changes to these IC Guidelines will be periodically reported to the Board. In addition to these IC Guidelines, SWIB staff may also have to comply with Compliance Division or legal requirements or review operational readiness with the Operations Division prior to the trading of the instruments and securities authorized herein.

I. LEVERAGE USE POLICY

Introduction

The funds managed by SWIB can have exposure to leverage through different structures and vehicles. Leverage is an exposure to an asset class that is not fully collateralized by cash assets or an exposure to an asset acquired that has not been fully funded. There are two types of leverage, financial leverage and economic leverage:

- Financial leverage (e.g., policy leverage) is an exposure to an asset class that is not fully collateralized by cash, with the remaining unfunded exposure not collateralized by another asset. An example of financial leverage is buying a future on an equity index that is only partially collateralized with cash assets.
- Economic leverage (e.g., alpha-beta overlay strategy) is an exposure that is partially collateralized by cash and partially collateralized by an alternative asset to cash but fully collateralized. An example of economic leverage is buying a future on an equity index and partially collateralizing the exposure with cash and collateralizing the remaining exposure with other assets so that the exposure is fully collateralized.

[1] The Investment Committee also has oversight of the State Investment Fund and other funds managed by SWIB as described in the Board's SIF and Separately Managed Funds Investment Policy and Guidelines.

Certain internal active portfolios are also authorized to use portfolio-specific leverage. The Core Fund may provide unallocated cash to such internal active portfolios, and to other portfolios to fund short-term financing needs, and charge a market-based funding rate to the applicable portfolio.

Leverage by itself does not necessarily create additional market risk or variation in market returns. Leverage may result in greater diversification and lower market risk than an unlevered portfolio.

Both financial and economic leverage, however, require liquid assets to pay down the levered obligation. This type of risk is called liquidity risk. Liquidity risk is managed by monitoring the level of liquidity required in various market scenarios and ensuring that an adequate quantity of liquid assets is available to meet commitments in times of market stress.

The total amount of financial leverage is approved by the Board through the WRS asset allocation process. The Board-approved asset allocation targets for each asset class together with the approved financial leverage is called the "Policy Portfolio." The total amount of economic leverage is limited by the Board-approved active risk target and range.

Leverage may be generated through the use of futures, swaps (both OTC and CDX), repurchase agreements (repo), forwards and options, all of which may be traded long and short.

Leverage Use Philosophy

Leverage is used where it can improve investment portfolio efficiency in terms of return for risk versus alternative choices that do not use leverage. Leverage will also be used to improve portfolio diversification and reduce portfolio concentration.

Leverage Monitoring

Detailed reporting is regularly (i.e., daily, monthly and quarterly) produced by SWIB to provide feedback regarding leverage exposures for review by portfolio managers, the head of Asset and Risk Allocation (ARA), and the Executive Director/Chief Investment Officer (ED/CIO). Leverage use exposure risk metrics are reported at least quarterly to the Investment Committee. Leverage will be reviewed by the Investment Committee with an eye to diversifying counterparties, maturities and sources. Leverage will also be periodically reported by the ED/CIO to the Board. The balancing of these dimensions can vary through time as market conditions vary, especially with respect to liquidity.

Leverage Guidelines

1. Established leverage ratio ranges for each levered asset class are set forth below. Current Leverage Ratio is defined as the ratio of notional exposure to capital available in the portfolio (or total exposure to unencumbered exposure in the case of repo). If the Current Leverage Ratio for any levered asset class exceeds the Maximum Target Leverage Ratio, SWIB will, within 30 days (unless such time limit is waived with majority approval of the rebalancing task force), reduce exposure or add capital to bring the Current Leverage Ratio within the established range. A Current Leverage

Ratio below the Minimum Target Leverage Ratio will be monitored as part of the overall optimization of capital and funding costs.

Levered Asset Class	Minimum Target Leverage Ratio	Target Leverage Ratio	Maximum Target Leverage Ratio
US Large Cap Equity	2.7	3.3	4.0
US Small Cap Equity	2.7	3.3	4.0
MSCI World xUS Equity	2.7	3.3	4.0
US TIPS	6.0	8.0	10.0
US Treasuries	8.0	10.0	12.0

II. DERIVATIVES USE POLICY

Introduction

A "derivative instrument" is an investment instrument which usually derives its value and marketability from an underlying instrument which represents direct ownership of an asset or a direct obligation of an issuer (e.g. a "spot" or cash market instrument). SWIB recognizes that derivatives provide a means through which SWIB can implement investment strategies in a more cost and time efficient manner than through the physical investment of the underlying securities. Additionally, derivatives can be used to facilitate SWIB's risk management activities including risk mitigation. Derivatives include such instruments as futures, swaps, options and currency forwards and may be exchanged traded, traded over-the-counter (OTC) and/or cleared.

Derivatives Use Objectives

The overall strategic objective of SWIB's use of derivatives is to facilitate risk exposure management and to manage the cost of investing. Objectives for derivatives use include:

1. Constructing portfolios with risk and return characteristics that could not efficiently be created using underlying physical securities,
2. Changing systematic exposures without executing trades in the underlying physical securities,
3. Hedging or managing risks, and
4. Effecting varying active and passive investment strategies including, but not limited to: portable alpha, currency hedging, equitization, relative value trades, transition management, and rebalancings.

Derivatives Use Monitoring and Reporting

Derivatives use exposures will be monitored by portfolio managers that employ derivatives, the ED/CIO and the ARA Division. The Investment Committee will monitor derivatives use exposures and risk metrics on a quarterly basis or more frequently as needed.

Derivatives Guidelines Applicable to all WRS Internal Portfolios:

1. Exchange-traded derivatives must be traded on a recognized exchange approved by the Investment Committee, except for exchange-traded derivatives that are traded pursuant to Exchange for Related Position (EFRP) transactions, which are traded off-exchange and not subject to this requirement. Such approved exchanges are listed on *Appendix 1*. As additional exchanges are approved *Appendix 1* shall be updated without amendment to these IC Guidelines. For clarity, exchange-traded funds (ETFs), exchange-traded notes (ETNs), or exchange-traded vehicles (ETVs) shall not be deemed exchange-traded derivatives.

2. OTC derivatives may only be traded with counterparties with which SWIB has a current International Swap and Derivative Association (ISDA) agreement that includes a Credit Support Annex (CSA).

   In addition:

   a) The counterparty, or its guarantor, must, on each date on which a transaction is entered into, have an actual credit rating of not less than: (1) "A2/P2" on short-term debt from S&P or Moody's; and/or (2) "Baa2/BBB" on long-term debt from S&P or Moody's.
   b) The collateral that SWIB holds under a CSA may be invested in the following:
      i. Bank deposit accounts;
      ii. Any money market fund having a rating of at least "Aaa" by Moody's or at least "AAAm" by S&P;
      iii. Overnight commercial paper having a rating of at least "P-1" by Moody's and "A-1" by S&P;
      iv. Overnight repurchase agreements with U.S. government, agency or dollar cash collateral;
      v. Overnight reverse repurchase agreements with U.S. government, agency or dollar cash collateral; and
      vi. The State Investment Fund or similar short term investment funds.

   For clarity, this Item 2 does not apply to ETFs, ETNs, and ETVs, or to over-the-counter derivatives entered into on behalf of SWIB, or a title-holding entity that is wholly-owned by SWIB, by either an external manager or advisor in connection with a real estate separate account.

3. Investments may be made in put option contracts and call option contracts on securities, futures or an index of a group of securities. Put and call options may be purchased or sold on investments that could be held in the portfolio if the options were exercised.

4. Currency exposure management is permitted (but not required) through the use of exchange-traded currency instruments, and through the use of spot and forward contracts in foreign currencies (including FX Swaps). Direct currency hedging is

permitted to directly hedge currency exposure back to the U.S. dollar. Cross-currency exposure management to transfer out of an exposed currency and into a benchmark currency is permitted.

5. Guideline limits and soft parameters for each portfolio will be applied to the aggregate exposures which include both physical and synthetic securities.
6. New derivatives strategies will be reviewed and approved by the Investment Committee before their implementation or use.
7. SWIB shall not enter into new derivatives agreements with new counterparties until the ED/CIO has approved the agreement. Each relevant division head or portfolio manager shall submit to the ED/CIO a written summary of any proposed addition of a relationship that may require evaluation of counterparty credit risks. Such relationship may involve (a) entering into a master netting or trading agreement with a new counterparty, which acts either as a principal or as an agent on behalf of multiple principals, or (b) hiring an external manager to implement a strategy that may require the manager to evaluate and monitor counterparty credit risks on SWIB's behalf (excluding external managers selected by Private Markets and Funds Alpha staff pursuant to their portfolio guidelines). The ED/CIO will review all proposals of such new relationships to determine that (i) the addition of the relationship is consistent with SWIB's investment goals and strategies, (ii) the appropriate loss and drawdown limits for the credit risk associated with the proposed counterparty relationship have been considered, and (iii) appropriate due diligence has been conducted. The relevant division head or portfolio manager ("Initial Division User") shall retain responsibility for monitoring any such approved relationship. If another division expects to use the derivatives agreement for trading strategies after its initial approval, the ED/CIO, Initial Division User and the new division lead shall agree on the strategy for monitoring for the counterparty.

III. Rebalancing Procedures

1. Mandatory rebalancing is triggered by the procedures in the Board's WRS Investment Policy and the procedures below, as applicable. The Core Fund and Variable Fund asset mixes will be reviewed at least monthly for potential rebalancing.
2. A rebalancing task force will consist of the ED/CIO and the heads of ARA, Global Public Markets Strategies (GPMS) and Private Markets & Funds Alpha (PMFA). The ED/CIO may call a meeting of the rebalancing task force to consider a discretionary rebalancing from time to time. In consultation with the rebalancing task force, and with a majority approval of the task force, a discretionary rebalancing may be initiated pursuant to the plan developed by the ARA Division.
3. Discretionary rebalancing may be used to bring public market asset classes partially or fully back to their strategic target weights, to reduce or use active risk, to otherwise minimize asset allocation drift, or to intentionally overweight or underweight an asset or sub-asset class.

4. In connection with any rebalancing, the ARA Division will develop and implement a plan (a "Rebalancing Plan") to affect the rebalancing. The Rebalancing Plan will include the total amount of each asset class to be bought and sold, the intended market exposures, and the time frame of purchases and sales. The Rebalancing Plan is based on best estimates of market prices, private market valuations, and benefits cash flows for when the rebalance will take effect. To the extent that the market prices are different at the time of a rebalancing from the anticipated market prices, valuations or cash flows, the Rebalancing Plan may be subsequently adjusted for additional purchases and/or sales to true up the market exposures to the anticipated levels of the originally approved rebalancing without further approval by the rebalancing task force.
5. The ARA Division, under the supervision of the head of ARA, has the discretion to approve intra-month allocation adjustments of unallocated fund-level cash to passive portfolios and to manage asset class mis-alignments. Such adjustments may be, for example, to allocate unallocated fund-level cash arising from a distribution, to raise liquidity to fund private markets capital calls, to adjust for benchmark weight changes, or to otherwise make adjustments during the month as conditions may arise to return the asset allocation to its intended allocation targets consistent with most recently approved Rebalancing Plan. The manner in which intra-month allocation adjustments of unallocated fund-level cash are allocated or cash deficits are funded depends on the source of such unallocated cash or cash deficit and shall follow Guideline 8 below, as applicable. Only passive portfolios may be utilized for allocations or deallocations. Once unallocated fund level cash is allocated to a passive portfolio, investment of such cash shall be made in accordance with the underlying passive portfolio's guidelines. Aggregate daily portfolio allocations or deallocations shall not exceed $250 million unless approved by the ED/CIO.
6. Exchange-traded and OTC options or other derivatives may be purchased or sold in conjunction with managing asset class exposure and rebalancing. The aggregate notional value of the options will be limited to 2% of the market value of the trust fund at the date of purchase. The term of options used for this purpose may not exceed one year.
7. Cleared derivatives traded on a swap execution facility (SEF) may only be traded on or pursuant to the rules of the SEFs of which SWIB is a member or participant.
8. In connection with any rebalancing, the following procedures will be followed with respect to the following asset classes:
    a. The Multi-Asset Strategy Class will rebalance 50% to Public Equities and 50% to Public Fixed Income. Accordingly, in connection with any rebalancing, for any percentage increase of assets in Multi-Asset, there will be a corresponding 50% reduction to Public Equities and a corresponding 50% reduction to Public Fixed Income, and vice versa if the Multi-Asset assets decrease. The rebalancing does not have to be proportional through the sub-asset classes.
    b. The Real Estate Asset Class will rebalance 50% to Public Equities and 50% to Public Fixed Income. Accordingly, in connection with any rebalancing, for any

percentage increase in Real Estate there will be a corresponding 50% reduction to Public Equities and a corresponding 50% reduction to Public Fixed Income, and vice versa if the Real Estate assets decrease. The rebalancing does not have to be proportional through the sub-asset classes.

c. The Private Equity Asset Class will rebalance on a 1 for 1 basis to Public Equities. Accordingly, in connection with any rebalancing, for any percentage increase in Private Equity there will be a corresponding 1% reduction to Public Equities. The rebalancing does not have to be proportional through the sub-asset classes.

IV. WRS General and Portfolio Guidelines – Internal Management

Each internal portfolio is assigned compulsory investment guidelines. Portfolio managers are generally not allowed to deviate from compulsory guidelines. If a deviation from compulsory guidelines occurs or is expected to occur, the staff member who becomes aware of it must immediately notify the head of the Compliance division, ED/CIO, and the division head of the asset class in which the deviation occurred. Upon receiving notice of a deviation or potential deviation, the ED/CIO and relevant division head will either take action to correct the deviation or obtain a waiver approved by the ED/CIO. If the ED/CIO is not available, then the waiver may be granted by any division head (other than the division head of the portfolio that is requesting the waiver) and the Deputy Executive Director. All waivers will be reported to the Investment Committee and documented in the Investment Committee's meeting minutes.

All internal portfolios are also assigned "soft risk parameters." Soft risk parameters refer to desired characteristics and/or risk exposures. Portfolio managers are allowed, however, to deviate from soft parameters in pursuit of excess return or efficiency, subject to Investment Committee inquiry, discussion and concurrence of the continued exposure. Soft risk parameters for each portfolio are detailed in *Appendix 2.*

The following general compulsory guidelines ("General Guidelines") are applicable to all internally managed portfolios. Individual portfolio guidelines appear subsequently.

1. All portfolios must be managed in accordance with the fiduciary standards set forth in section 25.15(2) of the Wisconsin Statutes.
2. Credit quality rating requirements refer to an entire rating level, e.g., "A or better" includes "A-" and better ratings. The lower of split ratings is used. Investment grade securities are those rated "BBB-" or better (or the equivalent rating agency rating).
3. Fixed income securities backed by the full faith and credit of the U.S. government will be classified as U.S. government securities for purposes of these guidelines.
4. Any sovereign debt obligation in which SWIB invests must be rated "B3/B-" or above, unless otherwise approved in advance by the Investment Committee based on its guidelines for individual business case determinations.
5. Public equity investments in markets designated as "developed" or "emerging" are investments in entities that are incorporated or organized in countries included in the MSCI World Index or the MSCI Emerging Market Index, respectively. Public fixed

income investments in markets designated as "emerging" are investments in the debt of countries (or of companies incorporated or organized in countries) included in the JP Morgan Emerging Markets Diversified Index. Public fixed income investments in the debt of countries (or of companies incorporated or organized in countries) not included in the JP Morgan Emerging Markets Diversified Index will be designated as "developed."

6. The Board approves the benchmarks for the Core Trust Fund and Variable Trust Fund, which are listed in *Appendix 3.* When new benchmarks are approved by the Board or modified by the Board, *Appendix 3* shall be updated without amendment to these IC Guidelines.

7. The ARA Division will monitor the risk exposures of all WRS portfolios. The head of ARA will have the authority to recommend modifications to portfolio exposures to manage risk exposures. With the ED/CIO's concurrence, the manager of a portfolio will make changes as recommended by the head of ARA. In addition to such recommendations, drawdown control procedures for all active internal WRS portfolios will be implemented and monitored by the ARA Division and adhered to by the portfolios.

8. Portfolios may utilize cash instruments or derivatives in their investment strategy. All investments used will be subjected to the risk analysis and monitoring processes at the portfolio, asset class and fund levels. New derivative strategies and investment instruments will be reviewed with and approved by the Investment Committee prior to implementation.

9. Exposure limits and credit quality exposure limits are to be applied at the time of purchase. Unless otherwise indicated, "value" shall mean market value including un-invested cash.

A. Small Cap Portfolios

The Small Cap Portfolios are invested primarily in publicly traded equity securities that are registered with the Securities and Exchange Commission, including common stocks, preferred stocks, ETFs, American Depository Receipts (ADRs), American Depository Shares (ADSs), convertible bonds, securities issued in initial public offerings, and when-issued securities. The Small Cap Portfolios may also be invested in equity securities that are publicly traded on stock exchanges in other developed countries.

1. When aggregated with other SWIB portfolios, no more than 20% of outstanding shares of any single issuer, excluding shares held in commingled funds and ETFs, may be owned.

2. When aggregated with other SWIB portfolios, no single issuer's equity securities may represent more than 3%, excluding shares held in commingled funds and ETFs, of the total market value of all SWIB equity portfolios.

3. When aggregated with other SWIB portfolios, securities subject to restrictions on trading pursuant to Rule 144 under the Securities Act of 1933 shall not constitute more than 1% of the market value of all SWIB equity portfolios.

4. Up to 10% of each portfolio's market value may be invested in international and emerging markets companies through common stocks, ADRs, ADSs, or country-specific ETFs. All international and emerging markets stock transactions must be in equity securities that are publicly traded on a stock exchange in a developed country.

5. Portfolios may use exchange-traded futures contracts or ETFs to equitize cash and receivables.

6. Portfolios may sell short any securities that may be purchased under applicable guidelines and may then use the proceeds from the short sale to purchase additional approved securities. The total value of the short sales in a portfolio may not exceed 50% of a portfolio's market value.

7. Except as provided in 4 above, securities must be issued by an entity that is incorporated in the United States; provided that investment is also permitted if the issuer is incorporated in a tax haven outside the United States if 1) the company's headquarters are located in the U.S. or 2) the headquarters are located in Belize, Bahamas, Bermuda, British Virgin Islands, Cayman Islands, Channel Islands, Cook Islands, Isle of Man, Marshall Islands, Panama, Liberia or Netherland Antilles and the primary exchange for the issuer's securities is located in the U.S.

8. The aggregate notional value of put options sold and not covered by portfolio cash is limited to 10% of the market value of the portfolio. The aggregate notional value of call options sold and not covered by the underlying security positions is limited to 10% of the market value of the portfolio.

B. Global Equity Portfolios

The global sector portfolios are invested primarily in publicly traded equity securities, including common stocks, preferred stocks, ADRs, ADSs, ETFs, convertible bonds, securities issued in initial public offerings, and when-issued securities, in each case that are issued and traded in U.S. and non-U.S. developed markets. Collectively, the global sector portfolios are referred to herein as the "global sector aggregate portfolio."

1. Investments in companies whose headquarters and/or primary exchange are located in emerging market countries shall not exceed 5% of the global sector aggregate portfolio's market value.

2. The global sector aggregate portfolio may own no more than 10% of outstanding shares of a single issuer, excluding shares held in commingled funds and ETFs.

3. No single issuer's equity securities, excluding shares held in commingled funds and ETFs, as a percentage of the total market value of the global sector aggregate portfolio, may exceed the greater of (i) 4.0% and (ii) the benchmark weight of the issuer plus 2.5%.

4. Securities subject to restrictions on trading pursuant to Rule 144 of the Securities Act of 1933 shall not constitute more than 1% of the market value of the global sector aggregate portfolio.

5. Securities offered or sold to U.S. investors pursuant to Regulation D or Rule 144A under the Securities Act of 1933 may be purchased if they are publicly traded on a stock exchange in a developed country.

6. Sector portfolios may use exchange-traded futures contracts or ETFs to equitize cash and receivables.

7. Sector portfolios may sell short any securities that may be purchased under applicable guidelines and may then use the proceeds from the short sale to purchase additional approved securities. The total value of the short sales in the global sector aggregate portfolio may not exceed 50% of the portfolio's market value.

8. The aggregate notional value of put options sold and not covered by portfolio cash is limited to 10% of the market value of the portfolio. The aggregate notional value of call options sold and not covered by the underlying security positions is limited to 10% of the market value of the portfolio.

C. Passive Portfolios

The objective of the passive portfolios is to closely track the returns and risk of their respective benchmarks.

1. The universe for inclusion in the portfolio shall be the full respective benchmark for each portfolio. Non-benchmark securities may be held from time-to time as a result of corporate actions, purchases or sales in advance of expected changes to the benchmark. Activity or retention of non-benchmark securities will only occur after the portfolio is entitled to receive the security and if the portfolio manager deems it beneficial to performance and not significantly detrimental to tracking error.

2. Securities offered or sold to U.S. investors pursuant to Regulation D or Rule 144A under the Securities Act of 1933 may be purchased if they are publicly traded on a stock exchange in a developed country.

3. Portfolios may use physical securities or synthetic instruments, including exchange-traded futures contracts, ETFs, swaps, or other Investment Committee-reviewed derivative instruments to equitize cash and receivables, to achieve policy fund level leverage within Trustee-approved limits; for liquidity purposes; to replicate beta for the alpha-beta overlay; or for other passive investment strategies. Passive portfolios used to achieve policy fund level leverage shall be monitored by the ARA Division so that the aggregated levels of policy fund financial leverage do not exceed any Trustee-approved limits.

4. Portfolios may sell short from time to time as a result of corporate actions, benchmark changes or other similar events to more closely, more efficiently and/or more cost effectively track the returns and risk of their respective benchmarks if the

portfolio manager deems it beneficial to performance and not significantly detrimental to tracking error. Short positions may not be used to intentionally take active risk. The portfolios may short any securities that may be purchased under Guidelines #1-3 and may then use the proceeds from the short sale to purchase additional approved securities.

D. Government/Credit Portfolio

The Government/Credit Portfolio is primarily invested in publicly traded and Rule 144A fixed income instruments, primarily of investment grade, including governments, government-related entities, and corporations around the world, primarily in developed markets, including the United States.

1. Effective duration of the portfolio shall remain within 30% of the assigned benchmark's duration.
2. Non-investment grade securities shall not exceed 25% of the portfolio's market value.
3. With the exception of developed market sovereign securities, issuer concentrations are restricted to 8% (investment grade) and 3% (non-investment grade), excluding holdings of ETFs, of the market value of the portfolio.
4. Securities sold to SWIB under Rule 144A under the Securities Act of 1933 may not exceed 30% of the portfolio's market value.
5. The Portfolio may invest long or short in fixed income ETFs that have been approved by Compliance and included on an approved trading list (including put or call options thereon).
6. Emerging market sovereign debt is limited to (a) securities that are rated "B-" or above and (b) debt of countries in the JP Morgan Emerging Market Bond Index Global Diversified ("JP Morgan EM Bond Index"). Emerging market corporate debt is limited to (a) securities that are rated "B-" or above and (b) issuers in the Bloomberg Barclays US Credit Index.
7. Gross emerging market ("EM") debt shall not exceed 25% of the portfolio's market value on a long or short basis (i.e., long % + short %). EM FX forwards will not be counted against the EM debt exposure threshold.
8. Subject to Guideline #10, gross EM currency shall not exceed 15% of the portfolio's market value on a long or short basis (i.e., long % + short %), except that EM FX forwards intended to hedge the currency risk of an EM debt of same country may be netted (measured using the notional value of the currency forwards) and only the netted amount shall count against the 15% threshold. To calculate the threshold under this Guideline #8, EM unhedged local currency debt shall be included, and any FX exposure described in Guideline #9, that is not used to hedge EM debt shall be counted toward the EM currency limit.
9. Currency, interest rate, credit or return derivatives use is permitted for the purposes of adjusting durations, taking or modifying credit or currency positions, investing

anticipated cash flows or to replicate a position taken through the purchase or sale of a permitted bond. Derivatives use is permitted through the use of (a) exchange-traded interest rate, credit and currency instruments, including futures and options, (b) spot and forward contracts in foreign currencies, (c) Over-the-counter and exchanged traded currency ("FX") options limited to delta-adjusted notional value of +/- 5% of the market value of the portfolio, (d) interest rate, credit default and total return swaps on securities approved herein in accordance with the General Guidelines above and (e) volatility derivatives (including options) limited to 5% gross notional exposure and 2% net notional exposure of the portfolio market value. Notwithstanding Guideline #6, underlying securities in traded credit default swap indices ("CDSI") may include (i) EM sovereign and EM corporate debt securities rated "B-" or below, (ii) EM debt of countries that are not included in the JP Morgan EM Bond Index , or (iii) EM corporate issuers that are not included in the Bloomberg Barclays US Credit Index; provided however, that at least 75% of the EM sovereign debt securities or EM corporate debt securities that underlie any such traded CDSI are included in the indices listed in Guideline #6, as applicable, and are rated at least "B-" and above. Also, underlying securities in traded CDSI may include corporate securities rated lower than "B-" or below; provided however, that at least 75% of the corporate securities underlying the traded CDSI are rated at least "B-" and above.

10. Subject to the limitation in Guideline #8, the portfolio may take a position in a single market currency of developed (non-U.S.) countries of up to +/- 10% of the market value of the portfolio. Currencies of developed (non-U.S.) and emerging markets countries may be held through the use of forward contracts (including FX Swaps) provided that the notional value of any single EM currency shall not exceed +/- 5% of the market value of the portfolio.

11. Maximum cash in the portfolio shall not exceed 25% of the market value of the portfolio.

E. U.S. TIPS Index Portfolio

The U.S. TIPS Index Portfolio is invested in U.S. Treasury Inflation-Protected Securities (TIPS).

1. Individual securities must be U.S. TIPS which are included in the Barclays U.S. TIPS benchmark.

2. The portfolios option adjusted duration should be +/- 15% of the benchmark duration.

F. Currency Overlay

To separate the management of currency risk from the risk of asset allocation and security selection, a currency overlay may be established at the fund level for the Core Fund and/or the Variable Fund. The ED/CIO, the head of ARA, and the internal Global Bond Portfolio Manager shall set the currency overlay strategy.

1. The amount of the overlay will be expressed in relation to the size of the aggregate non-U.S. market value of the internally managed Global Sector Portfolios and the internally managed MSCI World ex U.S. Index Portfolio. This amount is referred to as the "portfolio reference value." For example, if the Global Sector Portfolios have a non-U.S. market value of $1 billion and the MSCI World ex U.S. Index Portfolio has a market value of $1 billion, then the portfolio reference value is $2 billion.
2. Only the currencies in the MSCI All Country World Index (ACWI) may be used to implement the currency overlay.
3. Currencies may be bought or sold.
4. Positions in any individual non-U.S. currency may be taken equal to +/- 10% of the portfolio reference value for major currencies (Euro, UK Sterling and Japanese Yen) and +/- 5% for all other ACWI currencies. For example, if the portfolio reference value is $2 billion, individual currency positions in major currencies could be taken of +/- $200 million.
5. Up to 25% of the portfolio reference value may be hedged into U.S. dollars.
6. The risk of the currency overlay strategy in aggregate will be limited to 25% of the active risk target for the total trust fund, which is set by the Board.
7. Limits shall be calculated using the notional value of the currency instruments (*i.e.*, forwards and futures) and the portfolio reference value at the time of purchase.

G. Exposure Management Portfolios

Portfolios may be established at the asset class level for multi-asset, public equity and public fixed income asset classes to provide for adjustment and management of the Core Fund and Variable Fund exposures and to utilize or adjust active risk of the Core Fund and Variable Fund. In determining portfolio investments, exposures held in both internally and externally managed portfolios will be considered. These portfolios may also be used to express investment strategies and ideas where the sizing of the investment requires it to be outside of an individual internal portfolio.

Each strategy and/or investment idea expressed in the portfolios shall be approved by any three of the ED/CIO and the heads of ARA, GPMS and PMFA. Portfolio oversight will be the responsibility of the ARA Division, and the Investment Committee will monitor each investment in the portfolios. The Investment Committee shall establish procedures to monitor these portfolios. These portfolios may invest in any instrument approved for the relevant asset class portfolios described elsewhere in these guidelines. The portfolios may use derivative instruments.

Portfolios will not have a separate benchmark or risk target, but will be included within the benchmark and risk parameters for the applicable aggregated asset class. The portfolios may include, for example, investments strategies to adjust aggregate equity beta, the allocations between specific sectors or sub-asset class exposures, currency exposures, volatility exposure, or credit exposure or duration.

H. Multi-Asset Strategies Portfolios

The Multi-Asset Strategies portfolios are authorized to invest in or short any instrument and derivative, subject to the general and derivative guidelines contained in these IC Guidelines and the following restrictions:

1. The maximum amount to be allocated to Multi-Asset Strategies, expressed as a percentage of the total Core Fund, shall be approved by the Board.
2. The maximum active risk target of an individual Multi-Asset Portfolio at time of implementation will be targeted at no more than 6% of the active risk target for the total Core Fund, which is set by the Board.
3. The strategies within a Multi-Asset Portfolio may be managed either by internal investment staff or by an external manager. The SWIB individual(s) proposing a strategy will manage and monitor the strategy and ensure that all reporting requirements are satisfied.
4. Leverage and derivatives may be used to implement individual strategies and to adjust the market exposure of a Multi-Asset Portfolio, subject to the active risk target limit stated in guideline 2 above.
5. To-be-announced mortgage-backed securities (TBA MBS) may be traded only with a counterparty with which SWIB has a current Master Securities Forward Transaction Agreement (MSFTA).
    a. The counterparty, or its guarantor, must, on each date on which a transaction is initiated, have a credit rating of not less than "Baa2/BBB" on long-term debt from S&P or Moody's.
    b. If the counterparty is not rated, then its parent must have such a rating and must guarantee the obligations of the counterparty.
    c. If a counterparty or its parent is downgraded to a credit rating below "Baa2/BBB" after the initiation of a trade, then trades may be initiated with that same counterparty only to reduce the existing exposure to that downgraded counterparty.
6. The settlement of any forward TBA contract shall not be more than 90 days from the date of the trade.

Global Securities Portfolio:

1. Any physical and derivative instrument is permitted subject to the Multi-Asset Strategies Portfolios Guidelines contained in these IC Guidelines. Shorting is permitted. Up to 50% of the portfolio market exposure can be created synthetically to fund long/short ideas.
2. Positions may be purchased long and sold short, and the use of leverage will be incorporated in ex-ante risk assessments and active risk contributions.
3. The Global Securities Portfolio (GSP's) ex-ante tracking error limit will not exceed 6% as measured by SWIB's standard model used at any given time by SWIB's ARA Division. If market conditions (compared to active management actions) cause the portfolio's ex-ante tracking error to exceed this limit, then the GSP will not be deemed to be out of compliance with these guidelines and this guideline will not be deemed to be violated; except that, if the GSP's ex-ante tracking error exceeds 6% then the portfolio may not trade or take any other action which is predicted to increase the ex-ante tracking error of the portfolio.

I. Mortgage-Backed Securities Portfolio

The Mortgage-Backed Securities (MBS) portfolio is primarily invested in agency-backed securities in the United States, including mortgage pools, TBA MBS and collateralized mortgage obligations (CMOs).

1. Securities not eligible for inclusion in the benchmark, but otherwise permitted in these portfolio guidelines, may not exceed 25% of the portfolio's market value. TBA MBS and ETFs will not be counted toward this 25% limit.
2. Effective duration of the portfolio shall remain within one year of the assigned benchmark's duration.
3. Non-agency MBS, including GSE risk-sharing securities, may not exceed 10% of the portfolio's market value.
4. The MBS portfolio may invest long or short in ETFs that invest primarily in U.S. MBS and that have been approved by Compliance and included on an approved trading list (including put or call options thereon).
5. Ex-ante tracking error will not exceed 4% as measured by SWIB's standard model used at any given time by SWIB's ARA Division. If market conditions (compared to active management actions) cause the portfolio's ex-ante tracking error to exceed this limit, then the portfolio will not be deemed to be out of compliance with these guidelines and this guideline will not be deemed to be violated; except that, if the portfolio's ex-ante tracking error exceeds 4% then the portfolio may not trade or take any other action which is predicted to increase the ex-ante tracking error of the portfolio.
6. Except for TBA MBS, US Treasuries and ETFs, no single issue may exceed 5% of the portfolio's market value. No single BBB-rated issue may exceed 2% of the portfolio's

market value. No single issue rated below BBB may exceed 1% of the portfolio's market value. Each tranche of a securitized product is considered a separate issue. Total exposure to issues rated BBB or below may not exceed 10% of the portfolio's market value.

7. Commercial mortgage-backed securities (CMBS), asset-backed securities (ABS) and collateralized loan obligations (CLOs) with a maturity of more than one year may not, in the aggregate, exceed 10% of the portfolio's market value.

8. CMBS, ABS and CLOs with a maturity of one year or less (i) may not, in the aggregate, exceed 25% of the portfolio's market value, (ii) may not be rated below investment grade, and (iii) will have an average credit rating of "A" or better. The portfolio may also use repurchase agreements and reverse repurchase agreements for cash management.

9. Interest rate and volatility derivatives use is permitted for the purposes of duration, interest rate, yield curve and volatility management. Derivatives use is permitted through the use of (a) exchange-traded interest rate instruments, including futures and options, (b) interest rate swaps and swaptions, (c) MBS options, and (d) other volatility derivatives (including options) limited to 10% gross notional exposure and 5% net notional exposure of the portfolio's market value. The portfolio may also invest in securities issued by the US government and its agencies, including through futures.

10. TBA MBS will conform to Guidelines #5-6 under the Multi-Asset Strategies Portfolios.

11. Maximum cash (including cash equivalent securities as defined above) may not exceed 20% of the portfolio's market value.

12. CLOs collateralized by corporate bank loans may not exceed 3% of the portfolio's market value.

J. High-Yield Bond Portfolio

The High-Yield Bond Portfolio is eligible to invest in any instruments included in the assigned benchmark — primarily U.S. dollar denominated publicly-traded and Rule 144A high-yield corporate bonds or other fixed income instruments rated between BB+/Ba1 and B-/B3. Subject to the limitations set forth below, the portfolio may also invest in non-U.S. dollar denominated bonds of issuers located outside of the United States, as well as convertible, preferred securities and equity securities.

1. The portfolio shall maintain at minimum a weighted average rating of B-. Subject to the forgoing, the portfolio may hold fixed income instruments rated below B-/B3 as well as unrated securities, provided the unrated securities have been assigned an internal SWIB rating by portfolio management staff using similar rating methodologies as the rating agencies.

2. Effective duration of the portfolio shall remain within +/- five years of the assigned benchmark's effective duration.

3. Positions may be purchased long and sold short, and the use of leverage will be incorporated in ex-ante risk assessments and active risk/tracking error contributions. The portfolio may take short exposure by shorting individual securities, cash bonds, buying single name CDS, shorting the CDX index, shorting high-yield and equity ETFs that have been approved by Compliance and included on an approved ETF trading list (including put or call options thereon), as well as shorting the underlying equity of a leveraged issuer.

4. Instruments not included in the benchmark, but otherwise permitted in these portfolio guidelines, may not exceed 25% of the portfolio's market value on a long or short basis (i.e., long % + short %). For the avoidance of doubt, any instrument that is subsequently removed from the portfolio's benchmark due solely to the instrument's maturity falling below the benchmark's stated thresholds shall not be deemed to be out of benchmark for purposes of the 25% limitation described in this Guideline #4.

5. Maximum single issuer concentration is limited to 5%, excluding Treasuries, Treasury futures and holdings of ETFs, of the portfolio's market value on a net basis.

6. Gross exposure to non-U.S. Dollar denominated instruments shall not exceed 10% of the portfolio's market value on a long or short basis (i.e., long % + short %).

7. Gross exposure to emerging market corporate debt is limited to (a) securities that are rated "B-/B3" or above and (b) issuers incorporated or organized in countries included in the JP Morgan Emerging Markets Diversified Index, and in aggregate shall not exceed 5% of the portfolio's market value on a net basis.

8. Exposure to any single industry sector shall remain within 20% of the assigned benchmark's industry sector weighting on a net basis.

9. Exposure to high-yield bank loans shall not exceed 10% of the portfolio's market value on a net basis.

10. Ex-ante tracking error shall not exceed 5% as measured by SWIB's standard model used at any given time by SWIB's ARA Division. If market conditions (compared to active management actions) cause the portfolio's ex-ante tracking error to exceed this limit, then the portfolio will not be deemed to be out of compliance with these guidelines and this guideline will not be deemed to be violated; except that, if the portfolio's ex-ante tracking error exceeds 5% then the portfolio may not trade or take any other action which is predicted to increase the ex-ante tracking error of the portfolio.

11. The portfolio may use eligible derivative instruments to manage the duration, yield curve exposure, currency, interest rate, and market exposure of the portfolio. Eligible derivatives include (i) CDS (as described in more detail under Guideline #3 above); (ii) futures contracts on securities, indices, and interest rates; (iii) forward contracts for securities, indices, and interest rates; (iv) swap contracts for securities, indices, and interest rates; (v) options on high yield and equity ETFs (as described in more detail under Guideline #3 above); and (vi) options on the underlying equity of a leveraged issuer.

12. Gross exposure for the portfolio shall not exceed 200% of the portfolio's market value, and net exposure for the portfolio shall not exceed 150% of the portfolio's market value, in each case unless approved by the ED/CIO.

K. Short Term Credit Portfolio

The Short-Term Credit Portfolio is an investment vehicle of cash and short-term investments of the WRS designed to achieve a return equal to USD Three Month LIBOR. Its investment objectives are: 1) Safety of principal; 2) Return Objective of 3-Month LIBOR; and 3) Liquidity.

Portfolio Allocation

(Percent of Portfolio at Par Value)

Treasuries, Agencies, and FDIC Insured Bank Deposits	0-100%
Repurchase Agreements	0-100%
Commercial Paper	0-100%
Corporate Notes	0-100%
Certificates of Deposit/Time Deposits	0-50%
Bankers' Acceptances	0-50%
Yankee/Euro Certificates of Deposit/Time Deposits (U.S. Dollars)	0-50%

Maturity Guidelines

(Maximum)

Consistent with the portfolio purpose and objectives, the portfolio weighted average maturity will not exceed one year (the weighted average maturity of floating rate securities is based on interest rate reset dates).

Repurchase Agreements	1 year
Reverse Repurchase Agreements	1 year
U.S. Treasuries and Agencies	5 years
Commercial Paper/Bankers' Acceptances	1 year
Corporate Notes – Fixed Rate	3.1 years
Corporate Notes – Floating Rate	5.1 years
Certificates of Deposit/Time Deposits	5 years
Yankee/Euro Certificates of Deposit/Time Deposits	5 years

Issuer Exposure

(Percent of Portfolio at Par Value)

The maximum exposure for each issuer/guarantor/counterparty shall be in the aggregate as follows:

U.S. Treasury Bills and U.S. Agency Discount Notes	No limit

Repurchase Agreements (Gov't/Agency Collateral)	25%
Repurchase Agreements (Other Collateral)	5%
Commercial Paper and Corporate Notes	5%
Certificates of Deposit/Time Deposits	5%
Bankers' Acceptances	5%
Yankee/Euro Certificates of Deposit/Time Deposits (U.S. Dollars)	5%
Wisconsin CD Program – individual bank (unless a higher limit from another category applies.)	$20MM or 3% of bank assets, whichever is less
Bank Deposits	Up to the amount guaranteed by the FDIC or the amount allowable for a bank instrument, whichever is higher

CREDIT QUALITY

The minimum rating of an issuer/counterparty shall be the lowest in the event of a split rating and shall be as follows:

U.S. Treasury Bills and U.S. Agency Discount Notes	No minimum
Repurchase Agreements	BBB
Commercial Paper	A-2/P-2
Unrated Wisconsin Company Commercial Paper (maximum maturity of 90 days and percentage of the portfolio in unrated CP cannot exceed 15%)	Unrated
Corporate Notes, Bankers' Acceptances, Certificates of Deposit/ Time Deposit, Bank Deposits and Yankee/Euro Certificates of Deposit/Time Deposits (U.S. Dollars) greater than 1 year	A
Corporate Notes, Bankers' Acceptances, Certificates of Deposit/ Time Deposit, Bank Deposits and Yankee/Euro Certificates of Deposits (U.S. Dollars) less than 1 yea (the percentage of the portfolio in BBB cannot exceed 15%).	BBB
Wisconsin CD Program – individual bank	Unrated

L. General Guidelines specific for Private Market and Hedge Fund Portfolios

1. The portfolio manager shall be responsible for notifying the ED/CIO of any referrals or significant contacts by or on behalf of SWIB Trustees regarding consideration of an investment opportunity.

2. The Private Markets & Funds Alpha (PMFA) staff shall report to the Trustees all portfolio commitments to non-public investments.

3. Each portfolio manager shall obtain written confirmation from legal counsel (which may be external legal counsel) that documentation has been satisfactorily completed prior to closing of any investment in his or her portfolio that involves negotiated SWIB documentation.

4. Each portfolio manager shall submit to the head of PMFA a written summary of any proposed investment. The head of PMFA will review all such investments to determine that a) the investment falls within the portfolio's investment guidelines, including limits on invested capital, b) the investment is consistent with the portfolio's established strategy, and c) the appropriate due diligence standards are being applied. No such investment may be closed without approval of the head of PMFA or ED/CIO depending upon the nature and amount of the investment as required in the relevant portfolio guidelines. The portfolio manager shall retain responsibility for each investment decision. External managers with delegated investment discretion operate under separate authority. For purposes of this paragraph, "investments" does not include the individual properties within a Real Estate Equity Portfolio separate account tranche, but does include the tranche that holds such properties.

5. Dollar limitations for commitments to funds or other investments do not apply to incidental and customary contractual reinvestment, indemnity, reserve or similar obligations incorporated into the terms of an investment, provided such obligations are not expected to be material.

6. Private equity and venture capital investments in markets designated as "developed" or "emerging" are investments in countries included in the MSCI World Index or the MSCI Emerging Market Index, respectively. Real estate investments in markets designated as "developed" or "emerging" are investments in properties in countries included in the EPRA/NAREIT Developed Index and the EPRA/NAREIT Emerging Market Index, respectively.

7. Funds or commingled investments shall be considered U.S., non-U.S., "developed" or "emerging" based on their primary strategy and not on a look-through basis to the underlying investments.

8. Exposure limits and credit quality exposure limits are to be applied at the time of purchase. The term "exposure" is defined as the net asset value plus unfunded commitments.

M. Private Debt Portfolio

The overall objective of the Private Debt Portfolio (the "Private Debt Portfolio" includes both the Wisconsin Private Debt Portfolio and the Non-Wisconsin Private Debt Portfolio) is to invest funds of the Core Fund in market rate fixed income instruments consistent with SWIB's fiduciary responsibilities that are primarily private loans negotiated by SWIB directly or as part of an investor group that includes banks or other institutional investors. The two portfolios are invested as follows:

- Wisconsin Private Debt Portfolio – This portfolio's investments will consist of loans or fixed income securities issued by companies or entities that are headquartered in Wisconsin, have existing operations in Wisconsin, or intend to apply the proceeds to new business operations in Wisconsin which contribute to the Wisconsin economy.
- Non-Wisconsin Private Debt Portfolio – This portfolio can invest in loans or fixed income securities issued by companies or entities located in or doing business in the United States.

The Private Debt Portfolio may also include securities sold to SWIB pursuant to Rule 144A or in the public fixed income markets. Investments may be made in fixed income instruments and in instruments with both fixed income and equity features.

1. Investments may carry a rating from a national rating agency, the National Association of Insurance Commissioners (NAIC) or SWIB. Notwithstanding the provisions of the General Guidelines above, the Portfolio Manager may make investments that carry a "BBB" or better rating from a national rating agency or the NAIC, provided that if the investment carries only a SWIB rating, it shall be approved by the head of PMFA, regardless of size.
2. Investments may be made in below investment grade instruments provided that such investments do not in the aggregate constitute more than 25% of the Private Debt Portfolio's par value. Any investment below investment grade requires approval from the head of PMFA.
3. The Private Debt Portfolio's aggregate portfolio issuer limits shall be scaled by quality and a purchase may not cause the Private Debt Portfolio's exposure to a borrower or issuer to exceed the following limits (at par value):

Rating	Maximum Position
U.S. Gov't/Agency	No Limit
"AA" or higher	$100 MILLION
"A"	$75 MILLION
"BBB"	$50 MILLION
"BB" or less	$25 MILLION

4. The Private Debt Portfolio shall maintain at minimum a weighted average rating of "BBB", where "AAA"=4, "AA"=3, "A"=2, "BBB"=1, and "BB" or less =0.

5. Other guideline limitations notwithstanding, portfolio managers or other staff authorized by the head of PMFA may modify or waive terms of investments in the portfolio and generally take any and all other actions that are necessary and reasonable to protect, maintain or enhance the value of SWIB's position in the investments.

N. Venture Capital Portfolio

The SWIB Venture Capital Portfolio (the "Venture Capital Portfolio" includes both the Wisconsin Venture Capital Portfolio and the Non-Wisconsin Venture Capital Portfolio) consists of venture capital or venture capital-related investments and invests as follows:

- The Non-Wisconsin Venture Capital Portfolio shall make venture capital investments on a global basis in limited partnership or other fund vehicles, through strategic partnerships, or as co-investments in venture-backed companies or publicly traded companies that were venture backed.
- The Wisconsin Venture Capital Portfolio shall make venture capital investments in limited partnership or other fund vehicles or strategic partnerships that are either located in Wisconsin and/or which target Wisconsin as a primary market or as co-investments in venture-backed companies or publicly traded companies that were venture backed that are located or have operations in Wisconsin.

A private equity consultant hired by SWIB will review prospective investments in limited partnerships or other fund vehicles with new managers and make individual written recommendations to SWIB staff. SWIB shall only invest in new limited partnerships or other fund vehicles with new managers that are affirmatively recommended by the Consultant. Follow-on funds, co-investments and secondary fund purchases do not require consultant review. A "follow-on fund" is an investment or an investment vehicle that has the same sponsor or manager and is either parallel to, or has a substantially similar investment strategy as, a fund in which SWIB is or has been an investor. From time to time, SWIB may also consider formation of fund investments where it may participate both as a general partner and as limited partner. In such cases, subject to the approval limits below, SWIB will retain a consultant to advise it on the strategy and opportunity.

1. Any other guidelines notwithstanding, the Venture Capital Portfolio commitments are subject to the following approvals:

Approval By:	Head of PMFA	ED/CIO
New Manager		
• Venture Capital Funds	Up to $60 million or less	More than $60 million
• Venture Capital Co-Investments	Up to $20 million or less	More than $20 million

Follow on Commitments		
• Venture Capital Funds	Up to $75 million	More than $75 million
• Venture Capital Co-Investments (excluding funds of one)	Up to $25 million	More than $25 million
SWIB ownership equal to or greater than 50% of an individual fund (excluding funds of one and any fund/vehicle through which a co-investment is made)	ED/CIO, provided that notice shall be given to the ED/CIO if ownership of an individual fund (excluding a fund/vehicle through which a co-investment is made) is equal to or greater than 33 1/3%	

2. No more than 45% of the Venture Capital Portfolio's exposure may be invested outside of the U.S., without the approval of the ED/CIO. No more than 20% of the Venture Capital Portfolio's exposure may be invested in emerging markets. No more than 5% of the Venture Capital Portfolio's exposure may be invested in companies located in emerging markets.
3. No more than 2% of the Core Fund may be invested in venture capital.
4. Venture capital investments may be made through funds, strategic partnerships, or co-investments. Venture capital co-investments (excluding funds of one) must be made in one of the following ways:

   (1) alongside a fund with the same sponsor or manager as a fund in which SWIB is or has been an investor,

   (2) alongside a fund with the same sponsor or manager as a fund on which SWIB is conducting due diligence and is actively evaluating for a prospective commitment, or

   (3) as approved by the ED/CIO.
5. Venture capital co-investments made within the Wisconsin Venture Capital Portfolio are limited to companies with their headquarters or primary operations in Wisconsin. Co-investments in the Non-Wisconsin Venture Capital Portfolio may not make up more than 15% of the Venture Capital Portfolio's exposure.
6. Neither the aggregate exposure (including co-investments) to any fund manager or sponsor, nor the aggregate amount of investments in any company, may exceed 20% of the Venture Capital Portfolio's exposure without approval of the ED/CIO.
7. No single co-investment (excluding funds of one) shall exceed 10% of the Venture Capital Portfolio's exposure.
8. The Venture Capital Portfolio may make co-investments in public company securities through private placements, including PIPEs, or other offerings. Co-investments in

public company securities shall not exceed 10% of the Venture Capital Portfolio's exposure. For purposes of this guideline, public company securities received via a distribution are not counted and are expected to be sold as soon as reasonably practicable.

9. Subject to the approval thresholds and the restrictions above, the Venture Capital Portfolio Manager or other staff authorized by the head of PMFA may modify or waive terms of investments in the portfolio and generally take any and all other actions that are necessary and reasonable to protect, maintain or enhance the value of SWIB's position in the investments.

O. Private Equity Portfolio

The Private Equity Portfolio consists of private equity or private equity-related investments, made on a global basis, in limited partnership or other fund vehicles, strategic partnerships, and co-investments in operating or holding companies. Investment guidelines and soft parameters shall be applied to the aggregate composition of the Private Equity Portfolio (including the Legacy, Private Equity Co-Investment, Current Return and Current Return Co-Investment Portfolios), unless otherwise stated. A private equity consultant hired by SWIB will review prospective investments in limited partnerships or other fund vehicles with new managers and make individual written recommendations to SWIB staff. SWIB shall only invest in limited partnerships or other fund vehicles with new managers that are affirmatively recommended by the Consultant. Follow-on funds, co-investments and secondary fund purchases do not require consultant review. A "follow-on fund" is an investment or an investment vehicle that has the same sponsor or manager and is either parallel to, or has a substantially similar investment strategy as, a fund in which SWIB is or has been an investor. Co-investments where SWIB is the lead investor may not be made.

1. Any other guidelines notwithstanding, all portfolio commitments are subject to the following approvals:

	Head of PMFA	ED/CIO
New Manager		
• Funds or Strategic Partnerships	$150 million or less	Over $150 million
• Co-Investments	$50 million or less	Over $50 million
Follow-on Commitments		
• Funds or Strategic Partnerships	$300 million or less	Over $300 million
• Co-Investments	$100 million or less	Over $100 million

SWIB ownership equal to or greater than 50% of an individual fund (excluding a fund/vehicle through which a co-investment is made)	ED/CIO, provided that notice shall be given to the ED/CIO if ownership of an individual fund (excluding a fund/vehicle through which a co-investment is made) is equal to or greater than 33 1/3%

2. The Private Equity Portfolio shall not include investments in venture capital funds.

3. Investments may be made through funds, strategic partnerships, or co-investments. Co-investments must be made in one of the following ways:

   (1) alongside a fund with the same sponsor or manager as a fund in which SWIB is or has been an investor,

   (2) alongside a fund with the same sponsor or manager as a fund on which SWIB is conducting due diligence and is actively evaluating for a prospective commitment, or

   (3) as approved by the ED/CIO.

4. Neither the aggregate exposure (including co-investments) to any fund manager or sponsor, nor the aggregate amount of investments in any company, may exceed 10% of the total Private Equity Portfolio's exposure without approval of the ED/CIO.

5. No more than 45% of the Private Equity Portfolio's exposure may be invested outside of the U.S., without the approval of the ED/CIO. No more than 20% of the Private Equity Portfolio may be invested in emerging markets.

6. No more than 45% of the Private Equity Co-Investment Portfolio's exposure may be invested outside of the U.S., without the approval of the ED/CIO. No more than 20% of the Private Equity Co-Investment Portfolio's exposure may be invested in companies located in emerging markets.

7. The Private Equity Co-Investment Portfolio may make co-investments in public company securities through private placements, including PIPEs, or other offerings. Co-investments in public company securities shall not exceed 10% of the Private Equity Co-Investment Portfolio's exposure. For purposes of this guideline, public company securities received via a distribution are not counted and are expected to be sold as soon as reasonably practicable.

8. Other guideline limitations notwithstanding, portfolio managers or other staff authorized by the head of PMFA may modify or waive terms of investments in the portfolio and generally take any and all other actions that are necessary and reasonable to protect, maintain or enhance the value of SWIB's position in the investments.

P. Real Estate Equity Portfolio Guidelines

The Real Estate Equity Portfolio contains investments in a broad range of real estate and real estate-related assets, including equity and debt investments, either solely, or through investment vehicles and structures such as public or private Real Estate Investment Trusts

(REITs), public or private real estate company securities, limited liability corporations, limited partnerships, joint ventures, separate accounts or co-investment vehicles. Investment guidelines and soft parameters for Real Estate shall be applied, on an invested basis, to the aggregate composition of the Real Estate Equity Portfolio (except that all REIT portfolios shall be included in the aggregate as Core holdings). A real estate consultant hired by SWIB will review prospective commingled fund investments with new managers and make individual written recommendations to SWIB staff. SWIB shall only invest in commingled fund investments with new managers that are affirmatively recommended by the Consultant. Follow-on funds and secondary fund purchases will not require consultant review. A "follow-on fund" is an investment or an investment vehicle that has the same sponsor or manager and is either parallel to, or has a substantially similar investment strategy as, a fund in which SWIB is or has been an investor.

All portfolio commitments are subject to the following approvals:

	Head of PMFA	ED/CIO
Commingled Fund		
• New Fund	$150 million or less	Over $150 million
• Follow-on Fund	$300 million or less	Over $300 million
Core - Separate Account*	$300 million or less	Over $300 million
Non-Core – Separate Account*	$200 million or less	Over $200 million

*With respect to a separate account tranche, approval is required for the tranche, but not for individual investments within the tranche.

1. Aggregate exposure (including co-investments) to any commingled fund manager or sponsor may not exceed 20% of the Real Estate Equity Portfolio's exposure without approval of the ED/CIO. This does not apply to real estate investments for which SWIB has sole discretion to select, retain, and terminate manager(s) and/or advisor(s) without cause.
2. Aggregate direct public REIT and real estate company stock holdings (excluding underlying commingled fund holdings and externally managed REIT Portfolios) may not exceed 15% of the Real Estate Equity Portfolio's exposure and portfolio investments in any one public REIT or company may not exceed 3% of the Real Estate Equity Portfolio's exposure. SWIB's direct ownership position in any public REIT or company may not exceed 20% of outstanding voting equity, without ED/CIO approval. Any externally managed REIT portfolio(s) will be managed under separate authority, with guidelines set out in the management agreement(s) between SWIB and the selected manager(s).
3. No more than 45% of the Real Estate Equity Portfolio's exposure may be invested outside the U.S., without the approval of the ED/CIO. No more than 20% of the Real Estate Equity Portfolio's exposure may be invested in emerging markets, and no more

than 10% of the Real Estate Equity Portfolio's exposure may be invested in separate accounts invested in emerging markets.

4. Other guideline limitations notwithstanding, the portfolio manager or other staff authorized by the head of PMFA may: modify or waive terms of investments in the portfolio, including without limitation mortgages and leases on real estate in the portfolio; enter into new mortgages and leases; execute deeds and bills of sale; make expenditures for maintenance and improvements; grant easements; hire consultants, service providers, real estate advisors and property managers; and generally take any and all other actions that are necessary and reasonable to protect, maintain or enhance investment value of SWIB's position in the investments.

5. Prior to funding a direct investment (including a property within a separate account tranche) where real property is a material component, the property shall be evaluated for the presence of environmental and code compliance issues. If environmental issues that require action by governmental authorities exist, then funding shall not occur until an adequate remediation program is in place. If code compliance issues exist, then an adequate plan to bring the property into compliance shall be in place.

6. SWIB may not initiate improvement or development of real property owned or controlled by SWIB without making provisions for compliance with applicable Federal, state and local codes and ordinances.

Q. Current Return Portfolio

The Current Return Portfolio consists of current return or certain equity-related investments, made on a global basis, in limited partnership or other fund vehicles, strategic partnerships, and co-investments in operating or holding companies. Investments may be made in fixed income instruments and in instruments with both current pay and equity features. Investment guidelines and soft parameters shall be applied to the aggregate composition of the Private Equity Portfolio (including the Legacy, Private Equity Co-Investment, Current Return and Current Return Co-Investment Portfolios), unless otherwise stated. A private equity consultant hired by SWIB will review prospective investments in limited partnerships or other fund vehicles with new managers and make individual written recommendations to SWIB staff. SWIB shall only invest in limited partnerships or other fund vehicles with new managers that are affirmatively recommended by the Consultant. Follow-on funds, co-investments and secondary fund purchases do not require consultant review. A "follow-on fund" is an investment or an investment vehicle that has the same sponsor or manager and is either parallel to, or has a substantially similar investment strategy as, a fund in which SWIB is or has been an investor. Co-investments where SWIB is the lead investor may not be made.

1. Any other guidelines notwithstanding, all portfolio commitments are subject to the following approvals:

	Head of PMFA	ED/CIO
New Manager		
• Funds or Strategic Partnerships	$150 million or less	Over $150 million
• Co-Investments	$50 million or less	Over $50 million
Follow-on Commitments		
• Funds or Strategic Partnerships	$300 million or less	Over $300 million
• Co-Investments	$100 million or less	Over $100 million
SWIB ownership equal to or greater than 50% of an individual fund (excluding a fund/vehicle through which a co-investment is made)	ED/CIO, provided that notice shall be given to the ED/CIO if ownership of an individual fund (excluding a fund/vehicle through which a co-investment is made) is equal to or greater than 33 1/3%	

2. Investments may be made through funds, strategic partnerships, or co-investments. Co- investments must be made in one of the following ways:

   (1) alongside a fund with the same sponsor or manager as a fund in which SWIB is or has been an investor;

   (2) alongside a fund with the same sponsor or manager as a fund on which SWIB is conducting due diligence and is actively evaluating for a prospective commitment; or

   (3) as approved by the ED/CIO.

3. Neither the aggregate exposure (including co-investments) to any fund manager or sponsor, nor the aggregate amount of investments in any company, may exceed 10% of the total Private Equity Portfolio's exposure without approval of the ED/CIO.

4. No more than 45% of the Current Return Portfolio's exposure may be invested outside of the U.S., without the approval of the ED/CIO. No more than 20% of the Current Return Portfolio may be invested in emerging markets.

5. No more than 45% of the Current Return Co-Investment Portfolio's exposure may be invested outside of the U.S., without the approval of the ED/CIO. No more than 20% of the Current Return Co-Investment Portfolio's exposure may be invested in companies located in emerging markets.

6. The Current Return Co-Investment Portfolio may make co-investments in public company securities through private placements or other offerings. Co-investments in public company securities shall not exceed 10% of the Current Return Co-Investment Portfolio's exposure. For purposes of this guideline, public company securities received via a distribution are not counted and are expected to be sold as soon as reasonably practicable.

7. Other guideline limitations notwithstanding, portfolio managers or other staff authorized by the head of PMFA may modify or waive terms of investments in the portfolio and generally take any and all other actions that are necessary and reasonable to protect, maintain or enhance the value of SWIB's position in the investments.

R. Hedge Fund Portfolio

The Hedge Fund Portfolio ("HF Portfolio") will be comprised primarily of direct investments in hedge funds and is intended to generate a low-beta, alpha-oriented return stream.

1. The HF Portfolio will be comprised of the following investment vehicles:

    a. *Direct Investments or Fund-of-Funds*: SWIB intends for its portfolio to be comprised primarily of direct investments in hedge funds rather than fund-of-funds vehicles that use an intermediary investment advisor(s) to select and allocate to hedge funds through a commingled fund, but SWIB may make investments in fund-of-fund vehicles, as may be deemed appropriate by Funds Alpha staff and otherwise approved hereunder.

    b. *Hedge Funds or Separately Managed Accounts* ("SMAs"): Investments can be made in limited liability partnerships with other investors or, in some cases depending upon the manager and size of investment, in separately managed accounts. SWIB expects its investments will be in limited liability vehicles rather than SMAs, but may make use of SMAs if it is in the best interest of SWIB to do so.

    c. *Special Opportunity Investments:* SWIB may invest a portion of its portfolio in special opportunity investments, which may include: interests in the equity or revenues of hedge fund managers, co-invest, or external manager "best ideas" opportunities. Special Opportunity Investments will be capped at 20% of the market value of the total HF Portfolio.

2. Hedge Fund Investment Strategies:

    a. *Event-Driven* – investments up (debt or credit) and down (equity) the corporate capital structure where an expectation exists for realized profits over a short to medium time frame as a result of a known catalyst such as a merger, spinoff, or restructuring.

    b. *Long-Short Equity* – long and short investments in publicly traded stocks.

    c. *Tactical Trading* – global investments in indexes, commodities, interest rates, and currencies and, in each case, their derivatives as a result of relative value or directional forecasts from a systematic or discretionary approach.

    d. *Relative Value* – strategies that seek to take advantage of price differentials by buying and selling different yet related securities. Relative value strategies include fixed income arbitrage, insurance linked, long/short credit, quantitative strategies, structured credit, and volatility-related investments.

e. *Multistrategy* – funds that invest across multiple asset classes, typically (but not always) with multiple portfolio managers. Most multistrategy funds diversify across three or more underlying strategies.

In the event a sub-strategy could fall under more than one Investment Strategy, the categorization designated by the Consultant will be utilized.

The HF Portfolio has the following target weightings and ranges to the individual hedge fund strategies, based on the Consultant's "Lower Beta" model portfolio recommendations:

	Target Allocation	Target Maximum
Relative Value	20%	40%
Event-Driven	15%	30%
Long-Short Equity	20%	30%
Tactical Trading	20%	40%
Multistrategy	20%	40%
Special Opportunity Investments	5%	20%
	100%	

3. Roles of SWIB staff and Consultant: SWIB Funds Alpha staff and the HF Portfolio Consultant (the "Consultant") will be responsible for conducting initial and ongoing hedge fund due diligence, selecting individual hedge funds, and determining the allocations to individual hedge funds. The Consultant, in concert with staff, will conduct investment and operational due diligence and make individual hedge fund written recommendations to SWIB staff. SWIB staff will conduct its own review and assessment of the universe of recommended managers from the Consultant and recommend hedge funds according to the approval process. SWIB shall only invest in new Hedge Funds that are affirmatively recommended by the Consultant, and SWIB shall obtain an additional recommendation from the Consultant for additional subscriptions to existing funds of $50 million or 30% of the current investment (whichever is less). SWIB staff and the Consultant will be responsible for ongoing monitoring of SWIB's hedge fund investments.

4. Approvals: HF Portfolio allocations are subject to the following approvals:

	Head of PMFA	ED/CIO
New Funds		
• Core	Up to $300 million	More than $300 million
• Special Opp/ Co-invest	Up to $50 million	More than $50 million
Additional Subscriptions to Existing Funds		

• Core	Up to $400 million aggregate invested	More than $400 million
• Special Opp/ Co-invest	Up to $100 million aggregate invested	More than $100 million
SWIB ownership equal to or greater than 50% of an individual fund, calculated at the master fund level (excluding funds of one and a fund/vehicle through which a co-investment is made)	ED/CIO, provided that notice shall be given to the ED/CIO if ownership of an individual fund (excluding funds of one and a fund/vehicle through which a co-investment is made) is equal to or greater than 33 1/3%	

5. The aggregate exposure to any hedge fund manager or sponsor (including co-investments) may not exceed 15% of the total HF Portfolio's exposure without approval of the ED/CIO.
6. Other guideline limitations notwithstanding, portfolio managers or other staff authorized by the head of PMFA may modify or waive terms of investments in the portfolio and generally take any and all other actions that are necessary and reasonable to protect, maintain, or enhance the value of SWIB's position in the investments.
7. All redemptions, terminations or reductions of capital will be at the discretion of the Funds Alpha Manager and the head of PMFA.

S. Beta One Portfolio

The Beta One Portfolio will be comprised primarily of direct investments in strategies of external managers that are intended to generate both (1) a beta or SWIB policy benchmark return and (2) an active alpha return stream above the benchmark. These managers are referred to as Beta One External Managers due to their dual mandate to manage both a Core Fund asset allocation benchmark and a tracking error around the given benchmark. The manager is expected to deliver the total return of the benchmark (or beta of one), plus an excess return (alpha) over the benchmark. This is distinctive compared to SWIB's external hedge fund portfolio, which is designed to deliver only an excess return or alpha. This section does not govern passive external managers which the Asset and Risk Allocation Division oversees and monitors.

1. Investments in Beta One External Managers will be comprised of the following investment vehicles:
    a. *Separately Managed Accounts* ("SMAs"): SWIB intends for its portfolio to be comprised primarily of direct investments in various strategies via SMAs, the assets of which would reside at SWIB's custodial bank.

b. *Commingled Investments or Fund Investments*: Investments can be made in commingled funds and/or limited liability partnerships with other investors or in a Fund-of-One structure where SWIB is the sole investor.

2. Investment Strategies and Broad Guidelines for Beta One External Managers:
   a. *Equities* – strategies will be comprised of various fundamental, quantitative and other approaches intended to produce an active return above the respective benchmarks. Strategies will be invested in traditional long only portfolios, active extension formats (i.e. 130/30, 150/50) and other public equity securities approaches across various styles, geographies and market cap weights. A limited use of shorting (up to 50%) may be used in the active extension format in non-SMAs.
   b. *Fixed Income* – strategies will be comprised of various fundamental, quantitative, and other approaches intended to produce an active return above the respective benchmarks. Strategies will primarily be invested in traditional long only portfolios across the credit quality spectrum, varying geographies, including emerging and frontier market debt, high yield and structured securities. Derivatives may be used primarily for duration and currency management and will be set forth in the individual manager guidelines.
   c. Notwithstanding any shorting permitted above and pursuant to SWIB's policies, the investment guidelines for SMAs will prohibit the Beta One External Managers from shorting any securities and from purchasing securities in certain secondary offerings.

3. Any use of derivatives, leverage, and shorting allowed will be incorporated into the ex-ante risk assessments and active risk contributions.

4. Roles of SWIB staff and Consultant: SWIB Funds Alpha staff and any Staff Consultant engaged by SWIB to conduct public markets managers search, ongoing due diligence, and/or external manager oversight (any such consultant a "Consultant") will be responsible for (i) conducting initial and ongoing due diligence, (ii) selecting individual strategies, (iii) determining the allocations to individual strategies (subject to the applicable approvals below), and (iv) negotiating and executing investment management agreements and investment guidelines consistent with this document. The Consultant, in concert with staff, will conduct due diligence (which may include business management, trading and operations, operational due diligence, valuation, risk management, and disclosures and investment terms) and make individual strategy written recommendations to SWIB staff. SWIB staff will conduct its own review and assessment with advice of the Consultant and recommend strategies according to the approval process. SWIB shall only invest in new Beta One External Managers that are affirmatively recommended by the Consultant. SWIB staff and the Consultant will be responsible for on-going monitoring, reporting, and assessment of SWIB's investments in Beta One External Managers.

5. Approvals: Beta One External Manager allocations are subject to the following approvals:

Investment	Head of PMFA	ED/CIO
New Manager Relationship	Up to $1.75 billion	More than $1.75 billion
Additional Subscriptions to Existing Manager	Up to $2 billion	More than $2 billion
Includes all Funds Alpha investments with the Manager, regardless of vehicle, strategy or portfolio.		

6. Other guideline limitations notwithstanding, the Funds Alpha Manager or other staff authorized by the head of PMFA may modify, amend or waive terms of Beta One Manager investment management agreements and generally take any and all other actions that are necessary and reasonable to protect, maintain, or enhance the value of SWIB's position in the investments.

7. All redemptions, terminations or reductions of capital will be at the discretion of the Funds Alpha Manager and the head of PMFA in consultation with the head of ARA for policy benchmark exposure consideration.

8. Notwithstanding the above discretion regarding redemptions, terminations or reductions, if ARA determines that certain risk attributes in the context of the total Core Fund or the aggregate Beta One Portfolio are undesirable for the Core Fund or the aggregate portfolio, then the head of ARA will have the authority to recommend redemptions, terminations or reductions to portfolio exposures. With the ED/CIO's concurrence, the Funds Alpha Manager will make the changes as recommended by the head of ARA.

T. Private Markets and Funds Alpha Overage Portfolios

Portfolios may be established at the asset class level for private equity, co-invest, real estate, venture capital, hedge fund, and private debt asset classes to provide for (i) excess exposure to certain investment ideas where the sizing of the investment requires it to be held, in part, outside of an individual internal portfolio or (ii) hedging transactions using public or private securities. In each case, a primary investment must be made by the relevant private markets or hedge fund portfolio with the excess exposure or hedging transaction being allocated to an overage portfolio. The relevant private markets or funds alpha portfolio manager will be responsible for portfolio oversight and monitoring of the investment, including the securities in the overage portfolio.

These portfolios may also be used to express investment strategies and ideas that do not fit clearly in any of the private markets or funds alpha portfolios but are attractive from a risk/return perspective. In such cases, no primary investment will be made in the existing

private markets portfolios, and the ED/CIO will designate a portfolio manager that will be responsible for portfolio oversight and monitoring.

These portfolios may invest in (1) any instrument approved for the relevant private markets asset class portfolios described elsewhere in these guidelines, and (2) any other public or private securities or derivatives approved for trading by SWIB solely for hedging purposes. Each investment idea expressed in the portfolios shall be approved by the head of PMFA, the relevant portfolio manager, and a majority of the ED/CIO and the heads of ARA and GPMS. Any approved investment shall be reported to the Investment Committee on a monthly basis. Other governance, monitoring, compliance or reporting for the investment may also be specified in the approval. Portfolios will not have a separate benchmark or risk target, but will be included within the benchmark and risk parameters for the applicable aggregated asset class, portfolio, or Core Trust Fund, as applicable and as approved at the time of the investment. If the investment will use active risk assigned to exposure management, it will be noted in the investment approval.

V. EXTERNAL MANAGEMENT

Portfolios may be managed internally by SWIB investment professionals or externally by money management firms. In making the decision on how the portfolios will be managed, SWIB compares the resources, expertise, and cost of internal management versus external management. If the decision is made to manage the portfolios externally, SWIB will determine whether a separate account or commingled fund best suits SWIB's needs.

External active and passive managers operate under contractual investment guidelines approved by SWIB's Investment Committee or by SWIB's investment management staff, as designated in the Investment Committee Charter.

APPENDIX 1 - APPROVED EXCHANGES

Approved Exchanges for Derivatives Trading as of January 28, 2020*

Australian Securities Exchange
BOX Options Exchange
CBOE C2 Options Exchange
CBOE BZX Options Exchange
CBOE EDGX Options Exchange
CBOE Futures Exchange
CBOE Options Exchange
Chicago Board of Trade
Chicago Mercantile Exchange
CurveGlobal Markets (London Stock Exchange Derivatives Market)
Eurex Exchange
Euronext Amsterdam
Euronext Brussels
Euronext Lisbon
Euronext Paris MATIF
Euronext Paris MONEP
ICE Futures Europe
ICE Futures US
ICE Futures Singapore
International Securities Exchange
Montreal Exchange
Nasdaq BX
Nasdaq Futures
Nasdaq GEMX
Nasdaq MRX
Nasdaq Options Market
Nasdaq PHLX
New York Mercantile Exchange
NYSE Arca Options
NYSE American LLC
Osaka Exchange
TMX (Toronto Montreal Exchange)
Tokyo Stock Exchange

*Approved exchanges shall include any and all exchanges that may be acquired by, merged with or otherwise reorganized with or into, or any subset of, any of the above-listed exchanges subsequent to the date above provided that such exchange continues to clear through a Qualifying Central Counterparty (QCCP). This list may be updated for such organizational or name changes from time to time by Legal & Compliance without any additional action of the Investment Committee, and all additions or changes shall be deemed Approved Exchanges for purposes of the WRS Investment Committee Investment Guidelines effective as of the date of such acquisition, merger or reorganization. On a quarterly basis, Compliance shall provide notice to the Investment Committee if there have been any such changes to the list.

The Global Securities Portfolio, Alpha Portfolio and Exposure Management Portfolios are approved to trade on any of the above exchanges and any other exchange whose clearing house is a Qualifying Central Counterparty (QCCP) as defined by the Bank for International Settlement (BIS) (subject to annual reporting to the Investment Committee).

APPENDIX 2 - SOFT RISK PARAMETERS

SOFT RISK PARAMETERS – ASSET CLASS AND PORTFOLIO

PORTFOLIO ASSET CLASS CHARACTERISTIC	ASSET CLASS[2]	DISCUSSION TRIGGER
Asset Class Exposure	Core Fund	
	Global Equities	39.8% - 47.8%*
	EM Equities	0.0% - 7.5%*
	Small Cap	0.0% - 6.0%*
	U.S. Inv Grade	16.6 – 26.6%*
	High Yield	0.0% - 5.6%*
	EM Debt	0.0% - 6.6%*
	Variable Fund	
	U.S. Equity	65% to 75%
	Int'l Equity	25% to 35%
*Post-Corridor Treatment		
Maximum Small Cap Exposure	U.S. Equities	2.75x Benchmark
Ex Ante Tracking Error	Public Equities	.75% - 2.25%
	Public Fixed	.4% - 1.2%
	Core Fund	.6% - 1.8%
Counterparty Exposure (internal and external separate account portfolios	WRS (Core and Variable Funds)	5 bp exposure (net of collateral, if any) to a single counterparty
Duration	Public Fixed	+/- 15% of Benchmark
Base Portfolio	Global Equities	8-12% of Aggregate Sector Portfolio
Scaled Portfolio	Global Equities	88-92% of Aggregate Sector Portfolio
ACTIVE/INDEXED EQUITIES		
Minimum Number of Holdings		
	Small Cap Diversified	100

[2] "Passives," as used in these Soft Risk Parameters, means portfolios 0797, 0799, 0812 and 0813.

	Global Sector Aggregate Portfolio	Lesser of 100 names or 25% of index names
Ex Ante Tracking Error	Passives (Variable Fund):	
	R1000 Index	6 bp annualized
	MSCI ex US	20 bp annualized
	Passives (Core Fund):	
	MSCI US	10 bp annualized
	MSCI ex US	20 bp annualized
	Small Cap Diversified	3% - 9%
	Global Sector Aggregate Portfolio	1% - 4%
Maximum Position Size		
	Passives	5% notional value of futures
Issuer Concentration		
	Small Cap Diversified	Benchmark weight ± 2%
	Global Sector Aggregate Portfolio	Benchmark weight ± 2%
Maximum Total Value of Short Sales	Global Sector Aggregate Portfolio	40% of portfolio value
Maximum ETF Exposure		
	Passives	5% of portfolio value
	Small Cap Diversified	+/- 15% of portfolio value
	Global Sector Aggregate Portfolio	+/- 15% of portfolio value
Maximum Company Ownership		
	Passives	10% of outstanding
	Small Cap Diversified	10% of outstanding
	Global Sector Aggregate Portfolio	10% of outstanding
Maximum Equity Exposure	High Yield	5% of portfolio value
Top Ten Holdings	Small Cap Diversified	25% of portfolio
P/E Ratio	Small Cap Diversified	50%-150% of Benchmark
	Global Sector Aggregate Portfolio	50%-150% of Benchmark

Maximum Sector Exposure		
	Small Cap Diversified	Benchmark weight ±10%
	Global Sector Aggregate Portfolio	Benchmark weight ±5%
Maximum Notional Uncovered Sold Calls		
	Passives	5% of portfolio value
	Small Cap Diversified	5% of portfolio value
	Global Sector Aggregate Portfolios	5% of portfolio value
Maximum Notional Uncovered Sold Puts		
	Passives	5% of portfolio value
	Small Cap Diversified	5% of portfolio value
	Global Sector Aggregate Portfolio	5% of portfolio value
Maximum Cash	Passives	1% in unequitized cash
	Small Cap Diversified	5%
	Global Sector Aggregate Portfolio	5%
GOVERNMENT/CREDIT		
Minimum Number of Issuers	Gov't/Credit	50
Maximum Corporate Industry Sector Exposure	Gov't/Credit	Greater of 10% or 3 x Benchmark
Ex Ante Tracking Error	Gov't/Credit	.34% - 1.30%
Maximum ETF Exposure	Gov't/Credit	+/- 15% contribution to portfolio duration
STATE INVESTMENT FUND		
Maximum investments in a single issuer, in the aggregate (excluding instruments listed in SIF guideline #2)	State Investment Fund	5% of portfolio value

PRIVATE MARKETS & FUNDS ALPHA		
Maximum Co-Investments	Private Equity	20% of core Private Equity Portfolio for Private Equity Co-Investments 20% of Current Return Portfolio for Current Return Co-Investments
Maximum Co-Investments alongside funds with the same sponsor or manager as a fund on which SWIB was conducting due diligence and actively evaluating for a prospective commitment at the time of co-investment[3]	Private Equity	5% of core Private Equity Portfolio for Private Equity Co-Investments 5% of Current Return Portfolio for Current Return Co-Investments
Minimum Funds	Private Equity	80% of aggregate Private Equity Portfolio
Maximum Venture Capital Exposure	Venture Capital	1.7% of Core Fund
Maximum Development Risk (Direct Holdings Only)	Real Estate	10%
Maximum Single Property Type Exposure - Quarterly	Real Estate	50%
Minimum Core Holdings (Including REIT portfolios)	Real Estate	50%
Maximum Value Holdings	Real Estate	30%
Maximum Opportunistic Holdings	Real Estate	30%
Maximum Core Portfolio Leverage	Real Estate	50%
Maximum Core Fund/Deal Leverage (Must be non-recourse to SWIB)	Real Estate	65%
Maximum Real Estate Equity Portfolio Leverage	Real Estate	60%
Ex ante volatility (tracking error) range	Hedge Fund	2.5% to 6.5%, measured with a trailing two-year risk sampling period
	Beta One	1.0% to 2.0%
Equity Delta to the S&P 500	Hedge Fund	Range of -0.3 to +0.3 with a target of zero over a market cycle. This is measured ex ante with a trailing two-year risk sampling period

[3] If SWIB subsequently commits to a limited partnership or other fund vehicle of the sponsor or manager, then such co-investment shall no longer be included for purposes of calculating this soft parameter.

Target Beta	Beta One	Range of 0.85 to 1.15 with a target of 1.0
One-year annual Conditional Value at Risk (CVaR)	Hedge Fund	A targeted 95% one-year annual CVaR of greater than 7% based on trailing two-year risk sampling period

APPENDIX 3-CTF/VTF BENCHMARKS

State of Wisconsin Investment Board Benchmarks as of January 1, 2021[1]

Core Trust Fund Benchmark[2]		
	Current Benchmark	
Global Public Equity	49% Fixed Blend of Four Components[3]	- Current and previous benchmark asset classes are weighted by asset class strategic target weights - Current Benchmark updated 4/30/2012 to include Cash, which reflects leverage
Fixed Income	24.5% Fixed Blend of Seven Components[4]	
Inflation Sensitive	15.5% Bloomberg Barclays US Treasury Inflation-Linked Bond Index	
Private Equity/Debt	9% Roll-Up of Seven Components[5]	
Real Estate	8% Open End Diversified Core Equity (ODCE) Real Estate Index	
Multi Asset	4% Fixed Blend of Two Components[6]	
Cash	(-10%) 3-Month LIBOR + 30bps	
Total	100%	

Variable Trust Fund Benchmark			
	Current Benchmark		
Domestic Equities	70% Russell 3000		
International Equities	30% MSCI All Country World Index (ACWI) ex US		
Total	100%		

Note: Roll-Up refers to the market-weighted aggregation of benchmark components or indices, based on SWIB's actual market exposures.

[1] Refer to the Historical Benchmark Adjustments for additional background.

[2] The major asset class weights are established through the annual asset allocation exercise; Private Equity weights float between 6% and 12% and Real Estate weights float between 5% and 11%. The Private Equity excess weights are taken from Public Equities, Real Estate excess weights are taken 50% from Public Equities and 50% from Fixed Income. Multi-Asset weights float between 1% and 7% with excess weights taken 50% from Public Equities and 50% from Fixed Income.

[3] Global Public Equity Benchmark: Fixed Blend of Four Components
83.40% MSCI World Custom Net Index
6.10% Russell 2000 Index
4.40% MSCI EAFE Small Cap Custom Net Index
6.10% MSCI EM Custom Net Index

[4] Public Fixed Income Benchmark (effective 1/1/2010, excludes TIPS): Fixed Blend of Seven Components
66.90% Bloomberg Barclays Capital Govt/Credit Index
8.20% Bloomberg Barclays Mortgage-Backed Securities Index
7.90% Bloomberg Barclays US Treasuries Index
2.00% Bloomberg Barclays US Long Treasuries Index
7.50% BofA Merrill Lynch Corporate HY Ba/B Index
3.75% JPM EMBI Global Diversified
3.75% JPM GBI-EM Diversified

[5] Private Equity/Debt Benchmark: Roll-Up of Seven Components
Component One: State Street Global Exchange Private Equity Index - Buyouts
Component Two: State Street Global Exchange Private Equity Index – Buyouts, weighted by Vintage Year
Component Three: State Street Global Exchange Private Equity Index – Venture Capital, weighted by Vintage Year
Component Four: Private Equity Legacy (SW050300) Actual Portfolio Returns
Component Five: Bloomberg Barclays Capital Duration-Adjusted Baa Corporate plus 20 basis points
Component Six: Burgiss Global Senior Debt Universe
Component Seven: Burgiss Global Senior Debt Universe, equal weighted by Vintage Year

[6] Multi Asset Benchmark: Fixed Blend of Two Components
60.0% MSCI World Custom Net Index
40.0% Bloomberg Barclays Capital Govt/Credit Index

[7] Effective 1/1/2010, the tax treatment of the MSCI benchmark updated to a custom net-of-tax benchmark based on SWIB-specific tax treatment.