NORTH Dakota Be Legendary. | State Investment Board RETIREMENT & INVESTMENT

Investment Committee
Friday, April 21, 2023, 9:00 a.m.
Virtual Only
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AGENDA

I. CALL TO ORDER AND ACCEPTANCE OF AGENDA

II. ACCEPTANCE OF MINUTES (MARCH 2022)

III. INVESTMENT STRATEGY – MR. ANDERSON

IV. PRIVATE MARKET BENCHMARK WEIGHTS – MR. POSCH, MR. ANDERSON

V. LEGISLATIVE BILLS – MR. ANDERSON

VI. DISCUSSION

VII. ADJOURNMENT

Any individual requiring an auxiliary aid or service, please contact the Retirement and Investment Office (701) 328-9885 at least three (3) days prior to the scheduled meeting.

STATE INVESTMENT BOARD
INVESTMENT COMMITTEE MEETING
MINUTES OF THE
MARCH 10, 2023, MEETING

MEMBERS PRESENT:	Thomas Beadle, State Treasurer, Chair Joseph Heringer, Trust Lands Commissioner, Vice Chair Scott Anderson, CIO Eric Chin, Deputy CIO Dr. Prodosh Simlai, External Representative Dr. Ruilin Tian, External Representative
STAFF PRESENT:	Derek Dukart, Investment Officer Missy Kopp, Exec. Assistant George Moss, Sr. Investment Officer Matt Posch, Sr. Investment Officer Ryan Skor, CFO/COO Nitin Vaidya, Chief Risk Officer Jason Yu, Risk Officer
GUESTS:	Alex Browning, Callan

CALL TO ORDER:

Treasurer Beadle called the State Investment Board (SIB) Investment Committee (IC) meeting to order at 9:05 a.m. on Friday, March 10, 2023, at the Retirement and Investment Office (virtual host), 1600 E Century Ave., Bismarck, ND.

The following Investment Committee members were present representing a quorum, Mr. Anderson, Treasurer Beadle, Mr. Chin, Commissioner Heringer, Dr. Simlai, and Dr. Tian.

AGENDA:

The agenda was considered for the March 10, 2023, meeting.

IT WAS MOVED BY MR. CHIN AND SECONDED BY MR. ANDERSON AND CARRIED BY A VOICE VOTE TO APPROVE THE AGENDA FOR THE MARCH 10, 2023, MEETING AS DISTRIBUTED.

AYES: COMMISSIONER HERINGER, MR. ANDERSON, DR. SIMLAI, DR. TIAN, MR. CHIN, AND TREASURER BEADLE
NAYS: NONE
MOTION CARRIED

MINUTES:

The minutes were considered for the February 10, 2023, meeting.

IT WAS MOVED BY DR. SIMLAI AND SECONDED BY COMMISSIONER HERRINGER AND CARRIED BY A VOICE VOTE TO APPROVE THE MINUTES FOR THE FEBRUARY 10, 2023, MEETING AS DISTRIBUTED.

AYES: DR. SIMLAI, COMMISSIONER HERINGER, MR. CHIN, DR. TIAN, MR. ANDERSON, AND TREASURER BEADLE
NAYS: NONE
MOTION CARRIED

INVESTMENT PERFORMANCE REVIEW:

Mr. Anderson reviewed the investment performance for the quarter ending December 31, 2022. The markets were very challenging with both equity and fixed income producing negative returns. The performance for PERS, TFFR, Legacy Fund, and WSI were reviewed. Mr. Anderson discussed equity and fixed income risk and return. Committee discussion followed.

FIXED INCOME TRANSITION UPDATE:

Mr. Chin provided an update on the fixed income transition. The object of the transition is to harmonize the investment grade portfolios across pools. This transition has been complex. Staff looked for ways to reduce costs using inter-pool transfers and crossing. State Street Global Markets (SSGM) was hired as the transition manager. The transition began in January 2023 and ramped up on March 6, 2023. Staff expect the transition to be mostly complete on April 1, 2023. Next steps will include a reconciliation and post trade review of the transition with SSGM. Staff will continue portfolio analysis across asset classes and begin work on the Investment Grade Fixed Income Portfolio 2.0 project. Committee discussion followed.

INVESTMENT COMMITTEE CONTENT:

Mr. Anderson reviewed an earlier discussion about the Investment Committee content for the first few meetings. The Committee has spent the first meetings learning about the Investment Program and is now able to move to a more standard agenda. Mr. Anderson reviewed the typical Committee meeting content going forward. Committee discussion followed.

LEGISLATIVE BILLS:

Mr. Anderson reviewed current legislative bills that could have an impact on the investment program. HB 1040 and SB 2239 both address the PERS retirement plan in different ways. Both have passed and have gone to the other chamber.

HB 1088 which changes the composition of the SIB was heard in the Senate Industry and Business Committee which amended the bill back to the original with one exception which would change the Legacy and Budget Stabilization Fund Advisory Board representative to a voting member. The amended version passed the Senate and was sent back to the House.

HB 1227 requires a cost-benefit analysis for a measure or policy affecting the Legacy Fund. This bill passed the House and will soon have a vote in the Senate. Staff have been tracking multiple ESG-related bills. Some did not pass, but HB 1368 and 1429, which have been amended are remaining. SB 2330 would change the Legacy Fund earnings definition and change the Legacy Fund investment policy related to in-state equity. Committee discussion followed.

DISCUSSION:

Mr. Anderson informed the Committee about work that staff has done on country risk. The goal is to gain the ability to trade in other countries and to have separately managed instead of comingled funds. India is a challenge for separately managed funds, but staff are working on a solution. Committee discussion followed.

With no further business to come before the Investment Committee, Treasurer Beadle adjourned the meeting at 11:41 a.m.

Prepared by:

Missy Kopp, Assistant to the Board

INVESTMENT STRATEGY

INVESTMENT STAFF

APRIL 21, 2023

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OVERVIEW

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RIO AT A GLANCE
As of December 31, 2022

$19.2 Billion
AUM across all Client Funds

28 Client Funds
Sovereign wealth, pension and insurance

43 Managers
Equity, Fixed Income, Private Equity, and Real Asset

INVESTMENT FOCUS
Global multi-asset public and private market fund of funds organization

OBJECTIVE
To maximize after cost return for risk at a prudent level of risk for the funds in our care

Global, Multi-asset

Advanced Funds Management

OUR COMMITMENT

- Client Focused
- Value Added Results
- Efficient Delivery

INVESTMENT TEAM OVERVIEW

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Scott M Anderson
Chief Investment Officer (CIO)

Eric Chin
Deputy CIO/Public Funds Mgt

Matt Posch
Senior IO/Public Funds Mgt

Derek Dukart
IO/Public Funds Mgt

George Moss
Senior IO/Private Funds Mgt

Lance Ziettlow
Senior IO/Private Funds Mgt

Nitin Vaidya
Chief Risk Officer

Jason Yu
Risk Officer

PUBLIC MARKETS FUNDS MANAGEMENT

PRIVATE MARKETS FUNDS MANAGEMENT

RISK ALLOCATION AND MANAGEMENT

EXPERIENCE: >18 YEARS AVERAGE INVESTMENT EXPERIENCE

- ASSET AND RISK ALLOCATION
- DIRECT PUBLIC AND PRIVATE INVESTMENT
- FUND AND PORTFOLIO MANAGEMENT
- MANAGER SELECTION
- FUND OF FUNDS MANAGEMENT
- QUANTITATIVE ANALYSIS
- RISK MANAGEMENT
- LIQUIDITY MANAGEMENT
- PENSION, ENDOWMENT AND INSURANCE
- PERFORMANCE MANAGEMENT
- OVERLAYS AND EXPOSURE MANAGEMENT
- MULTI-ASSET PORTFOLIO MANAGEMENT

INVESTMENT PROCESS ASSISTANCE

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Emmalee Riegler
Contracts and Record Management Specialist

VALUE PROPOSITION

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Illustration

RETURN

RISK	10.2%	0.56%	10.2%	1.2%	9.0%
COST		0.54%[3]	0.02%		0.03%[2]
EFFICIENCY[1]	0.61	1.25	0.54	0.67	0.59

1. Sharpe or IR (return per risk) assumes a 2% return on cash over return horizon
2. Assume .01% RIO cost and .02% index cost
3. Based on 2022 fees; lower fees than 2021 -> fewer incentive fees
4. The reference portfolio is not efficient enough to leverage to the policy return (Return equivalent portfolio has a Sharpe of ~.48)
5. PERS 10 yr performance as of 6/30/22

Scott M Anderson, CFA Investment Strategy 04/21/23

1.9% NET VALUE ADDED FOR A 0.02% COST
($380 MILLION/YEAR FOR $3.5 MILLION)

WE BELIEVE

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- Our mission is to deliver a high return per unit of risk; at a prudent level of risk for our client fund mandates; at an efficient cost
- Asset allocation is our chief source of efficient return (return/risk)
- Long term markets are efficient but there are short term inefficiencies that create opportunity for active return
- Active management improves return efficiency but active return is rare so is allocated in appropriate proportions of risk
- Effective implementation is an important driver of lower cost, and lower risk; therefore an important contributor to return efficiency
- Good investment decisions require fact based, reasoned judgements of experienced investment professionals regarding knowledge of compensated risks, investment process and return expectations in an analyst driven culture

OBJECTIVE AND STRATEGY

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OBJECTIVE:

- To maximize after cost return for risk at a prudent level of risk for the funds in our care

STRATEGY:

- Develop valuable investment trade-offs of return, risk and cost with time horizon, scale, complexity, and make versus buy decisions as drivers
- Implement trade-offs as state-based investment decisions enabled by technology and integrated across investment teams that leverage direct versus external, and customized versus commodity decisions
- Evolve strategies to be backward compatible

WHY?

- We will have an advantage from diverse sources of market and business case information from our custom data as well as internal and external manager strategies. RIO will be differentiated with integrated optimization of state-based knowledge management decisions and implementation

FUTURE DYNAMIC INVESTMENT FRAMEWORK

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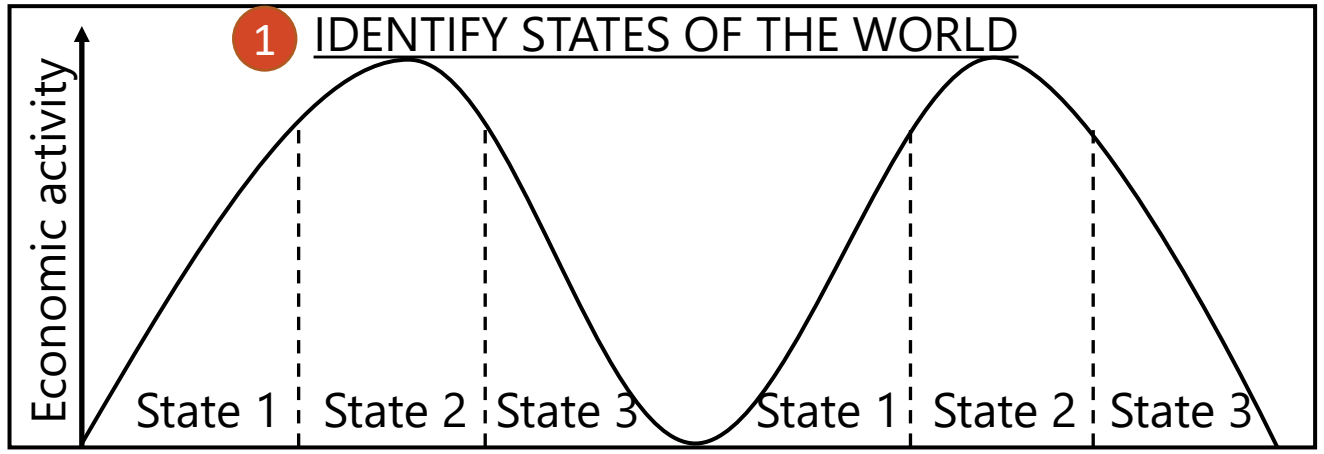
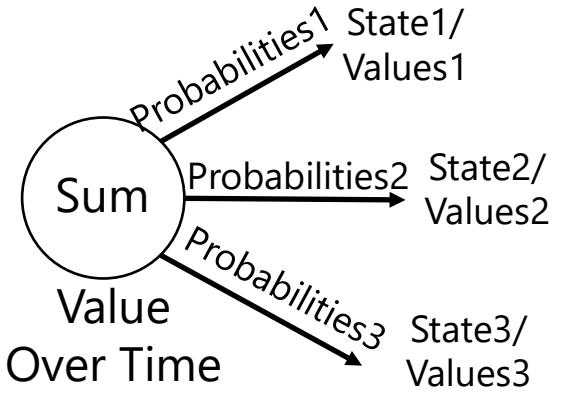




Illustration

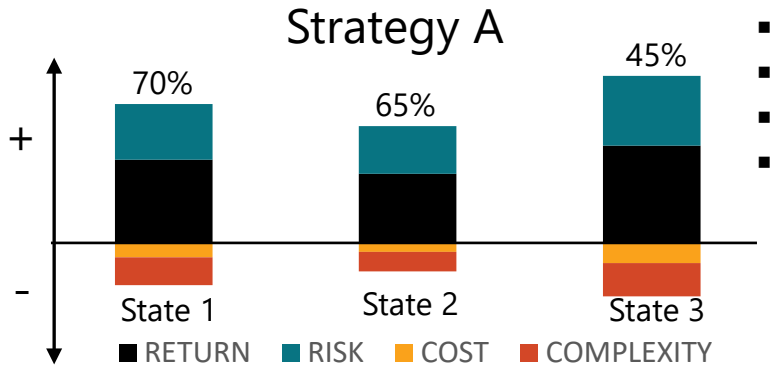
EXAMPLES:

- ASSET ALLOCATION
- CREDIT CYCLE
- VOLATILITY REGIMES
- INFLATION/GROWTH
- HIGH YIELD/EQUITY
- PRIVATE EQUITY
- GROWTH/VALUE
- SMALL CAP/LARGE CAP
- DOMESTIC INTERNATIONAL
- CURRENCY
- RATES
- EQUITY/FIXED INCOME
- SECTORS
- LIQUIDITY

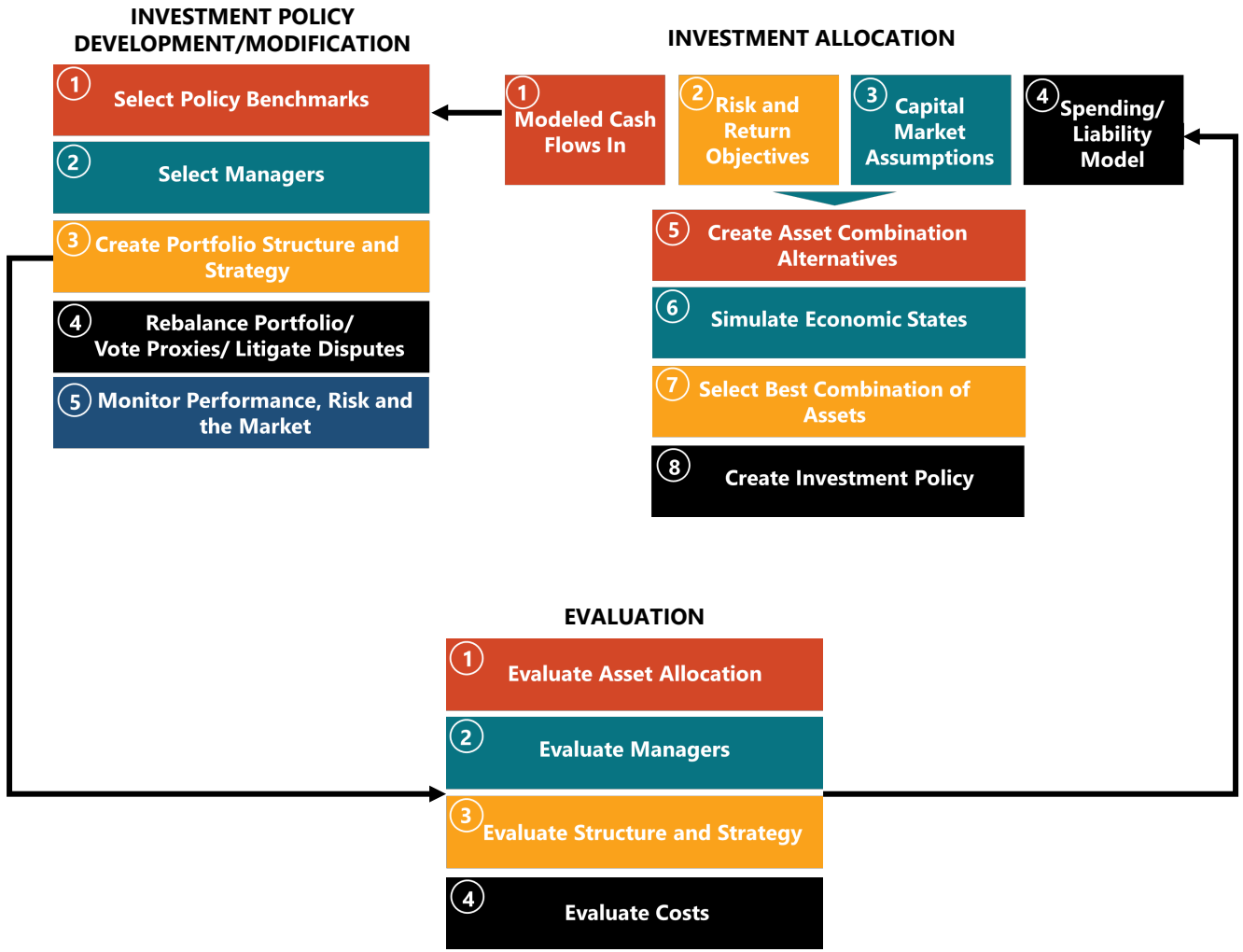
4 ADJUST EXPOSURE AND MANAGER WEIGHTS TO INCORPORATE INFORMATION

BY STATE LIKELIHOOD	CURRENT AVERAGE METHOD	LIKELY TO STATE 1	LIKELY TO STATE 2	LIKELY TO STATE 3
Strategy A	60%	70%	65%	45%
Strategy B	25%	20%	30%	25%
Strategy C	15%	10%	5%	30%

3 WEIGHT STRATEGIES BY STATE



INVESTMENT PROCESS



VALUE CREATION LEVERS (NEED TO SELL TO BUY)

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INVESTMENT DECISION APPROACH

- HIGH FREQUENCY
- MIS-PRICING
- ANALYSIS
- RULES BASED ACTIVE
- BUY AND HOLD ACTIVE
- STATE BASED BETA
- BUY AND HOLD BETA

PRICE VERSUS VALUE

BUY +

- RETURN
- RISK
- TIME HORIZON
- COMPLEXITY
- IMPACT TO OPERATIONS

PRICE ≠ VALUE

- CURRENCY
- CORRELATION
- STATE
- LIQUIDITY
- GROWTH
- CREDIT SPREAD
- TERM
- CASH
- TRANSACTION COST

SELL -

- RETURN
- RISK
- TIME HORIZON
- COMPLEXITY
- IMPACT TO OPERATIONS

PRICE ≠ VALUE

INVESTMENT TARGET MODEL- ADVANCED FUND OF FUNDS MODEL

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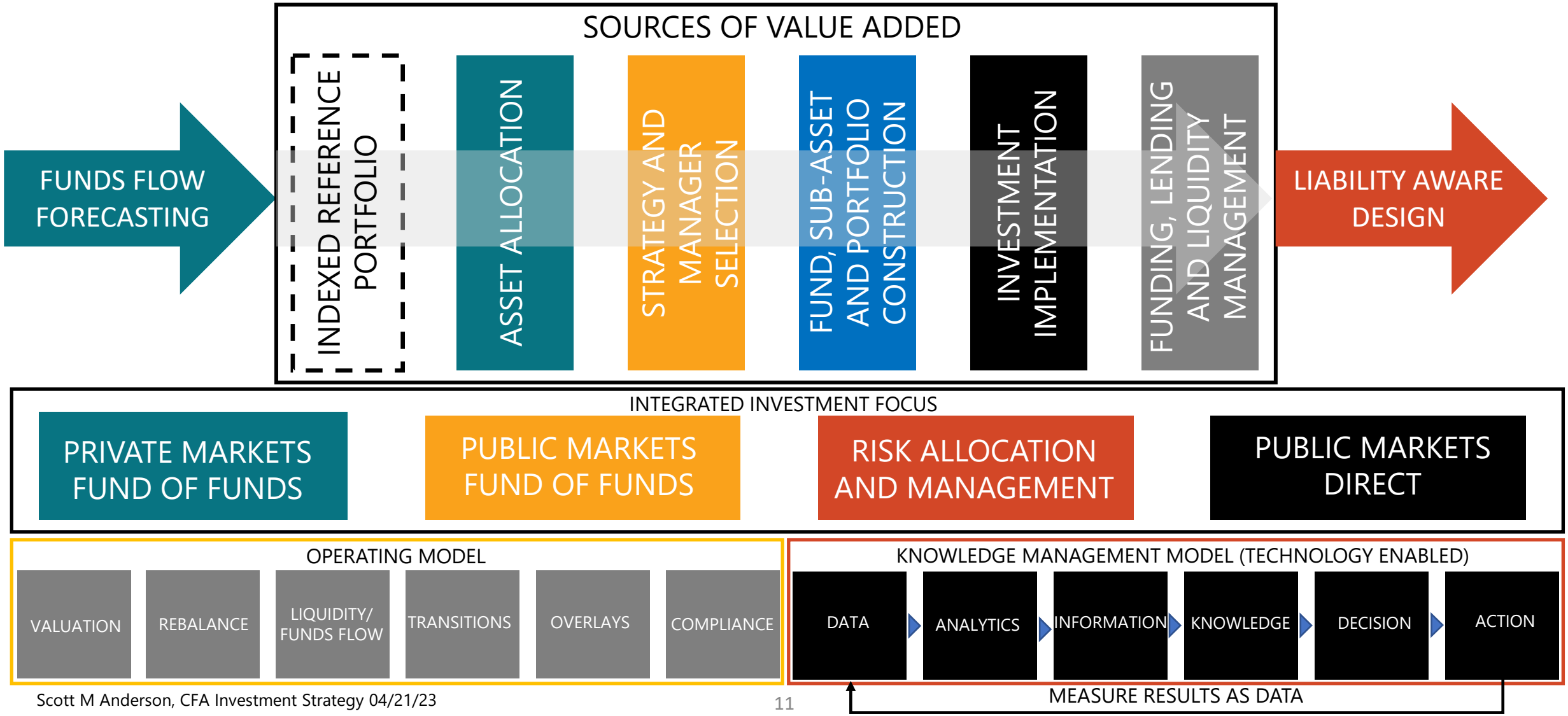

SOURCES OF VALUE ADDED

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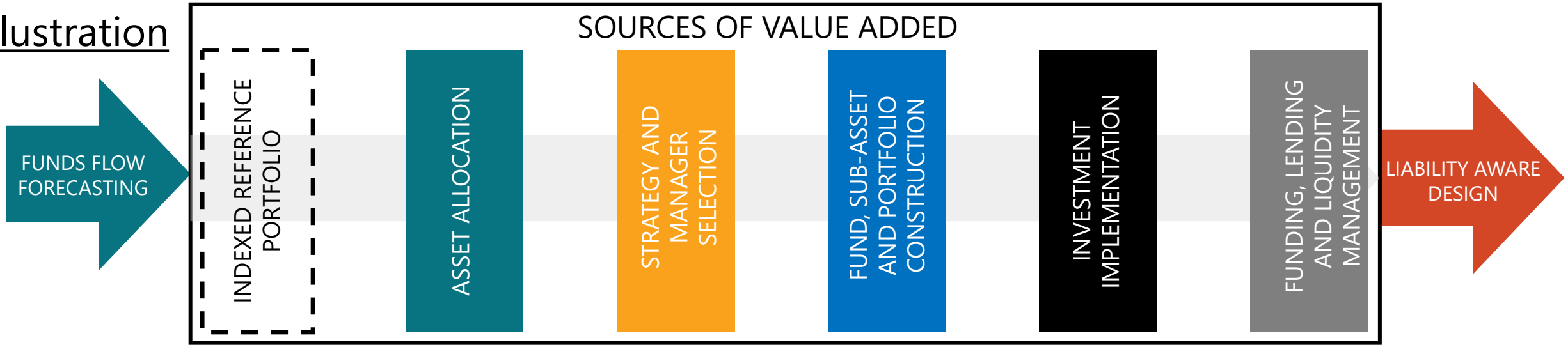
Illustration



Forecast funds flows for liquidity risk, cash, rebalancing and liquidity management	A minimum efficient allocation of 60% World Index and 40% Domestic Fixed Income	An enhanced allocation with private markets, leverage, a more refined sub-asset allocation and dynamic as options	Selection of a diversified set of the best strategies and managers that implement the asset allocation	Optimal systematic and idiosyncratic return per risk at an appropriate risk, manage dynamically as an option	Choose make versus buy and optimize cost of management, fees, incentives, implementation, operations and exposures	Find best return and costs for security lending, cash management, transaction finance and liquidity risk management	Reduce liability defeasance risk by understanding features of the liability and economic scenarios (local and global)
	VALUE ADDED:	> 100 BP	> 40 BP	> 10 BP	> 10 BP	> 5 BP	

INTERACTING DECISIONS

EVOLVING INVESTMENT STRUCTURE

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1 PROCUREMENT AND IMPLEMENTATION

EXECUTIVE DIRECTOR/CIO

DEPUTY CIO

CHIEF RISK OFFICER | INVESTMENT ANALYSTS

2 SELECTION AND PORTFOLIO STRUCTURE

CHIEF INVESTMENT OFFICER

CHIEF RISK OFFICER | DEPUTY CIO/FUNDS MANAGEMENT | PRIVATE MARKETS

3 ADVANCED FUNDS MANAGEMENT

CHIEF INVESTMENT OFFICER

CHIEF RISK OFFICER | DEPUTY CIO/FUNDS MANAGEMENT | PRIVATE MARKETS | PUBLIC MARKETS INTERNAL INVESTMENT MANAGEMENT

4 ASSET AND RISK ALLOCATION/ ACTIVE RETURN OPTIMIZATION

CHIEF INVESTMENT OFFICER

ASSET AND RISK ALLOCATION
- RESEARCH
- EXPOSURE MANAGEMENT
- RISK MANAGEMENT

PRIVATE MARKETS/ FUNDS MANAGEMENT
- CO-INVESTMENT

PUBLIC MARKETS INTERNAL INVESTMENT MANAGEMENT
- INDEXING
- HIGH YIELD
- SMALL CAP

- Increasing investment focus
- Increasing analyst driven culture
- Increasing knowledge/ collaboration
- Increasing specialization
- Increasing sophistication
- Increasing fund level/portfolio level harmonization
- Increasing risk management orientation
- Increased return/risk
- ***Backward compatible***

INVESTMENT FOCUS

INTEGRATED INVESTMENT FOCUS

PRIVATE MARKETS FUND OF FUNDS

- Asset class strategies transacted in private markets
- Diversified industry, geography and asset classes such as private debt/loans, real estate, infrastructure, equity, and commodities
- Use of best in class data sources and tools to identify opportunities, construct portfolios and manage risks such as valuation, diversification, currency, liquidity and cash flow
- Manages investments over a life cycle, by pacing investments appropriately based on stage of economic cycle

PUBLIC MARKETS FUND OF FUNDS

- Asset class strategies transacted in public markets over the counter or on exchanges
- Diversified strategies, geography and asset classes such as global equities, investment grade fixed, high yield, multi-asset class, and commodities
- Use of best in class data sources and tools to identify opportunities, construct portfolios and manage risks such as idiosyncratic, market, credit, currency, liquidity, interest rate, and derivative
- Manages investments with manager selection, advanced portfolio construction, exposure management and dynamic allocation and rebalance

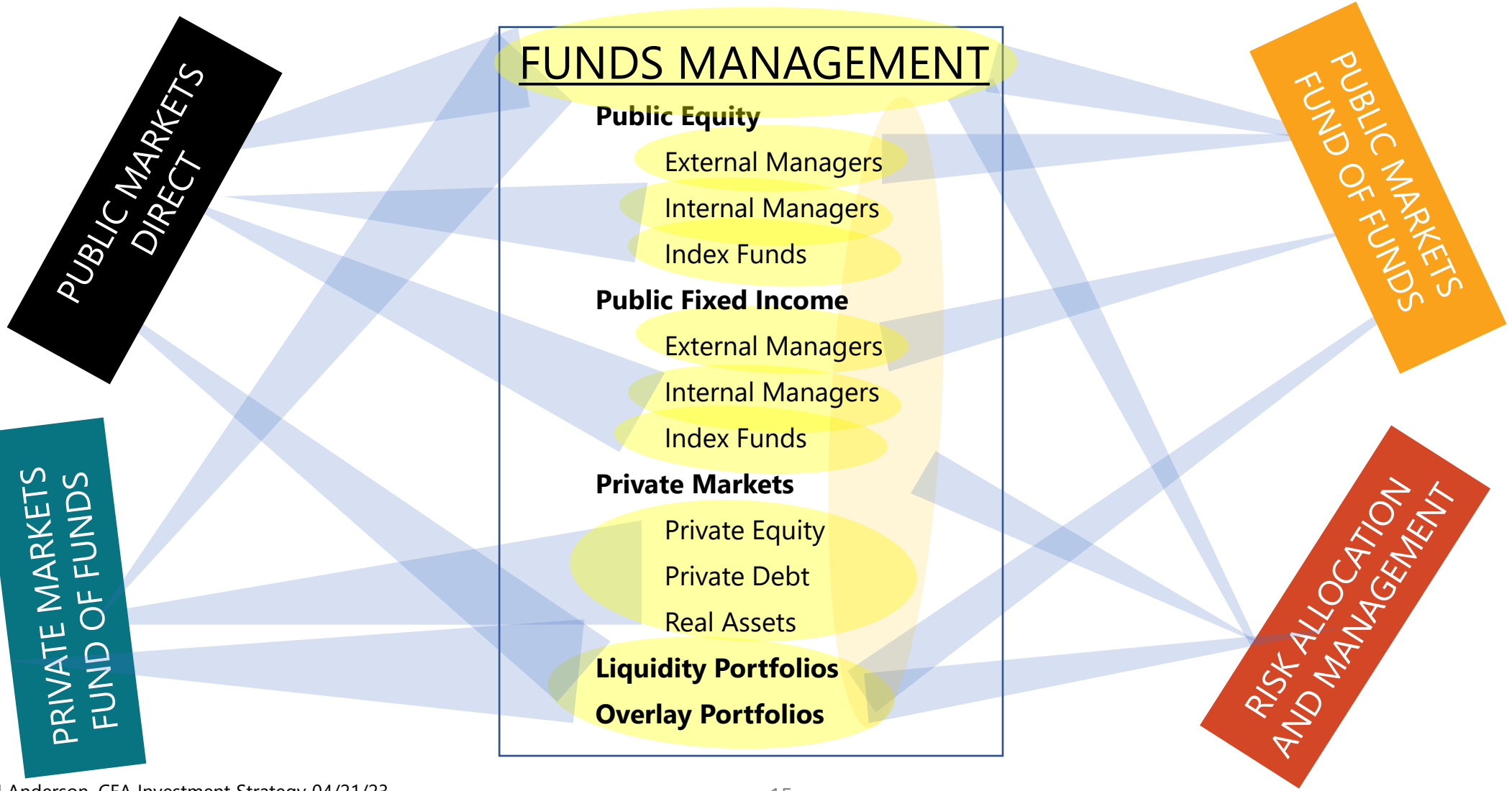
RISK ALLOCATION AND MANAGEMENT

- Ensures mitigates uncompensated risks in advance, identifies fund risk hot spots, manages risks as they occur, and ensures an optimal return for risk at a prudent level of risk in all investment strategies
- Provides risk communication to policy makers and investment teams, participates in all investment decisions, develops quantitative analysis for optimal return for risk, participates in allocation of risk capital
- Use and development of best in class data sources, analytics and tools to identify risks, measure return per risk, manage risks with exposure management and contribute to investment decisions

PUBLIC MARKETS DIRECT

- Asset class strategies directly transacted in the public markets over the counter or on exchanges
- Diversified low risk strategies that enhance portfolio return but at a lower cost and risk for the same return as available with external managers
- Facilitate portfolio operations like proxy voting, overlays, security lending, exposure management, alpha beta separation, cash and liquidity management
- Use and development of best in class data sources, analytics and tools to identify opportunities, construct portfolios, transact and manage portfolio risks

INTEGRATED INVESTMENT FOCUS



NEW CAPABILITY - PUBLIC MARKETS DIRECT

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OPPORTUNITY

ENHANCED INDEXING AND PUBLIC MARKETS STRATEGIES	• Enhanced indexing; multi-asset capability; leverages expertise with index information; same active return for a lower active risk and cost than external managers for simple mandates
ENHANCED LIQUIDITY MANAGEMENT	• Overlay of cash generates additional return and enables more available cash • Buying and selling of liquidity
ENHANCED REBALANCING	• Rebalancing of exposures in shorter time frames • Rebalancing thru internal portfolios rather than managers – reducing transaction costs
EXPOSURE MANAGEMENT	• Separate manager active return from manager policy return to optimize cost and active return • Manage exposures to manage risks and generate returns
OPTIMAL IMPLEMENTATION	• Choose optimal instrument to implement policy exposures reduces cost, increases revenues, manages risk

STATE BASED/KNOWLEDGE DRIVEN DECISIONS

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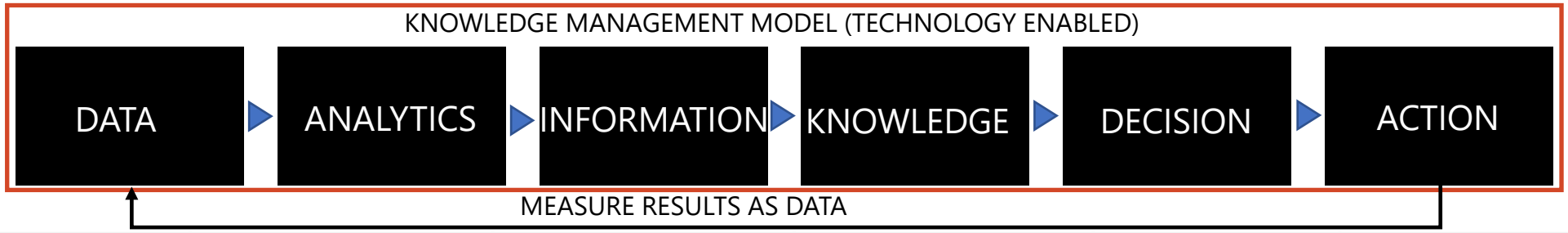

DATA	ANALYTICS	INFORMATION	KNOWLEDGE	DECISION	ACTION
▪ Business case for value added and to determine make versus buy ▪ Filter and attenuated to be high quality and linked to existing data sets ▪ Structured and unstructured ▪ Cross sectional, longitudinal and time-series	▪ Analytics development environment, model risk control ▪ Utilize open source development environment such as python ▪ Used for identifying states, drivers of return and risk, measuring performance, identifying likelihood of outcome and valuing opportunities	▪ Reporting tools for querying data, visualization and reporting ▪ Ability to publish and post information ▪ Easy integration among tools and applications	▪ Capture expert opinion ▪ Easy integrated retrieval of linked information ▪ Enable collaboration and enhancements of information ▪ Ability to apply qualitative and quantitative judgements ▪ Conditional likelihood assessments and tools	▪ Contingent planning and approval ▪ Signal capture and notification ▪ Integrated decision support of market and risk information ▪ Decision logs and recorded decision making ▪ Compliance ▪ Decision support tools	▪ Automated workflow ▪ Straight through processing ▪ Accounting and market data capture ▪ Granular decision attribution ▪ Integrated compliance, risk, accounting and performance information ▪ High frequency measurement of execution and results

OPERATING MODEL

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OPERATING MODEL

COMPLIANCE	Pre and post trade as well as external portfolio compliance based on a rules based set of limits, both hard and soft.
OVERLAYS	Overlays for rebalancing, liquidity and exposure management. Integrated overlay and liquidity processes. Combined collateral pools to optimize cost and risk. Trade-offs of instrument and terms.
TRANSITIONS	Transitions that seek to minimize transaction costs using in-kind transfers, ETF aggregation and disaggregation, best execution and trading strategies. Forecasted, measured and aggregated performance.
LIQUIDITY/ FUNDS FLOW	Manage lending and margining collateral in ways to enhance liquidity and reduce funding costs. Forecast funds flow amounts and timing, modify timing for optimal management, optimize cost of funding and return on security lending.
REBALANCE	Forecast month ending balances, monitor exposures, forecast market liquidity, incorporate exposure management where appropriate and rebalance with lowest cost method including derivatives.
VALUATION	Value the markets to manage valuation risk, rebalance and manage exposures.

- Defined processes and control points
- Automated workflow
- Audit data capture
- Straight thru processing
- Integrated risk management
- Business case driven
- Post implementation performance assessment
- Aggregated performance and statistical control

NECESSARY CAPABILITIES FOR SUCCESS

GOVERNANCE	A governance hierarchy including a staff run investment committee with some delegation as well as board level investment expertise
TALENT MANAGEMENT	**Specific investment role recognition as well as a total rewards package that is competitive with similar investment organizations**
OPERATIONS (EARLIER PAGE)	Appropriate staffing and skills or outsourcing of critical investment accounting, transaction processing, and enterprise risk capabilities
DATA AND TECHNOLOGY INFRASTRUCTURE	**High frequency and high-quality data as well as infrastructure to support data throughput and processing speeds**
RESEARCH AND KNOWLEDGE MANAGEMENT (EARLIER PAGE)	A culture of research, learning, creativity and knowledge management supported by expectations, resources, and recognition

TECHNOLOGY ENABLEMENT

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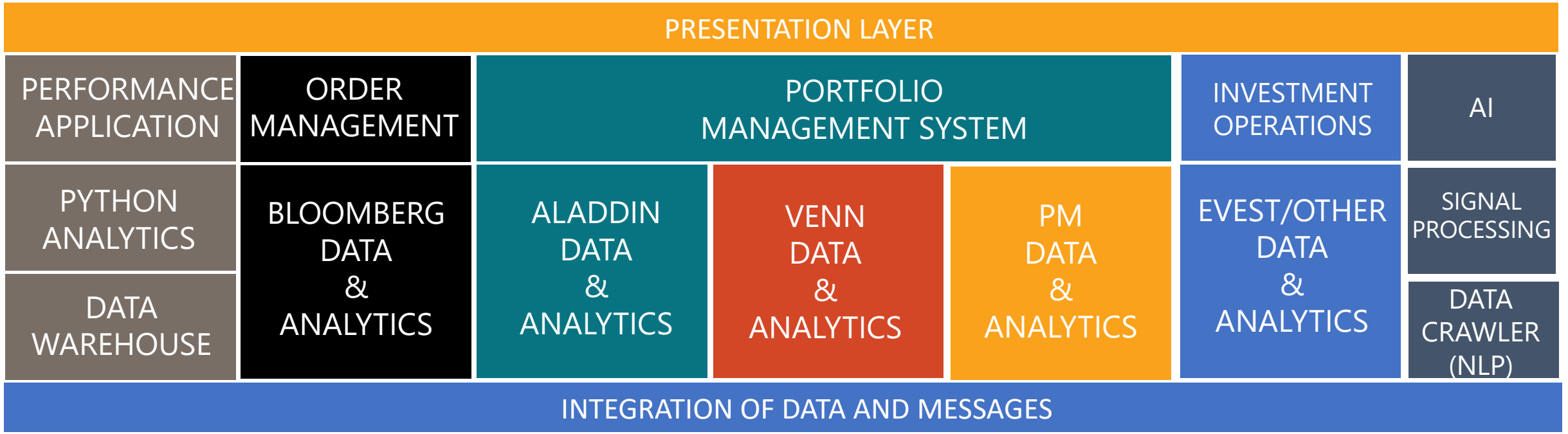
ILLUSTRATION

INTEGRATED DATA AND MESSAGES, SOFTWARE AS A SERVICE, AI/MACHINE LEARNING, ADVANCED ANALYTICS



TALENT MANAGEMENT IS AN IMPORTANT CAPABILITY FOR UNLOCKING INVESTMENT RESULTS

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- STRUCTURE THE ORGANIZATION FOR COLLABORATION AND KNOWLEDGE DEVELOPMENT
- ATTRACT GREAT TALENT
- DEVELOP STAFF TO GROW AND EXCEL
- MOTIVATE STAFF TO PERFORM WELL

ATTRACT GREAT TALENT

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TYPICAL GREAT INVESTOR

- INTELLECTUALLY CURIOUS
- DIVERSE INTERESTS
- CREATIVE ANALYTICS
- PERFORMANCE DRIVEN
- ABLE TO CREATE A GOOD NARRATIVE
- TRUTH SEEKERS/LEARNERS
- OBSESSED WITH VALUE CREATION
- PATTERN RECOGNIZERS
- MORE CONCERNED WITH GO THAN SHOW
- COLLEGIAL BUT NOT POLITICAL
- DEDICATED TO THEIR CRAFT
- KNOW WHEN THIS TIME ITS DIFFERENT
- INSATIABLE DESIRE FOR KNOWLEDGE

INTROVERT, I**N**TUITIVE, **T**HINKING, **J**UDGING

ATTRACT A GREAT INVESTOR

- TEAM OF MANY DIFFERENT BACKGROUNDS
- PROVIDE A LEARNING ENVIRONMENT
- ENABLE WITH TOOLS AND INFORMATION SOURCES
- A CLEAR CULTURE OF MERIT, EXCELLENCE, AND ANALYSIS
- LOW ON POLITICS HIGH ON INVESTMENT PERFORMANCE
- CLEAR PROMOTION CRITERIA
- MARKET BASED COMPENSATION/ MERIT BASED COMPENSATION
- REPUTATION FOR GROWING PEOPLE
- SOME INTELLECTUAL FREEDOM
- ENABLE EXPLORATION WITH BEST IDEAS PORTFOLIO

COLLEGIAL ORGANIZATION WITH HIGH EXPECTATIONS

DEVELOP TALENT

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DEVELOPMENT OPPORTUNITIES

- WHITE PAPERS/INDEPENDENT RESEARCH
- INVESTMENT CONTEST
- BEST IDEAS PORTFOLIO
- INFRASTRUCTURE/CROSS PORTFOLIO METHODOLOGY PROJECTS
- PERFORMANCE IMPROVEMENT PROPOSALS
- INTRA AND INTER – TEAM COLLABORATION
- STRATEGY, PORTFOLIO AND FUND LEVEL PERFORMANCE
- SHARE OUTS
- ORGANIZE EDUCATION SESSIONS

MOTIVATE STAFF TO PERFORM WELL

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QUALITATIVE

- IMPORTANT MISSION BASED WORK
- A MERIT BASED CULTURE, COLLEGIALITY, ENJOYABLE WORK ENVIRONMENT
- AN ORGANIZATION THAT LISTENS
- A COMBINATION OF TEAM AND INDIVIDUAL OPPORTUNITIES TO EXCEL AND BE RECOGNIZED
- EDUCATIONAL, LEARNING AND DEVELOPMENT OPPORTUNITIES
- PROMOTION OPPORTUNITIES/INCREASED RESPONSIBILITY
- RESOURCES AND TOOLS TO DO THE JOB
- FLEXIBLE WORK ENVIRONMENT
- HIGH PERFORMING TEAMS
- ENJOYABLE WORK ENVIRONMENT AND GEOGRAPHIC LOCATION

QUANTITATIVE

- MARKET BASED SALARY
- TOTAL REWARDS INCLUDING BENEFITS
- MERIT BASED QUALITATIVE INCENTIVE COMPENSATION
- MERIT BASED QUANTITATIVE COMPENSATION

WELL DESIGNED INCENTIVE COMPENSATION

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100% QUALITATIVE	CRITERIA	100% QUANTITATIVE
100% INDIVIDUAL	SOURCE OF PERFORMANCE	100% TEAM
STRATEGY	LEVEL OF PERFORMANCE	FUND
1 YEAR	MIX OF TIME HORIZON OF CALCULATION	5 YEAR
% OF SALARY	EXPECTED PAYOUT	% OF SALARY
% OF SALARY	MAX PAYOUT (MAY VARY BY LEVEL)	% OF SALARY

ROADMAP FOR SUCCESS

CAPABILITIES FOR SUCCESS

- DELEGATED AUTHORITY
- INCENTIVE COMP SYSTEM
- DIRECT INVESTMENT TEAM
- INDEPENDENT BENCHMARK CONSULTANT
- PRIVATE MARKETS BENCHMARK CORRIDOR
- FUND POOLING
- DAILY FUND VALUES AND RETURNS
- ADVANCED OPERATIONS
- AUDIT PROCESSES AND COMPLIANCE
- NEW INVESTMENT PROCESSES
- FUND AND LIQUIDITY MANAGEMENT
- DERIVATIVES OVERLAYS
- VALUATION AND EXPOSURE MANAGEMENT
- INVESTMENT DATA WAREHOUSE
- ORDER MANAGEMENT SYSTEM
- PORTFOLIO MANAGEMENT ANALYTICS
- INTEGRATED DATA AND MESSAGES
- KNOWLEDGE MANAGEMENT SYSTEM

NEAR TERM TIMELINE OF ACTIVITIES

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MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
▪ Benchmark and hurdle rate consultant RFP ▪ Prototype incentive comp system ▪ Delegated authority discussion ▪ Benchmark corridor treatment decision ▪ Risk Strategy	▪ Incentive and unclassified role consultant RFP ▪ Select benchmark and hurdle rate consultant ▪ Recommend delegated authority ▪ Implement benchmark corridor treatment ▪ Begin order management system search ▪ Begin governance manual re-write ▪ Public Markets Strategy	▪ Complete daily allocation process ▪ Begin investment IT strategy discussion ▪ Approve delegated authority with board ▪ Select incentive and unclassified role consultant ▪ Continue Order management search ▪ Private Markets Strategy	▪ Enable existing allocations with daily data ▪ Continue investment IT strategy discussion ▪ Continue Order management search ▪ Begin fund pooling discussion ▪ Propose Private Markets 1.0 and 2.0 ▪ Direct Investment Strategy	▪ Begin incentive and unclassified role project ▪ Propose Equity 2.0; Approve Private Markets 1.0 and 2.0 ▪ Begin benchmark memo with benchmark consultant ▪ Coordinate hurdle rate discussions with incentive comp and unclassified role project ▪ Develop IT strategy ▪ Define data warehouse	▪ Define new roles ▪ Approve Equity 2.0, Begin FI 2.0 ▪ Propose benchmark memo with benchmark consultant ▪ Coordinate hurdle rate discussions with incentive comp and unclassified role project ▪ Develop IT strategy ▪ Define data warehouse	▪ Propose incentive comp plan 1.0, define new role comp ▪ Implement Equity 2.0 ▪ Approve benchmark memo with benchmark consultant ▪ Coordinate hurdle rate discussions with incentive comp and unclassified role project ▪ Propose IT strategy ▪ Propose data warehouse	▪ Overflow ▪ Prepare to post new roles in new year

HOW TO DETERMINE SUCCESS THRU DECEMBER 2023

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	FIVE YEAR PLAN RETURNS BY POOL	EXPECTED RETURNS	ILLUSTRATION
	FIVE YEAR RETURN/RISK	0.35 SHARPE RATIO	
	FIVE YEAR ACTIVE RETURN	0.30%	
	FIVE YEAR ACTIVE RETURN/ACTIVE RISK	0.40	
PROJECT COMPLETION GOALS	HIRE BENCHMARK CONSULTANT	COMPLETED	
	HIRE INCENTIVE COMP CONSULTANT	COMPLETED	
	DEVELOP DIRECT TEAM ROLES AND COMP	COMPLETED	
	DEVELOP BENCHMARK MEMO	COMPLETED	
	DEVELOP INCENTIVE COMP SYSTEM	COMPLETED	
	APPROVE STRATEGIES BY VERTICAL	COMPLETED	
	APPROVE DELEGATION OF AUTHORITY	COMPLETED	
	DEVELOP IT AND DATA STRATEGY	COMPLETED	
	SELECT ORDER MANAGEMENT SYSTEM	COMPLETED	

BENCHMARKING

INVESTMENT TEAM

APRIL 21, 2023

NORTH Dakota | Retirement & Investment

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BENCHMARK INTRO

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BENCHMARK CHARACTERISTICS:

- A BENCHMARK SHOULD BE INVESTABLE
- PROVIDE A CLEAR COMMUNICATION OF DISCRETIONARY PERFORMANCE AND RISK
- REFLECT THE INVESTMENT OBJECTIVES AND ASSET ALLOCATION OF THE PORTFOLIO
- EASY TO MEASURE ALLOWING FOR PORTFOLIO PERFORMANCE TO ACCURATELY TRACK OVER TIME

CURRENT BENCHMARKS:

- GENERALLY GOOD REPRESENTATION OF THE ASSET ALLOCATIONS
  - MAY BE ENHANCED IN PRIVATE MARKETS
- WEIGHTING METHOD CAUSES ISSUES WITH TRACKING ERROR AND PERFORMANCE ATTRIBUTION

TFFR BENCHMARK

ASSET CLASS	POLICY TARGET	BENCHMARK
GLOBAL EQUITY	55%	
PUBLIC EQUITY	45%	US: RUSSELL 1000, RUSSELL 2000 INTERNATIONAL: MSCI ACWI EX-US IMI
PRIVATE EQUITY	10%	ACTUAL PORTFOLIO PRIVATE EQUITY RETURNS
GLOBAL FIXED INCOME	26%	BLOOMBERG AGGREGATE BLOOMBERG HIGH YIELD 2% ISSUER CONSTRAINED
GLOBAL REAL ASSETS	18%	REAL ESTATE: NCREIF TOTAL INDEX TIMBER: NCREIF TIMBERLAND INDEX INFRASTRUCTURE: 50% NCREIF ODCE 50% CPI-U LAGGED
CASH	1%	90 DAY T-BILL

CURRENT WEIGHT METHOD

- **STATIC WEIGHTS**
  - BENCHMARK WEIGHTS REFLECT FULL WEIGHT OF ASSET ALLOCATION TARGETS
- MAJORITY OF PERFORMANCE ATTRIBUTION ALLOCATION EFFECTS ARE NON-DISCRETIONARY
  - CAPITAL CALLS ARE NOT AT THE DISCRETION RIO STAFF
  - A LARGE PORTION OF PRIVATE MARKET WEIGHT DIFFERENCES ARE DUE TO NON-DISCRETIONARY FLUCTUATION IN PUBLIC MARKETS (CAN'T REBALANCE PRIVATE MARKETS)
- ACTIVE RETURN PERFORMANCE BECOMES DISTORTED AND NON-DISCRETIONARY
- SIGNIFICANT PORTION OF PERFORMANCE ATTRIBUTION IS PERPETUALLY ATTRIBUTED TO THESE NON-DISCRETIONARY DIFFERENCES IN WEIGHTS
- NON-DISCRETIONARY ACTIVE WEIGHTS CREATE INCENTIVES TO UNECONOMICALLY BUY OR LIQUIDATE IN THE SECONDARY MARKETS
- CURRENT BENCHMARK SYSTEM MAKES PLAN LEVEL INCENTIVE SYSTEM VERY DIFFICULT TO IMPLEMENT

ASSET CLASS	PORTFOLIO WEIGHT	BENCHMARK WEIGHT	DIFFERENCE
PUBLIC EQUITIES	42%	45%	-3%
PRIVATE EQUITY	13%	10%	3%
FIXED INCOME	25%	26%	-1%
REAL ASSETS	19%	18%	1%
CASH	1%	1%	0%
TOTAL PORTFOLIO	100%	100%	

ACTIVE RETURN IMPACT[1]

STATIC BENCHMARK	~0.40%
REBALANCE OPPORTUNITY	~0.20%
	~0.60%

1. TFFR 1 yr active return impact; has averaged 0.46% per year for five years

STYLIZED EXAMPLE

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MONTH BEGINNING

ASSET CLASS	PORTFOLIO WEIGHT	BENCHMARK WEIGHT	DIFFERENCE
PUBLIC EQUITIES	45%	45%	0%
PRIVATE EQUITY	10%	10%	0%
FIXED INCOME	26%	26%	0%
REAL ASSETS	18%	18%	0%
CASH	1%	1%	0%
TOTAL	100%	100%	

- NON-DISCRETIONARY FROM INCREASE IN PUBLIC MARKETS NOT ALLOCATION SHORT-FALL
- CAN NOT REBALANCE PRIVATE MARKETS
- CREATES INDICATION TO SELL OR BUY ON SECONDARY MARKET
- CREATES LARGE TRACKING ERROR
- PROVIDES POOR REBALANCE SIGNAL FOR RISK MANAGEMENT

MONTH END

ASSET CLASS	PORTFOLIO WEIGHT	BENCHMARK WEIGHT	DIFFERENCE
PUBLIC EQUITIES	30%	45%	-15%
PRIVATE EQUITY	15%	10%	5%
FIXED INCOME	25%	26%	-1%
REAL ASSETS	29%	18%	11%
CASH	1%	1%	0%
TOTAL	100%	100%	

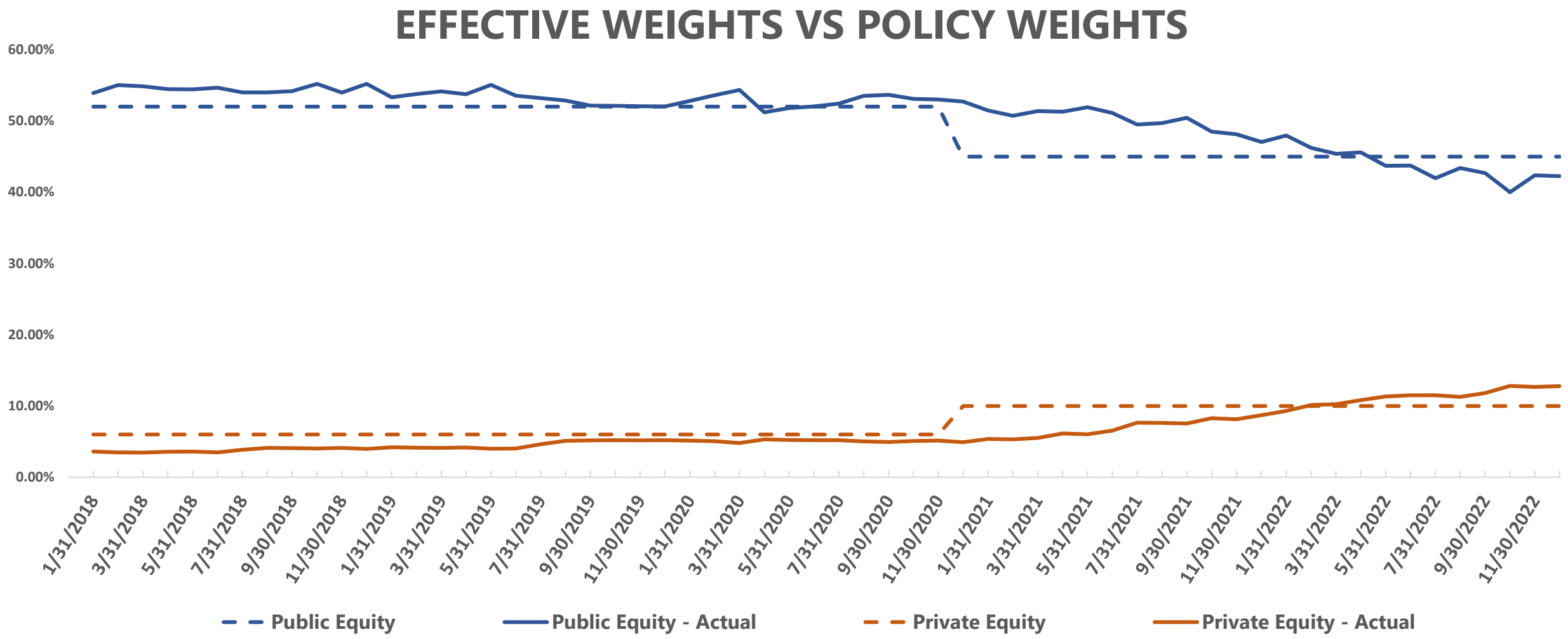
ASSET CLASS	PORTFOLIO WEIGHT	BENCHMARK WEIGHT	DIFFERENCE
PUBLIC EQUITIES	60%	45%	15%
PRIVATE EQUITY	5%	10%	-5%
FIXED INCOME	25%	26%	-1%
REAL ASSETS	9%	18%	-9%
CASH	1%	1%	0%
TOTAL	100%	100%	

REBALANCE

ASSET CLASS	PORTFOLIO WEIGHT	BENCHMARK WEIGHT	DIFFERENCE
PUBLIC EQUITIES	34.5%	45%	-10.5%
PRIVATE EQUITY	15%	10%	5%
FIXED INCOME	20.5%	26%	-5.5%
REAL ASSETS	29%	18%	11%
CASH	1%	1%	0%
TOTAL	100%	100%	

ASSET CLASS	PORTFOLIO WEIGHT	BENCHMARK WEIGHT	DIFFERENCE
PUBLIC EQUITIES	54.5%	45%	9.5%
PRIVATE EQUITY	5%	10%	-5%
FIXED INCOME	30.5%	26%	4.5%
REAL ASSETS	9%	18%	-9%
CASH	1%	1%	0%
TOTAL	100%	100%	

EFFECTIVE WEIGHTS VS POLICY WEIGHTS



PROPOSED WEIGHT METHOD

- **DYNAMIC WEIGHTS**
  - BENCHMARK WEIGHTS ADJUST TO REFLECT ACTUAL WEIGHTS OF PRIVATE MARKETS
  - REBALANCE PRIVATE EQUITY TO PUBLIC EQUITY AND REAL ASSETS 50% TO FIXED INCOME AND 50% TO PUBLIC EQUITY
- PERFORMANCE ATTRIBUTION ALLOCATION EFFECTS WILL BE DISCRETIONARY
  - REBALANCING DECISIONS WILL DRIVE ASSET ALLOCATION EFFECTS
- INCENTIVES ARE ALIGNED
- METHOD USED BY SEVERAL PUBLIC FUNDS INCLUDING STATE OF WISCONSIN, MOSERS, AND WASHINGTON STATE INVESTMENT BOARD
- IMPORTANT FOR A GROWING CHANGING PROGRAM

ASSET CLASS	PORTFOLIO WEIGHT	CURRENT BENCHMARK WEIGHT	NEW BENCHMARK WEIGHT	DIFFERENCE
PUBLIC EQUITIES	42%	45%	42%	0%
PRIVATE EQUITY	13%	10%	13%	0%
FIXED INCOME	25%	26%	25%	0%
REAL ASSETS	19%	18%	19%	0%
CASH	1%	1%	1%	0%
TOTAL PORTFOLIO	100%	100%	100%	

STYLIZED EXAMPLE

NORTH Dakota
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MONTH BEGINNING

ASSET CLASS	PORTFOLIO WEIGHT	BENCHMARK WEIGHT	DIFFERENCE
PUBLIC EQUITIES	45%	45%	0%
PRIVATE EQUITY	10%	10%	0%
FIXED INCOME	26%	26%	0%
REAL ASSETS	18%	18%	0%
CASH	1%	1%	0%
TOTAL	100%	100%	

- TRACKING ERROR IS IN THE DISCRETION OF THE FUND
- DOES NOT ENCOURAGE SELLING OR BUYING IN THE SECONDARY MARKET
- DOES NOT DISTORT THE ACTIVE RETURN AND RISK MEASUREMENT

MONTH END

ASSET CLASS	PORTFOLIO WEIGHT	BENCHMARK WEIGHT	DIFFERENCE
PUBLIC EQUITIES	30%	45%	-15%
PRIVATE EQUITY	15%	10%	5%
FIXED INCOME	25%	26%	-1%
REAL ASSETS	29%	18%	11%
CASH	1%	1%	0%
TOTAL	100%	100%	

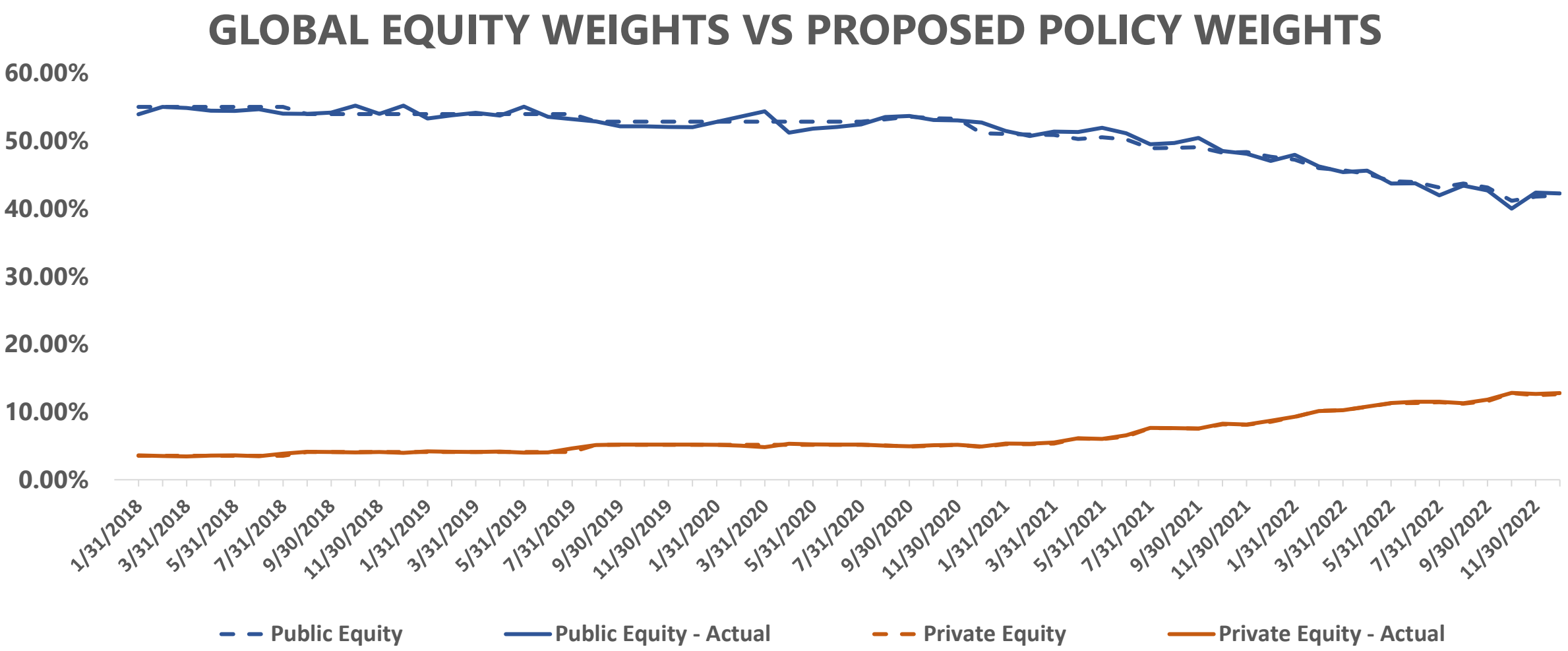
ASSET CLASS	PORTFOLIO WEIGHT	BENCHMARK WEIGHT	DIFFERENCE
PUBLIC EQUITIES	60%	45%	15%
PRIVATE EQUITY	5%	10%	-5%
FIXED INCOME	25%	26%	-1%
REAL ASSETS	9%	18%	-9%
CASH	1%	1%	0%
TOTAL	100%	100%	

REBALANCE

ASSET CLASS	PORTFOLIO WEIGHT	BENCHMARK WEIGHT	DIFFERENCE
PUBLIC EQUITIES	34.5%	34.5%	0%
PRIVATE EQUITY	15%	15%	0%
FIXED INCOME	20.5%	20.5%	0%
REAL ASSETS	29%	29%	0%
CASH	1%	1%	0%
TOTAL	100%	100%	

ASSET CLASS	PORTFOLIO WEIGHT	BENCHMARK WEIGHT	DIFFERENCE
PUBLIC EQUITIES	54.5%	54.5%	0%
PRIVATE EQUITY	5%	5%	0%
FIXED INCOME	30.5%	30.5%	0%
REAL ASSETS	9%	9%	0%
CASH	1%	1%	0%
TOTAL	100%	100%	

GLOBAL EQUITY PORTFOLIO VERSUS POLICY WEIGHTS



PUBLIC EQUITY PORTFOLIO VERSUS PROPOSED POLICY WEIGHTS

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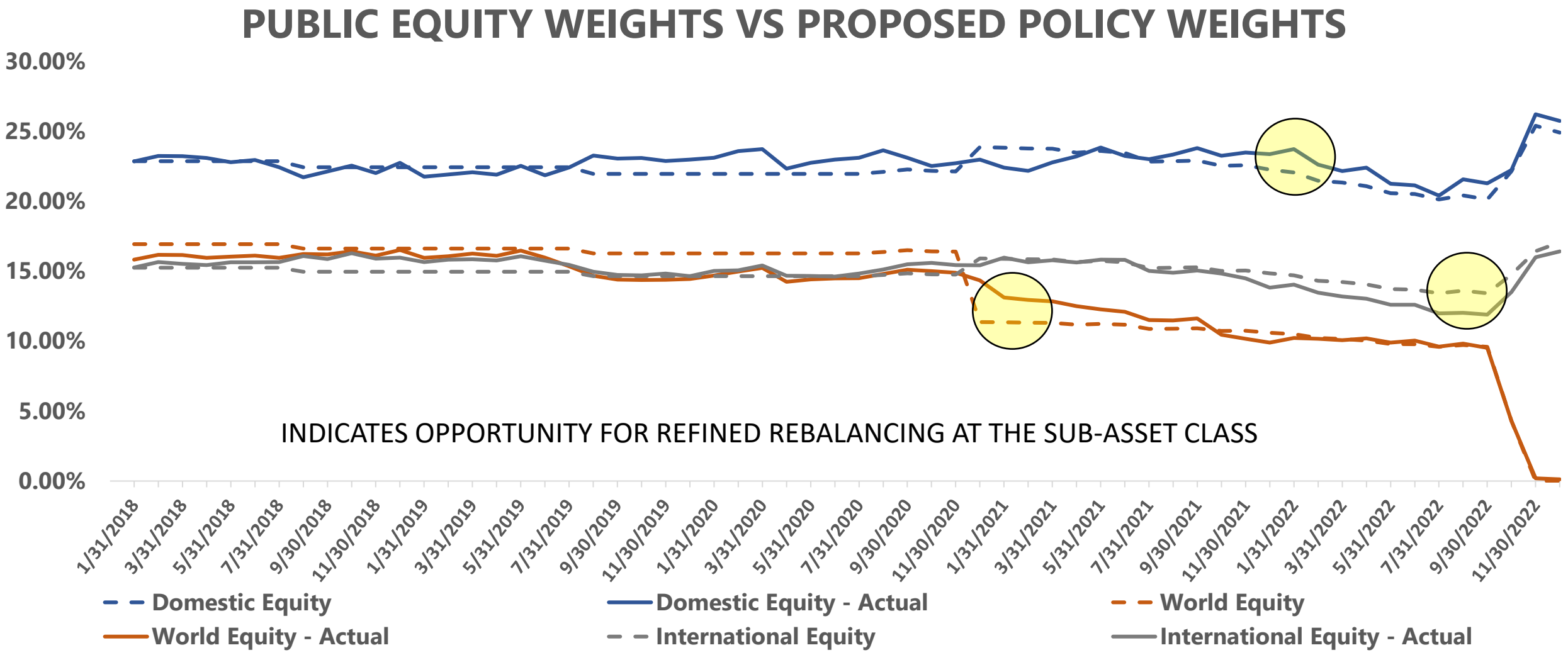

RECOMMENDATION

- CHANGE TO PORTFOLIO WEIGHT EQUAL TO A BENCHMARK WEIGHT WHERE PRIVATE EQUITY REBALANCES THRU PUBLIC EQUITY AND REAL ASSET REBALANCE THRU HALF FIXED INCOME AND HALF EQUITY
- RESTATE THE 2022 FISCAL YEAR BASED ON THIS PERFORMANCE METHOD, ALSO KEEP A PERFORMANCE MEASUREMENT USING THE OLD SYSTEM FOR COMPARISON
- WHEN A BENCHMARK CONSULTANT IS HIRED, ALSO CHOOSE AN APPROPRIATE BENCHMARK FOR THE PRIVATE MARKETS RATHER THAN BENCHMARK IT AGAINST ITS OWN PERFORMANCE