

NOTICE
MWRA EMPLOYEES' RETIREMENT BOARD MEETING

The MWRA Employees' Retirement Board will hold a special meeting on Wednesday, February 7, 2024, beginning at 10:00 a.m., via the below Webex details. Portions of the meeting may be held in Executive Session when required by law.

AGENDA

- Consulting Services Search Presentations – VOTE
 - 10:00 a.m. New England Pension Consultants
 - 10:20 a.m. Dahab Associates
 - 10:40 a.m. Meketa Investment Group
 - 11:00 a.m. Verus

Join from the meeting link

<https://mwra.webex.com/mwra/j.php?MTID=md22d94a1e254857e0e3f6f1c3d50641e>

Join by meeting number

Meeting number (access code): 2335 709 7799

Meeting password: 4397

Join by phone

+1-617-315-0704 United States Toll (Boston)

Join from a video system or application

Dial 23357097799@mwra.webex.com

You can also dial 173.243.2.68 and enter your meeting number.

The Board reserves the right to consider items on the agenda out of order. The listing of matters is those reasonably anticipated by the Chair which may be discussed at the meeting at least forty-eight (48) hours prior to the meeting. Not all items listed may in fact be discussed and other items not listed may also be brought up for discussion to the extent permitted by law.



INVESTMENT CONSULTING PRESENTATION

MWRA EMPLOYEES RETIREMENT
SYSTEM

FEBRUARY 7, 2024



PROPRIETARY & CONFIDENTIAL

TODAY'S PRESENTERS



**Sebastian
Grzejka, CAIA**

Partner

- 19 years at NEPC
- Chair of NEPC Marketable Investment Committee
- Public Pension experience



Mike Sullivan

Partner

- 17 years at NEPC
- Public and Union Pension experience



**Mike Manning,
CFA, CAIA**

Managing Partner

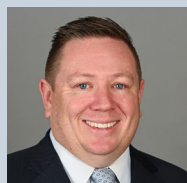
- 27 years at NEPC
- President of NEPC in 2003
- Public Pension experience

NEPC TEAM & RESOURCES

MWRAERS Core Team



Sebastian Grzejka
Partner



Michael Sullivan
Partner

MWRAERS Dedicated Support



Consulting Analyst
Performance Analyst
Administrative Assistant

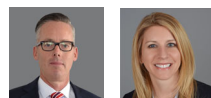
Supported by NEPC Leadership & Specialty Resources

FIRM LEADERSHIP

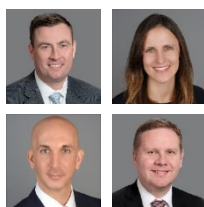


Managing Partner
Governance Board
Management Group

PUBLIC FUNDS LEADERSHIP



RESEARCH TEAM



Investment Manager Research
Asset Allocation
Portfolio Construction

OPERATIONS & PERFORMANCE



SPECIALTY



Diversity, Equity & Inclusion
ESG Impact

LEGAL & COMPLIANCE





NEPC FIRM OVERVIEW



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A BRIEF HISTORY SINCE 1999

▪ What's changed over the last 25 years?

	1999	2024
– NEPC AUM	~\$107B ¹	~\$1.6T
– MWRAERS AUM	~\$98M ²	~\$680M
– Employee Ownership	100%	100%
– Number of Employees	33 ¹	359
– Dedicated Research Team	3 ¹	69
– Number of Clients	137 ¹	420

▪ What hasn't changed over the last 25 years?

- Our partnership, dedication and commitment to the success of the MWRA Retirement System and your participants



¹As of December 31, 1998

²As of February 28, 1999

ABOUT NEPC

- Our success as a firm is fueled by our love for this business
- We remain independent to prioritize client interests
- We invest heavily in research and people



359 EMPLOYEES



7 REGIONAL OFFICES



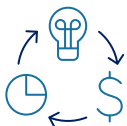
EMPLOYEE-OWNED

46 Partners



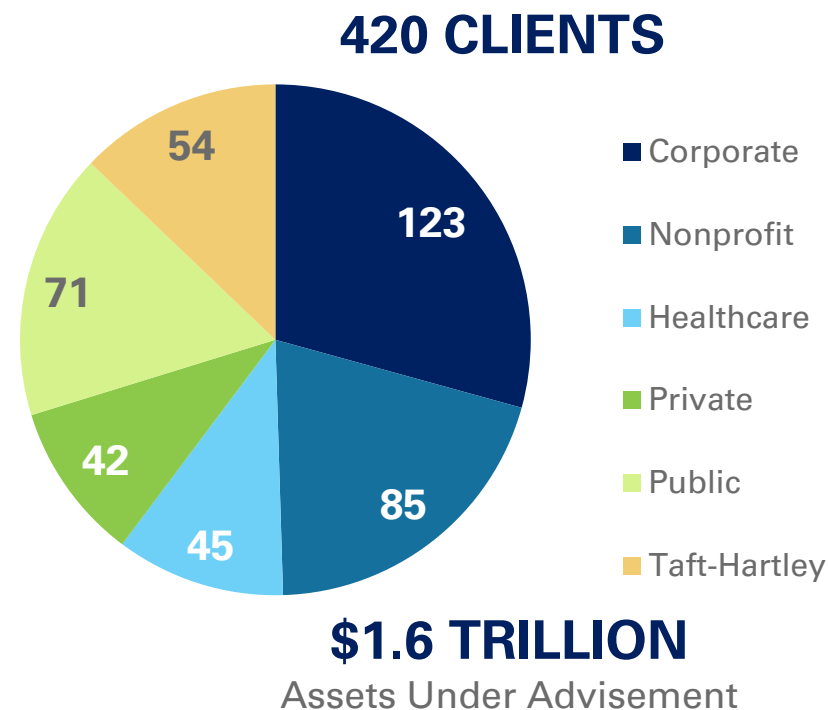
100% OF REVENUE

from advisory consulting and OCIO services



7 PRACTICE TEAMS

deliver expertise by client type



NEPC also has a practice team dedicated to supporting our clients' defined contribution plans across all client types.



Employees as of 10/1/2023, clients as of 10/1/2023

CLIENT-FIRST IN EVERYTHING THAT WE DO

- You made a **promise** to your employees - We will help you **keep it**
- Public DB plans are **complex** and differ widely based on a plan's status and goals
- We **understand** the unique challenges you are facing and the risks associated with those challenges
- NEPC has been constructing **strong** performing portfolios since the firm's inception
- NEPC has developed **custom** tools to help you understand and manage the risks in your portfolio



WE AIM TO HELP OUR PUBLIC FUND CLIENTS ACHIEVE THEIR GOALS

Dedicated Public Fund Team of 18 professionals¹

71 public fund clients with \$778 billion in assets²

Anne Arundel County
Arizona Public Safety Personnel Retirement System
Arizona State Retirement System
Belmont Contributory Retirement System
Boston Water and Sewer Commission
Chicago Policemen’s Annuity & Benefit Fund
City of Boston – Trust Funds & Retirement System
City of Medford Contributory Retirement System
City of Orlando
Fairfax County Uniformed Retirement System
Los Angeles City Employees’ Retirement System
Los Angeles County Savings Plan
Los Angeles County Deferred Compensation Plan
Louisiana State Employees’ Retirement System
Massachusetts Water Resource Authority ERS
Metropolitan Transportation Authority
MoDOT & Patrol Employees’ Retirement System
New Mexico Educational Retirement Board
New York City Fire Department
Police & Firemen’s Retirement System of New Jersey
San Antonio Fire & Police Pension Fund
San Bernardino County ERA
Seattle City Employees’ Retirement System
State of Delaware, Office of the State Treasurer
State of Rhode Island
Ventura County Employees’ Retirement System



¹As of 1/1/24 ²As of 10/1/2023

OUR COMMITMENT

PUBLIC FUND MARKETPLACE

- NEPC is an active member of several public fund/governmental professional organizations, including:

AIF ALTERNATIVE INVESTMENTS FORUM

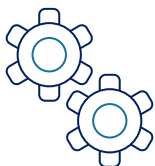


Georgia Association of Public Pension Trustees

International Foundation OF EMPLOYEE BENEFIT PLANS *if*



THE NEPC DISTINCTION



Custom Solutions

- We strive to balance a deep understanding of your organization to build a forward-looking investment solution that achieves your goals and objectives
- We believe in custom solutions and an adaptive client service model to fit your needs
- In addition to our large research platform and consulting teams, we have a large performance reporting platform to meet your custom requirements



Direct Access and Resources

- We've received significant recognition from independent surveys for our proactive approach, stability, and client service
- Our Research Specialists are available to help provide additional education and insights; we commit this resource directly to our clients
- We generate ideas through the depth and breadth of our research and are not afraid to take a differentiated view



Stability

- As a Partnership, we are committed to remaining independent
- Our business model has been diversified since our inception
- We've made the necessary investment in resources to provide stability for our clients
- Long-tenured, senior employees
- Latest SEC exam in 2022 concluded with no major findings



THE MWRAERS PORTFOLIO



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IDENTIFYING THE RIGHT SOLUTION FOR YOU

- Understand optimal goals
- Align investment goals with risk tolerance
- Ensure strategy design meets investment goals & aligns with risk tolerance
- Implementation – Formalize in Investment Policy Statement
- Monitoring – use tools to evaluate fund position



THE MWRAERS PORTFOLIO AND HISTORY

- **The MWRAERS Portfolio Today**

- Total return focus, being mindful of volatility
- Balance of active and passive management
- Diversified across asset classes and approaches
- Mature private equity and real estate portfolio
- PERAC regulatory oversight
- Assumed rate of return is 6.9%
- Funded status of ~90%



- **The Plan has evolved over time, incorporating a refined strategic approach and views on the appropriate implementation of assets**

- We have provided additional thoughts on the following pages

ACHIEVE BETTER FINANCIAL OUTCOMES

PROPOSED PORTFOLIO AND THEMES

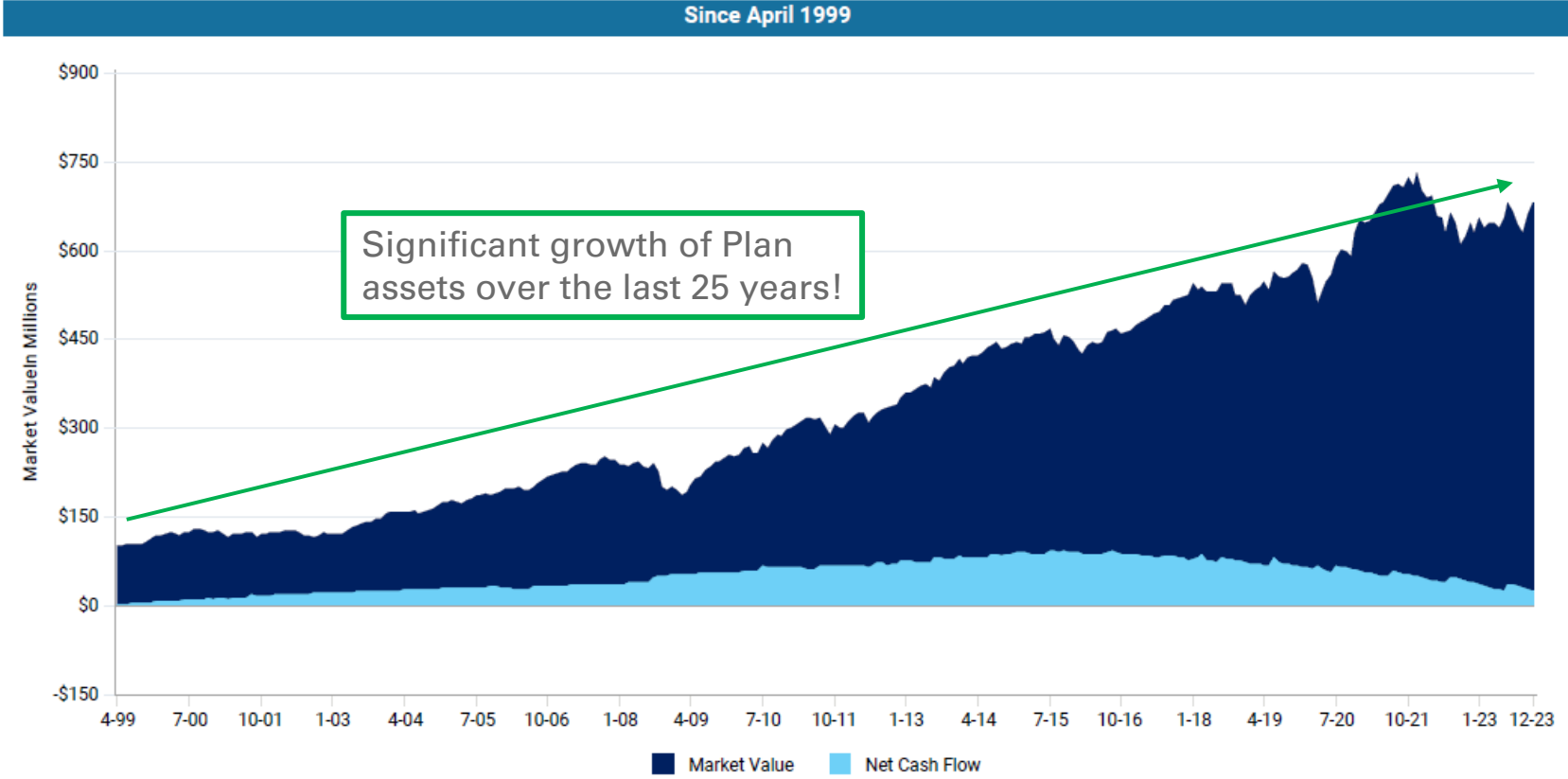
PUBLIC EQUITY	Maintain exposure, balancing between geography, size and style	 50%
FIXED INCOME	Focus on defensiveness, liquidity and yield seeking in the allocation	 20%
PRIVATE EQUITY	Look to expand the target allocation, focusing on current opportunities	 12%
REAL ESTATE	Potential to decrease allocation in favor of other opportunities	 12%
HEDGE FUNDS	Maintain exposure to diversify allocation	 6%
CASH	Potential to establish a strategic target to cash, given growing needs	0%

 = Your Current Allocation

	Expected Return	Standard Deviation	Sharpe Ratio
Your Current Allocation	6.4%	15.8%	0.16



MWRAERS ASSET GROWTH SUMMARY¹



Significant growth of Plan assets over the last 25 years!

	Inception
Beginning Market Value	98,476,001
Net Cash Flow	24,629,219
Net Investment Change	556,964,094
Ending Market Value	680,069,314



¹ Based on historical data. Net Cash Flow represents both external and internal flows within the Plan assets. Past performance is no guarantee of future results.

INVESTMENT REGIME SHIFTS TAKE TIME

2024 MARKET OUTLOOK



Economic Resilience

Robust labor market reinforces a “no recession” outcome for the U.S.



Long and Variable Monetary Policy Lag

Access to capital and liquidity slowly adjusting to the investment landscape



Higher for Longer Interest Rates

Market participants have not accepted long-term interest rates above 4%



Inflation Expectations Are Awry

Market expectations are anchored to the low inflation levels of the past decade



Geopolitical Dynamics

Geopolitical trends are straining supply chains and macroeconomic conditions

NEPC INVESTMENT RESEARCH



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MANAGER RESEARCH

GLOBAL COVERAGE

- **Dedicated research group supplemented by consulting teams**



13,000

investment strategies rated across asset categories¹



618

searches² in 2022



2,806

manager meetings in 2022



\$40.7 billion

total search² assets in 2022

¹Includes all unique products and strategies tracked in NEPC's database on which NEPC has developed an opinion and assigned a rating of 1-5. Does not include products that are flagged as Not Rated. Private equity, real estate and real assets categories include all products/strategies tracked in NEPC's internal database (including Not Rated).

²Includes public market searches, hedge fund reviews and private markets commitments.

RESEARCH TEAM OVERVIEW

Tim McCusker, FSA, CFA, CAIA, Partner*
Chief Investment Officer

ASSET ALLOCATION

Phillip Nelson, CFA, Partner*
Head of Asset Allocation

PORTFOLIO CONSTRUCTION

Timothy Bruce, Partner*
Head of Portfolio Construction

GLOBAL RESEARCH

Neil Sheth, Partner*
Head of Global Research

RESEARCH OPERATIONS

Dawn Swift,
Head of Research Operations

OPERATIONAL DUE DILIGENCE

Kevin Lau-Hansen
Head of Operational Due Diligence

PORTFOLIO STRATEGY

Scott Perry, CAIA, Partner*
Head of Portfolio Strategy*

INVESTMENT MANAGER RESEARCH

Sarah Samuels, CFA, CAIA, Partner*,
Head of Investment Manager Research

MARKETABLE SECURITIES RESEARCH (Long-Only & Hedge Funds)

EQUITIES

Will Forde, CFA, CAIA,
Partner*, Head of Equity

CREDIT & MULTI-ASSET

Dulari Pancholi, CFA, CAIA,
Partner*, Head of Credit &
Multi-Asset Investments,

PRIVATE MARKETS RESEARCH

PRIVATE EQUITY

Joshua Beers,
Partner*, Head of Private
Equity Investments

PRIVATE DEBT

Oliver Fadly, Principal+
Head of Private Debt
Investments

REAL ASSETS

Matt Ritter, CAIA,
Partner*, Head of Real Assets
Investments

As of 05/17/23

*Ownership interest in NEPC (Partner)

+Principal designation for leadership within the Firm.



COLLABORATING WITH OUR RESEARCH TEAM



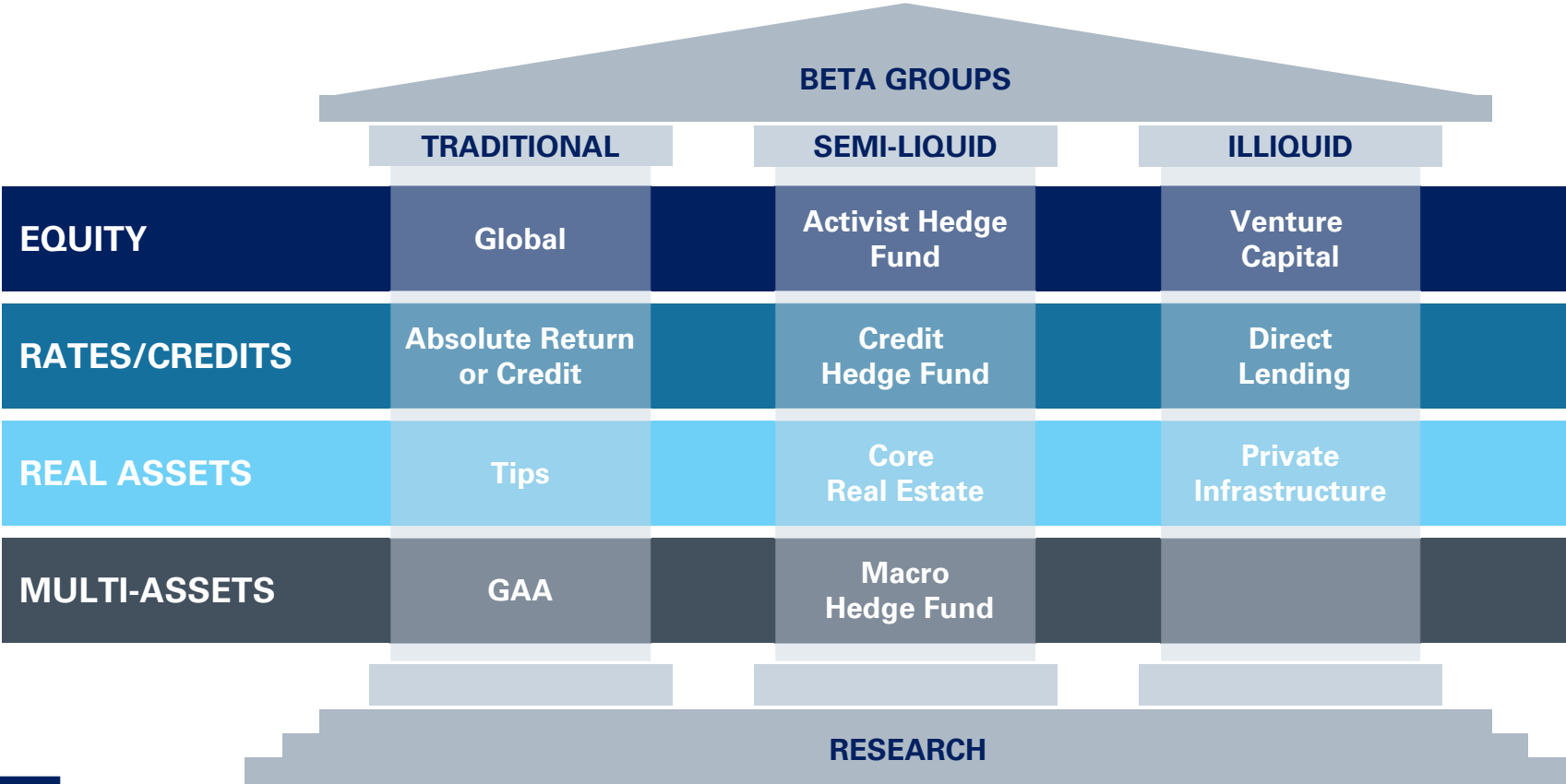
MWRAERS Team



Consulting Team



Research Team



NEPC INVESTMENT PROCESS – DUE DILIGENCE

- Quantitative data analysis, and qualitative analyses of people and their incentives to identify and deliver sustainable alpha

Quantitative Analysis	Qualitative Analysis	
Proprietary Tools	Investment Process	Alignment of Incentives
<ul style="list-style-type: none"> • Used to facilitate Second-level Thinking¹, helping us identify true skill 	<ul style="list-style-type: none"> • Identifying investment edge • Determine whether it is sustainable and repeatable • Evaluate the team’s resources 	<ul style="list-style-type: none"> • Alignment of interest between the client and the manager is key
<ul style="list-style-type: none"> ▪ Luck vs. skill ▪ Likelihood of success ▪ Alpha expectations ▪ Performance 	<ul style="list-style-type: none"> ▪ People & Resources ▪ Investment Philosophy, Strategy & Process 	<ul style="list-style-type: none"> ▪ Business strategy ▪ Viability/profitability ▪ Succession planning



¹<https://www.oaktreecapital.com/docs/default-source/memos/2015-09-09-its-not-easy.pdf>

PRIVATE MARKETS

RESEARCH PROCESS

Fully Integrated Research Process ... Customized for Every Client

1. Portfolio Construction & Planning

Private markets is not a 'one size fits all' investment class, it offers a broad range of strategies that can be customized based on specific investment objectives.

2. Macro Viewpoints

What sub-sectors within private markets are most attractive today based on current market conditions?

3. Investment Pacing

Based on portfolio objectives, current investments and macro conditions, what future commitments make sense?

4. Fund Diligence

Rigorous quantitative and qualitative process centered around three key questions: what's the universe of products available, which are the best and when will it be open?

6. Education & Special Projects

Quarterly market webinars and asset class reviews; monthly market commentary, semi-annual market outlook; whitepapers and original research; direct access to research team.

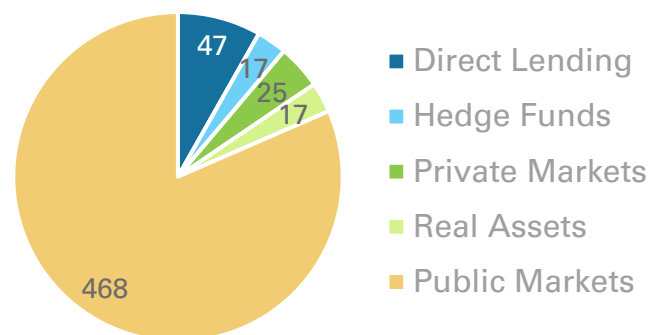
5. Fund Monitoring & Plan Reporting

Quarterly client plan reporting supported by dedicated reporting team; ongoing fund monitoring; frequent manager meetings; review and opine on fund changes, amendments, etc.



BENEFITS OF SCALE & LEVERAGE

- **NEPC has successfully negotiated competitive fees for clients based on:**
 - The size of our client base and volume of manager search activity
 - Our extensive databases of institutional manager fees (as a function of size of placement, size of total fund and market segment)
 - Our reputation within the industry
- **Additional examples of how our clients can benefit from a relationship with NEPC:**
 - **Lower minimums.** Clients often access investment strategies at a lower minimum than the managers' stated minimum account size
 - **Reduced fees.** NEPC clients' commitments may be viewed in aggregate such that multiple clients benefit from a lower fee breakpoint
 - **Better alignment.** We have pushed investment managers to move from asset-based fees to a structure that combines a low asset-based fee with performance-based fees with a cap, so that investors don't pay more in performance fees than the original asset-based fee.
- **NEPC has successfully negotiated lower fees with 142 investment management firms across 574 investable vehicles with active exposure by NEPC's Clients¹:**



¹As of 11/21/2023 reflects only asset-based management fee vehicles with active exposure by NEPC's clients; includes both OCIO and advisory client managers. Past performance is no guarantee of future results. Not all funds are suitable for all clients and some funds may be closed to new investment.



IN CONCLUSION



NEPC AND MWRAERS: A PARTNERSHIP OF SUCCESS

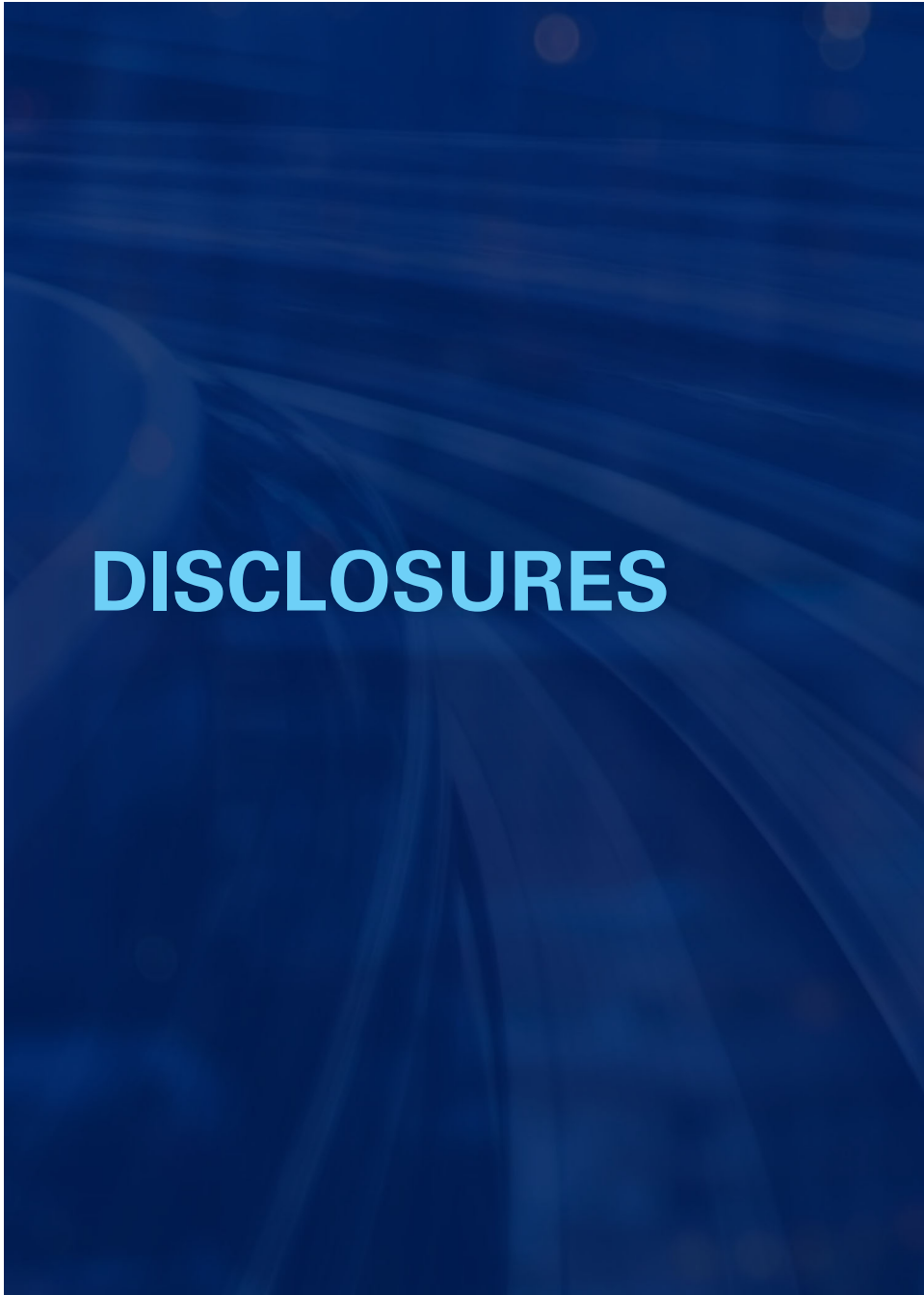


¹As of 7/1/2023

FEE PROPOSAL

- **Our proposed fees for advisory services are as follows:**
 - Our fee proposal for these services is \$150,000, inflation adjusted on an annual basis
 - Travel, postage, and related expenses will be billed back at cost
 - Fees are guaranteed for three years unless there is a mutual recognition that the scope of services is significantly different than outlined in our original retainer agreement





DISCLOSURES



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NEPC DISCLOSURES

- This document may contain confidential or proprietary information and is intended only for the designated recipient(s). If you are not a designated recipient, you may not copy or distribute this document.
- Certain information, including that relating to market indices, was provided by sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
- Investment Metrics Plan Universe - As of 12/31/2022, the Investment Metrics Universe contained actual, custodian-supplied and audited data on over 3,250 plan sponsors, representing roughly \$2.2 trillion in assets. This data is drawn from 52 independent investment consulting firms, including NEPC.
- ICC Universe - Through 2011, universe rankings were based on the ICC Universe, which was populated by 12 independent investment consulting firms, including NEPC, and supplemented by many of the performance measurement clients of State Street Bank.
- NEPC's OCIO assets of \$83.1 billion as of 10/1/2023 include clients that receive full OCIO services as well as those that receive partial OCIO services, including operational support. OCIO assets reported on Form ADV are \$63.6 billion, which includes NEPC's Access Vehicles.

CLIENT RESULTS DISCLOSURES – ALL CLIENTS

- Past performance is no guarantee of future results.
- NEPC acts in an advisory capacity-only for many clients and does not have discretion over those client assets. As a result, a client's investment performance may not be attributable solely to NEPC's advice.
- NEPC's Overall Composite is compiled from all Pension Plans, Endowments and Foundations for which NEPC is the sole full-retainer consultant. Plans are included in the Composite provided they have exposure to equity and bonds (including alternatives) of at least 25% each, and no more than 20% to other assets such as cash and GIC's.
- New clients are added to the Overall Composite with the first full quarter of a new manager selected from an NEPC search, or after one year as an NEPC client, whichever comes first, provided that the plan is globally diversified.
- Results are reported gross of NEPC advisory fees.
- NEPC's fees for advisory clients vary considerably depending on client size and complexity.

ALTERNATIVE INVESTMENT DISCLOSURES

- It is important that investors understand the following characteristics of non-public market investment strategies including hedge funds, real estate, real assets and private equity:
 - Performance can be volatile and investors could lose all or a substantial portion of their investment
 - Leverage and other speculative practices may increase the risk of loss
 - Past performance may be revised due to the revaluation of investments
 - These investments can be illiquid, and investors may be subject to lock-ups or lengthy redemption terms
 - A secondary market may not be available for all funds, and any sales that occur may take place at a discount to value
 - These funds are not subject to the same regulatory requirements as registered investment vehicles
 - Managers are not required to provide periodic pricing or valuation information to investors
 - These funds may have complex tax structures and delays in distributing important tax information
 - These funds often charge high fees
 - Investment agreements often give the manager authority to trade in securities, markets or currencies that are not within the manager's realm of expertise or contemplated investment strategy



Massachusetts Water Resources Authority Employees' Retirement System

Presentation for Investment Consultant Services

Gregory McNeillie, Vice Chairman

February 7, 2024



DAHAB ASSOCIATES

Consulting Team



Gregory McNeillie - Vice Chairman

- BS in Business Administration from Bryant University
- CIMA designation from the University of Pennsylvania (Wharton)
- Lead consultant to public fund market for the Hannah Group 1988-95
- More than 30 years of consulting experience



Kevin Condy, CFA, CAIA - Director of Research

- BA in Finance from The College of New Jersey
- Chartered Financial Analyst
- Chartered Alternative Investment Analyst
- Joined Dahab Associates in 2014

Overview of Dahab Associates

- Founded in January 1986
- 100% employee owned; seven owners
- Independent... not affiliated with any investment manager, actuary, investment banker, or broker/dealer
- Headquartered in Bay Shore, NY. Offices in Franklin, MA; Hollywood, FL
- 86 clients with aggregate assets of approximately \$16 billion

Our Service Model

- Team Approach
 - Every client is assigned a team of two consultants and a financial analyst
 - Diverse backgrounds give clients unique perspectives
- Average of 11 clients per consultant
 - Customized relationships
 - Proactive, not reactive
 - Make decisions with clients, not dictate to clients
 - Very high level of client satisfaction

The Right Partner

Experience advising clients similar to the Massachusetts Water Resources Authority

- By type: Approximately 70% of clients are Public Funds
- By geography: Over 45% of clients are in the Northeast;
9 clients in the Commonwealth of Massachusetts
- By experience: 38 years serving Public Funds

Size Does Not Equate to Stability

Consulting business is and likely will remain in turmoil

- Acquisition
 - Hewitt acquired EnnisKnupp, then Aon acquired Hewitt
 - Pavilion Financial acquired Jeffrey Slocum & Associates
 - Mercer acquired Hammond, Pavilion Financial, Summit Strategies
 - Evaluation Associates split between Mercer and Callan
- Changed business model: Mercer, Merrill Lynch abandoned Public Funds

Firms dislike the consulting business

- Lacks higher margins and scalability of money management
- Slow pace of organic growth
- Legal liability

They seek to expand revenues by introducing discretionary models or contract responsibility by outsourcing

Better by Design

- Firm stability
 - Grow organically, not by acquisition
 - Independent and debt free
 - Never changed our business model
 - Never been sued or sanctioned
- Full Transparency
 - Public search process fully compliant with Chapter 32
 - Proprietary, fully customizable performance software
- Asset Allocation Process
 - Geometric asset liability simulations conducted with our own software
 - Sophisticated, state-of-the-art software

Public Funds List

- Anniston Firefighters' & Police Officers' Pension Plan, AL
- Metro District Pension Plan, CT
- Hamden Employees' Retirement Plan, CT
- Bay Harbor Islands Employees' Retirement System, FL
- Cocoa Firefighters' Pension Fund, FL
- Cooper City Police Officers' Pension Fund, FL
- Dania Beach Police & Fire Retirement System, FL
- Davie Police Pension Plan, FL
- Fort Lauderdale General Employees' Retirement System, FL
- Hialeah Firefighters' Pension Fund, FL
- Hialeah Police Officers' Pension Fund, FL
- Lauderhill Firefighters' Pension Fund, FL
- Manalapan GE & PO Retirement Plan, FL
- Miramar Firefighter Pension Plan & Trust Fund, FL
- Pembroke Pines FF & PO Pension Fund, FL
- Pembroke Pines OPEB Trust, FL
- Sanford Firefighters' Pension Fund, FL
- Sanford Police Officers' Pension Fund, FL
- South Miami Pension Fund, FL
- Sunrise General Employees' Retirement System, FL
- Orange County Deferred Compensation Plan & OPEB, FL
- Orange County Library System, FL
- Chatham County Employees & OPEB Fund, GA
- Overland Park Fire Department Retirement Plan, KS
- Overland Park Police Department Retirement Plan, KS
- Maryland-National Capital Park & Planning Commission, MD
- **Andover Contributory Retirement System, MA**
- **Attleboro Contributory Retirement System, MA**
- **Dukes County Contributory Retirement System, MA**
- **Dukes County Pooled OPEB Trust, MA**
- **Franklin Regional Contributory Retirement System, MA**
- **Hampshire County Retirement System, MA**
- **North Attleboro Contributory Retirement System, MA**
- **Shrewsbury Contributory Retirement System, MA**
- **Taunton Contributory Retirement System, MA**
- Harrison Township Employees Retirement System, MI
- Pontiac General Employees Retirement System, MI
- Pontiac VEBA Trust, MI
- St. Clair County Retirement System, MI
- Waterford Township GE & Post-Retirement HCT, MI
- Westland Police and Fire Retirement System, MI
- Berkeley Police & Fire Employees Retirement System, MO
- North Kansas City PO & FF Pension Fund, MO
- St. Louis Firefighters' Retirement Plan, MO
- Chester County Employees' Retirement Fund, PA
- Erie Aggregate Pension Plans, PA
- Erie Water Reserve Fund, PA
- Lycoming County Employees' Retirement System, PA
- Newtown Township Pension Plans, PA
- Johnston Fire Fighter and Police Officer Pension Fund, RI
- Newport Retirement System, RI
- Chattanooga Fire & Police Pension Fund, TN
- Franklin Employees' Pension Fund & Trust, TN
- VIA Metropolitan Transit, TX
- Alexandria City Public Schools, VA
- Alexandria Firefighters' & Police Officers' Pension Plan, VA
- Charlottesville Retirement System, VA
- Danville Employees' Retirement System, VA
- Prince William County Supplemental Pension Plan, VA

Results Matter

Performance Comparisons Periods Ending September 30, 2023

	1 Year	3 Year	5 Year	10 Year
Average Dahab Client Performance, Gross	10.6	5.1	5.6	7.1
(Public Fund Rank)	(54)	(32)	(24)	(13)
Average Dahab Client Performance, Net	10.2	4.6	5.1	6.6
Median Plan in Public Universe, Gross	10.9	4.3	5.1	6.2
MWRA Employees' Retirement System	7.6	4.0	4.7	5.7
(Public Fund Rank)	(94)	(62)	(66)	(75)

Average Dahab client performance is the equal-weighted average return of all public defined benefit plans advised by Dahab during the periods shown. Figures are for illustration purposes only. Past performance is not an indicator of future returns; portfolio makeup and risk tolerances differ from fund to fund. Universe data provided by Investment Metrics, LLC; ranks are on a percentile basis and descend from highest (1) to lowest (100).

MA Public Fund Rankings

10 Year Rank	Retirement Board	5 Year Return	10 Year Return	Cumulative 10-Year Return
4	Dukes County	7.0%	9.0%	136.7%
6	Shrewsbury	7.0%	8.9%	134.6%
16	Franklin Regional	6.4%	8.5%	126.1%
↓				
25	PRIM Board	6.8%	8.4%	124.0%
↓				
47	North Attleboro	6.0%	8.3%	122.0%
50	Attleboro	6.6%	8.2%	119.9%
73	Taunton	5.9%	8.0%	115.9%
↓				
101	MWRA	5.4%	7.0%	96.7%

Performance information as of 12/31/2022 taken from PERAC Investment Report 2022

¹Hampshire County hired Dahab in 2021; 5 & 10-Year returns not applicable.

²Andover hired Dahab in 2016; 10-Year return not applicable. 5-Year return: 7.1%.

Ranking is out of the 107 Massachusetts Public Plans.

Fees Without Complexity

- Includes all services provided by Dahab Associates:
 1. Performance reports and meetings
 2. Asset/liability studies
 3. Policy and guidelines formulation and review
 4. Ad-hoc meetings
 5. Education
 6. Travel expenses
 7. All consulting time and support time
- All-inclusive annual fee:
 1. \$120,000
 2. No additional fees, no hidden revenues

Our Process

- Investment Policy Statement
 - Primary Goal: Represent the participants' best interest
 - Secondary Goal: Protect the Trustees
- Asset-Liability Study
 - Primary Goal: Safest route with the highest probability of success
 - Secondary Goal: Keep it simple and inexpensive
- Manager/Vendor Searches
 - Primary Goal: Find the best candidates
 - Secondary Goal: Keep it simple and inexpensive

Philosophy: What We Like

- We believe in an allocation dominated by traditional equity and traditional fixed income
 - Equities offer an inexpensive source of high returns
 - Allocations diversified across capitalization ranges and by region
 - Bonds offer an inexpensive source of stability
 - Bond returns enhanced, and risk-mitigation improved, by using real assets

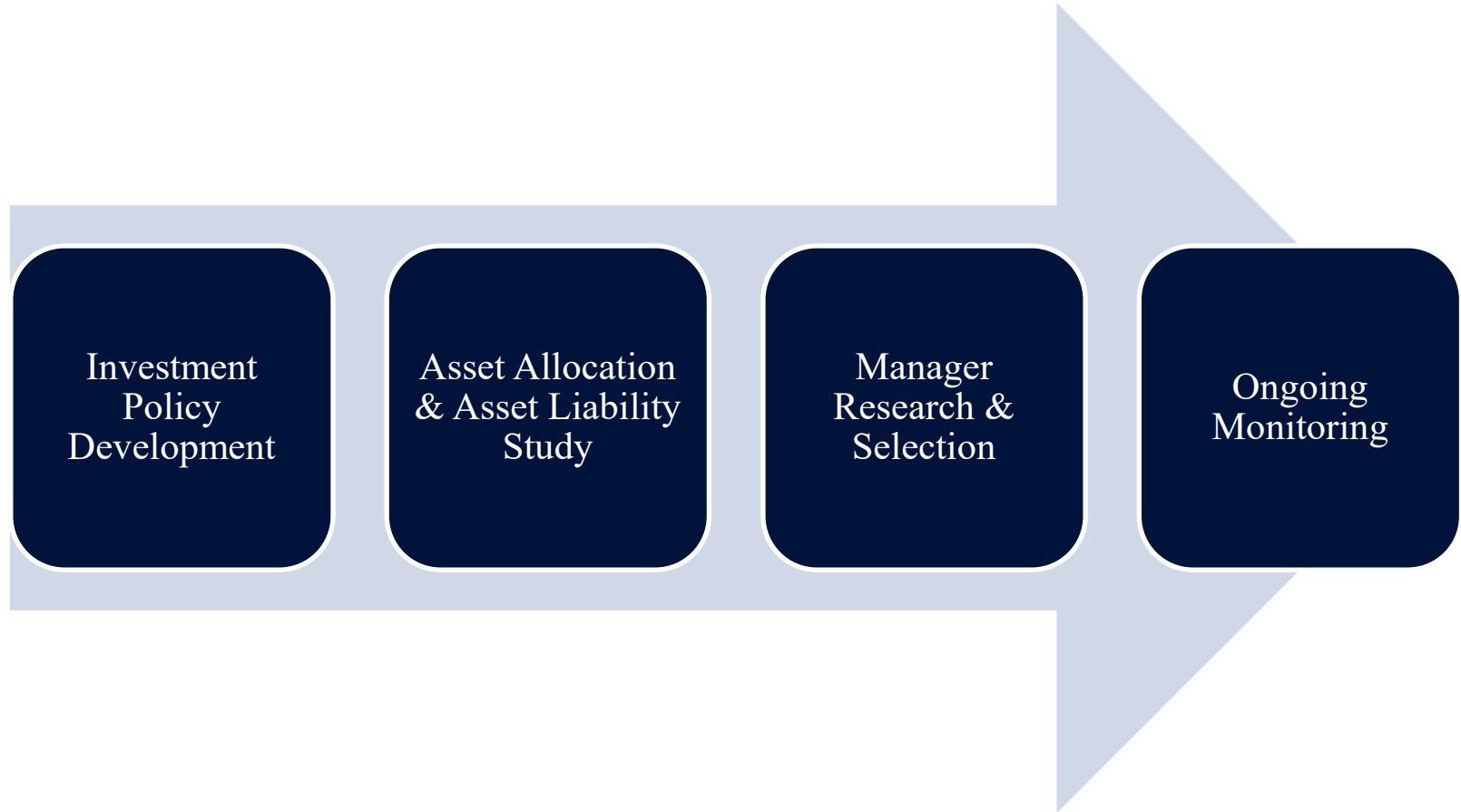
Philosophy: What We Do Not Like

- Expensive strategies sacrificing return for lower volatility
 - Volatility is not the only risk to consider
- We do not favor many products common to other firms
 - Hedge funds
 - Financially engineered products (risk parity, portable alpha, 130/30)
 - Fixed income with hidden equity risk
 - Momentum trades
 - Excessive use of leverage

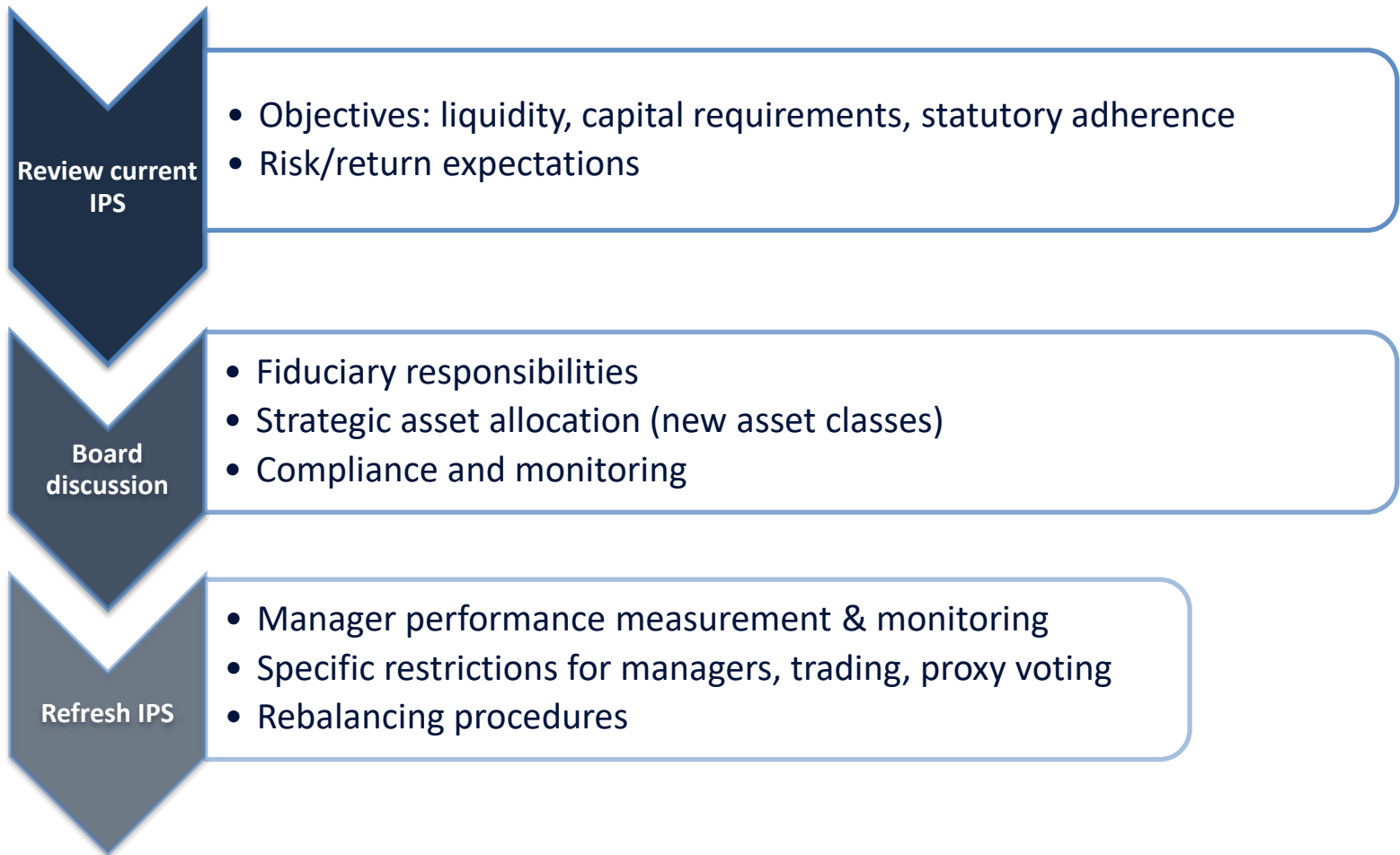
Why Dahab Associates

- Right size firm for the Massachusetts Water Resources Authority
- Highly qualified, experienced consultants
- No conflicts of interest and full transparency
- Organizational strength
- Easy to understand reports
- High level of client satisfaction
- Competitive fees

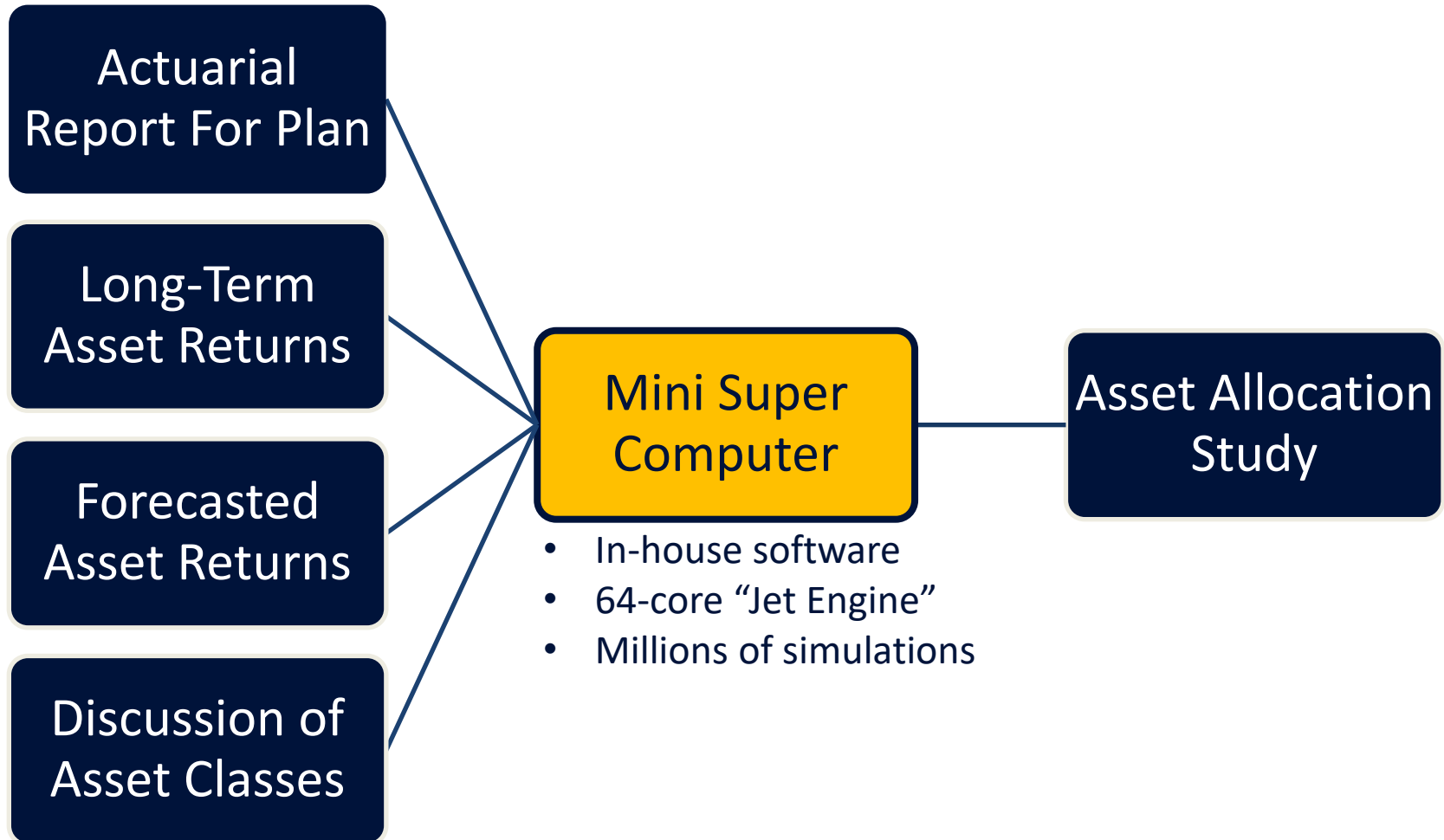
Consulting Process



Investment Policy Development



Asset Allocation



Manager Research Process



- A completely open process
- No pre-approved managers
- No financial link to any managers
- Board retains discretion, always

Education

Module A - General Introduction

Module C - Creating the Portfolio

1. Modern portfolio theory
2. Asset classes
3. Asset allocation

Module E - Asset Classes

1. Equity and equity style
2. Fixed income
3. Farmland
4. Real estate
5. Hedge funds
6. Private equity

Module B - Fiduciary Responsibility

Module D - Maintaining the Portfolio

1. Selecting managers
2. Evaluating managers
3. Rebalancing

Module F - Special Topics

1. Mature pension plans
2. Bond alternatives
3. Derivatives
4. Bitcoin
5. Macroeconomics and MMT
6. Capital market assumptions

MEKETA

INVESTMENT GROUP



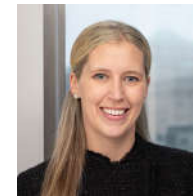
Presentation for Investment Consultant Services – February 7, 2024

Presenters

Your Presenters



Daniel R. Dynan, CFA, CAIA
Managing Principal
Consultant



Alli Wallace Stone, CFA
Managing Principal
Consultant

Experience

- 20 years of industry experience
- Joined Meketa in 2009; Shareholder
- Lead consultant on various defined benefit, annuity, health & welfare, and investment funds with public, Taft-Hartley, and not-for-profit plan sponsors
- Member: Consulting Leadership Committee and Pension Practice Group
- BA: College of the Holy Cross
- Representative Public Fund Clients:
 - Town of Norwood Retirement System
 - Plymouth County Retirement Association
 - Massachusetts Housing Finance Agency
 - Massachusetts Convention Center Authority
 - Worcester Retirement System

- 16 years of industry experience
- Joined Meketa in 2008; Shareholder
- Lead consultant on various Taft-Hartley, corporate, and public retirement systems
- Founded and Co-Chair: Emerging and Diverse Manager Committee
- Member: Defined Contribution Practice Group
- BA: University of Massachusetts
- Representative Public Fund Clients:
 - City of Quincy Retirement System
 - Illinois State Board of Investment
 - Firefighters' Pension Investment Fund of Illinois
 - Regional Transportation Authority
 - Park Employee's and Retirement Board Employee's Annuity and Benefit Fund of Chicago

Key Benefits to the MWRA ERS



Meketa Overview

45

Years of Experience

249

Clients

\$1.8 T

In Assets under Advisement

\$1.7 T

In Public Fund Assets

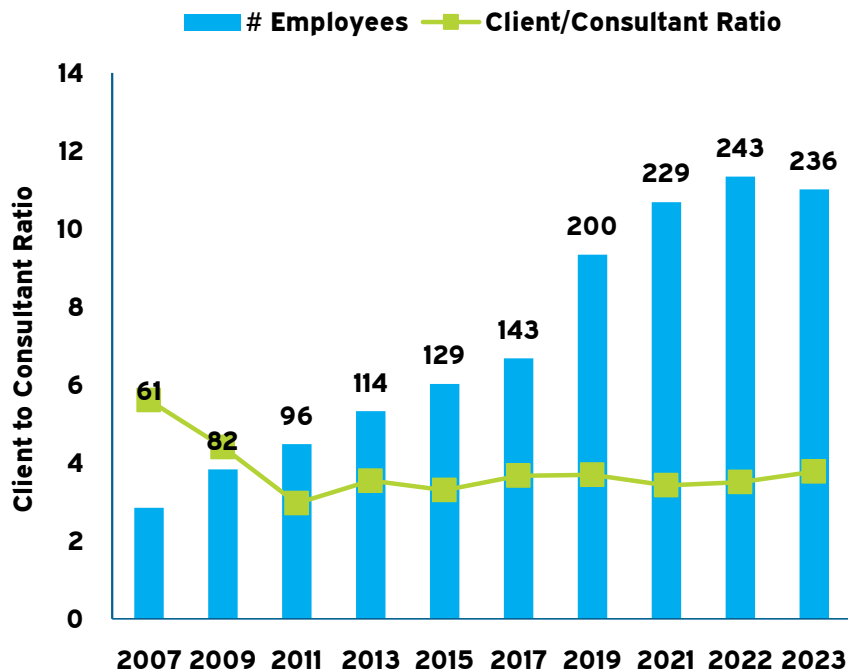
- Four decades of investment advisory experience
 - Advising Defined Benefit and Defined Contribution plans, and Endowment/Foundations
 - Working with Public Corporates, Endowments, Foundations, Healthcare, Taft-Hartley, and Non-Profits
- Over 240 clients*
 - Locally, we advise on \$13.3 billion in assets for 13 public fund clients in the Commonwealth
 - Over 180 General Consulting clients
 - Over 100 Private Market clients
- Staff of 236, including 160 investment professionals
 - 66 consultants and 43 analysts
 - 58 investment operations
 - 67 corporate & business administration
- One Line of Business
 - 100% of our revenue comes from our clients
 - No institutional proprietary products

* Overlap may occur as some clients have multiple mandates.
Client and employee counts as of December 31, 2023; assets as of September 30, 2023.

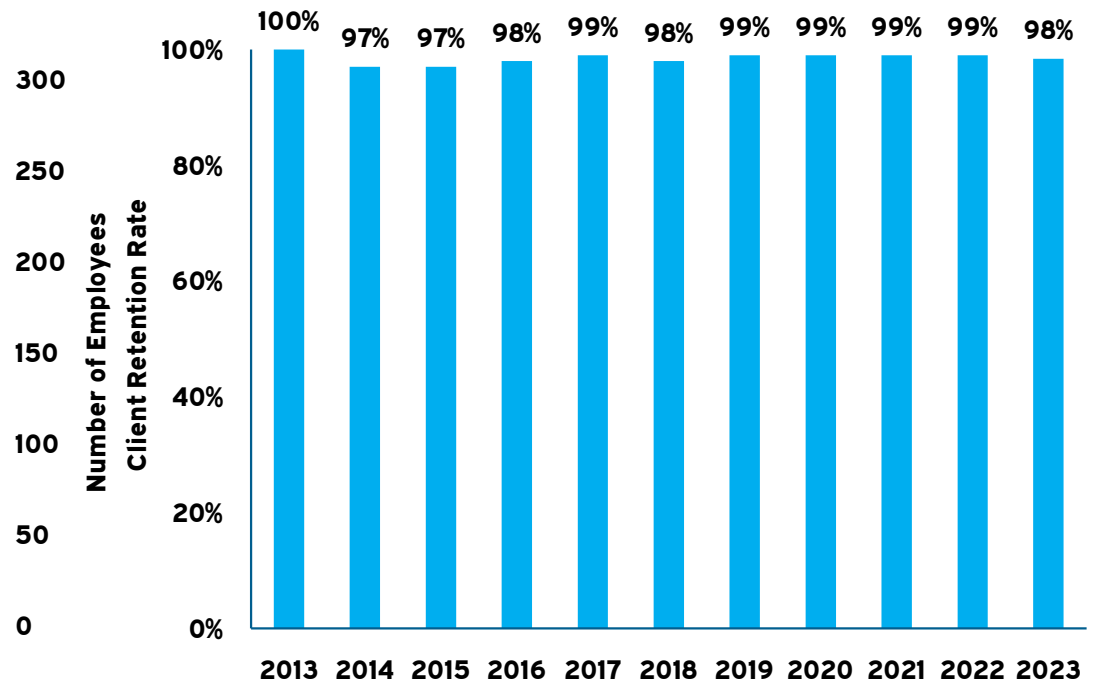
Deep and Growing Team

- Consistent and controlled growth has resulted in strong retention.
- Highly experienced staff allows us to service your needs.
- Low client to employee ratio means we know our clients and their portfolios well.
- Nearly 100% client retention rate¹ shows we have been able to keep our clients happy.

Client to Consultant Ratio



Annual Client Retention Rate



¹ Average over the previous five years. Client Retention Rate is one minus the number of clients lost divided by the number of clients at prior year end.

Public Markets Manager Research Team



Amy Hsiang, CFA, CAIA
Director of Public Markets Manager Research

Equities



Josh Brough, CFA
Co-Head of Equities (21, 7)
US Value



Hayley Tran, CFA, CAIA
Co-Head of Equities (17, 3)
Non-US Equities



Matt Curran, CFA, CAIA
Research Consultant (7, 7)
US Core



Dennis Rafferty, CFA
Research Analyst (7, 1)
US Growth Equity



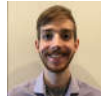
Orianna Grillo
Research Analyst (6, 6)
Domestic Equities, REITs



Merav Kaufman, CFA
Research Analyst (10, 10)
Non-US Equities



Griffin O'Riley
Research Associate (5, 1)
Non-US Equities



Beckett Cummings
Research Associate (2, 2)
Non-US Equities

Fixed Income



Mark McKeown, CFA
Head of Fixed Income (29, 5)
Generalist



Tracy Gage
Research Consultant (26, 3)
Generalist



Ricky Pamensky, CFA
Research Consultant (9, 4)
Generalist



Connor Collins
Research Analyst (6, 3)
Generalist

Marketable Alternatives



Ryan Lobdell, CFA, CAIA
Head of MALTs (13, 13)
Generalist



W. Brian Dana, CAIA
Director of OCIO Services (24, 18)
Generalist



Zachary Driscoll, CFA
Research Consultant (8, 6)
Generalist



Colin Bebee, CFA
Consultant (14, 14)
Generalist



Clara Etchegaray
Research Associate (2, 2)
Generalist

Sustainable Investing / Diverse Manager Engagement



Josh Brough, CFA
Co-Head of Equities (21, 7)



Hayley Tran, CFA, CAIA
Co-Head of Equities (17, 3)



Zachary Driscoll, CFA
Research Consultant (8, 6)



Yvette Elizalde, CSRIC
Research Analyst (8, 6)



Ricky Pamensky, CFA
Research Consultant (9, 4)



Orianna Grillo
Research Analyst (6, 6)

Passive Management



Stephen MacLellan, CFA
Consultant (17, 11)



Beckett Cummings
Research Associate (2, 2)



Orianna Grillo
Research Analyst (6, 6)

ODD



Louis Rodriguez, CFE
Head of ODD (30, 2)














As of February 2024.
(Years industry experience, Years with firm)

Private Markets Manager Research Team



John Haggerty, CFA
Director of Private Markets (31, 28)


Private Equity

 Steven Hartt, CAIA Private Markets Consultant (37, 14)	 Judy Chambers Private Markets Consultant (26, 17)
 Tad Fergusson, CFA Private Markets Consultant (30, 27)	 Molly LeStage Private Markets Consultant (31, 9)
 John Haggerty, CFA Director of Private Markets (31, 28)	 Jess Downer, CFA Private Markets Consultant (21, 16)
 Ethan Samson, JD Private Markets Consultant (21, 7)	 Jed Constantino, CAIA Sr. Private Markets Analyst (11, 11)
 Luke Riela, CFA Macro Research & Data Analytics (11, 9)	 Bradley Dumais Private Markets Analyst (7, 2)
 John McCarthy Sr. Private Markets Analyst (5, 5)	 Michael Pellatz, CAIA Private Markets Analyst (9, 1)
 Balaj Singh, CFA, CAIA Sr. Private Markets Analyst (8, 2)	 Cristen Xhama, CFA Private Markets Analyst (12, 3)










Private Debt

 Mary Bates Private Markets Consultant (23, 7)
 Maya Ortiz de Montellano, CFA Private Markets Consultant (27, 2)
 Jed Constantino, CAIA Sr. Private Markets Analyst (11, 11)
 John Haggerty, CFA Director of Private Markets (31, 28)
 Tad Fergusson, CFA Private Markets Consultant (30, 27)
 Luke Riela, CFA Macro Research & Data Analytics (11, 9)
 John McCarthy Sr. Private Markets Analyst (5, 5)
 Michael Pellatz, CAIA Private Markets Analyst (9, 1)
 Amy Hsiang, CFA, CAIA Director of Public Markets (24, 3)











ODD

 Louis Rodriguez, CFE Head of ODD (30, 2)
--

Real Assets

 Lisa Bacon, CAIA Private Markets Consultant (35, 10)	 Gerald Chew, CAIA Private Markets Consultant (22, 17)
 Judy Chambers Private Markets Consultant (26, 17)	 Adam Toczykowski, CFA Private Markets Consultant (25, 7)
 Steven Hartt, CAIA Private Markets Consultant (37, 14)	 John Haggerty, CFA Director of Private Markets (31, 28)
 Jed Constantino, CAIA Sr. Private Markets Analyst (11, 11)	 Luke Riela, CFA Macro Research & Data Analytics (11, 9)
 Bradley Dumais Private Markets Analyst (7, 2)	

Real Estate

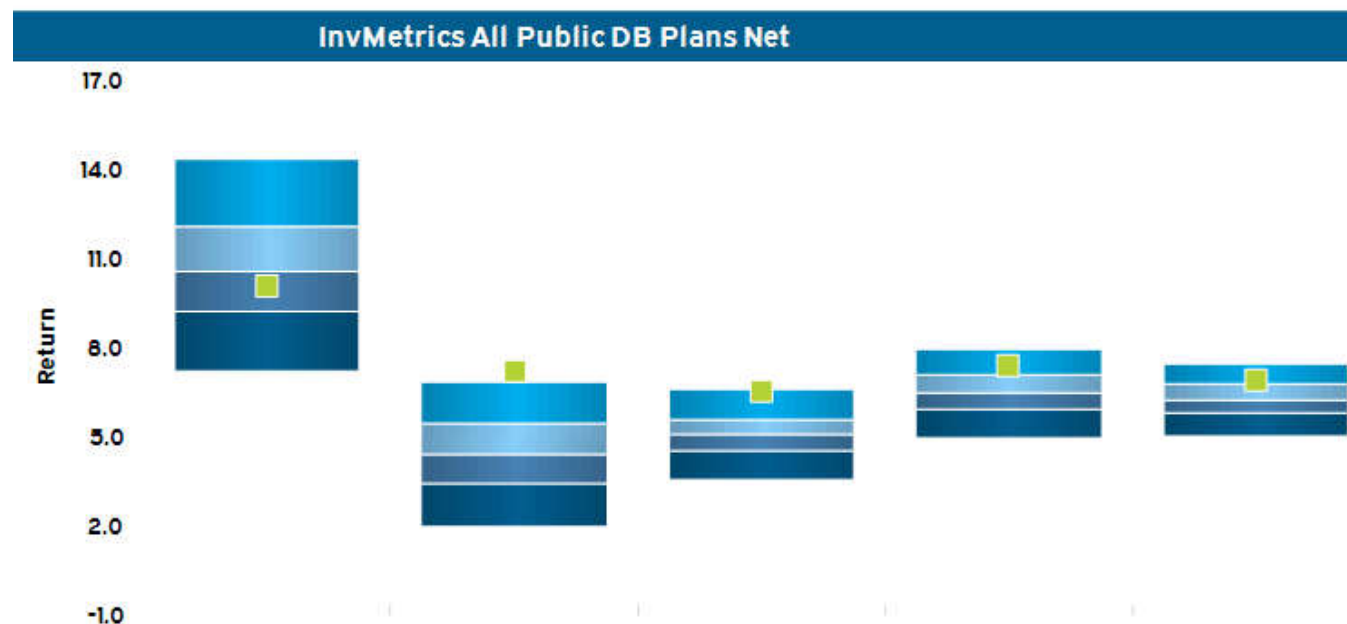
 Christy Fields Head of Real Estate (35, 22)	 Colin Hill Real Estate Consultant (21, 3)
 Scott Maynard Real Estate Consultant (12, 2)	 Derek Proctor Real Estate Consultant (12, 7)
 Reggie Ross Real Estate Consultant (17, 2)	 Chris Andruis Sr. Real Estate Analyst (9, 3)
 Sarah Christo Real Estate Analyst (4, 4)	 Abigail Fischer Real Estate Analyst (7, 3)
 Karen Reeves Real Estate Analyst (28, 10)	 Paige Junker Sr. Performance Analyst (3, 3)

Additional Resources

- 4 Private Markets Policy Committee Members
- 6 Investment Associates
- 7 Operations
- 1 Private Markets Paralegal
- 6 Client Service Administrators

As of February 2024.
(Years industry experience, Years with firm)

Outstanding Client Results



Annualized Periods	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Meketa MA Public Retirement System Net Composite	10.1 (60)	7.2 (4)	6.5 (6)	7.4 (14)	6.9 (21)
InvMetrics Public DB Net Median	10.6	4.4	5.1	6.5	6.3
MWRA Employees' Retirement System ²	7.6	4.0	4.7	5.8	5.7
PRIM Core Fund	8.9	6.8	6.3	7.4	7.3
Standard Deviation					
Meketa MA Public Retirement System Net Composite	7.9 (9)	9.5 (10)	10.1 (9)	8.8 (8)	8.2 (10)
InvMetrics Public DB Net Median	10.6	11.8	12.4	10.8	9.8
Sharpe Ratio					
Meketa MA Public Retirement System Net Composite	0.7 (32)	0.6 (4)	0.5 (5)	0.7 (5)	0.7 (6)
InvMetrics Public DB Net Median	0.6	0.3	0.3	0.5	0.6

September 30, 2023, the composite represents 8 funds with over \$4.4 billion in assets. Past performance does not guarantee future results.

² Source: MWRA Employees' Retirement System September 30, 2023 Monthly Performance Report and historical reports.

Investment Approach & Initial Observations

Investment Approach

Our Investment Philosophy

- We believe that in the long term, growth (equity) assets and private markets will generate superior returns.
- We must mitigate this growth (equity) risk using thoughtfully constructed Risk Mitigating Strategies.
- Focus our active management time and fees in areas where the opportunities are the greatest (private markets, risk mitigating strategies, global equity, etc.).
 - Aggressively negotiate fees when you do go active.
- Alternative investments can be important in a low return world, but they are not a silver bullet.
 - Be skeptical. Many “alternatives” are simply illiquid and expensive exposure to common risk factors.

Investment Approach

Current Portfolio: Initial Observations

- According to the September 2023 report, the System ranks in the third quartile of the peer universe over the over the trailing one-, three-, five-, and bottom quartile over the seven- and ten-year period.
 - The System has underperformed all policy benchmarks over all time periods.
 - Funded status has deteriorated since 2017, from 98.4% funded to 89.3%, with contributions increasing from \$3.7 million to \$12.5 million per year.
- Based on our projections, the System's current asset allocation policy has an expected return of 8.5% and a standard deviation of 12.9%, well above the assumed rate of return of 6.9%.
- With interest rates up, many long-term investors have the ability to reduce their overall risk profile, while maintaining relatively high total portfolio expected returns and probability of earning target returns.
 - If you can live with high risk, there is no need to reduce total portfolio risk.
 - Consider taking risk more efficiently.
 - If not, decide how much risk you are comfortable with and what level of modifications are acceptable.

Based on Meketa Investment Group's 2024 20-year Capital Market Expectations.

To enhance the portfolio, consider the following:

From our 2017 Presentation:

- Increase risk / return profile to increase probability of earning the System's target return.
- Increase the use of passive management within public markets, specifically large cap US and international equities and core bonds.
- Reduce the allocation to hedge funds and GTAA.
- Increase allocation to private equity.
- Increase exposure to real assets (real estate and infrastructure).

2024 Recommendations:

- **Reduce risk / return profile** while retaining high probability of earning target return.
- **Stay with an active tilt** in public markets; upgrade manager roster where appropriate.
- Reduce the allocation to hedge funds (consider Risk Mitigating Strategies).
- Increase allocation to private equity **and private debt**.
- Increase exposure to real assets (**reduce real estate but** add infrastructure).

Implementation Considerations

→ We recommend you consider the following implementation changes:

- **Implementing a global equity allocation**, while reducing dedicated allocations to US, International, and Emerging Markets equities.
 - To date, the equity managers have been separated by size (large, mid, and small cap), style (growth and value), and geography (domestic, developed, and emerging markets).
 - Global equity mandates allow managers to invest in the best opportunities across the globe without geographical limitations.
- **Migrate hedge fund program** to include a diversified Risk Mitigating Strategies portfolio (long volatility, tail risk hedging, trend following, and global macro).
 - RMS typically provides diversification by having modest positive or negative correlations to traditional assets such as equities and credit.
- **Increase exposure to liquid and private credit.**
- **Reduce manager complexity**; look to consolidate assets to benefit from fee savings with high conviction active managers.

Case Study

Case Study

MA Public Fund: Then & Now

	12/31/2016	9/30/2023
3-Year Peer Rank	62	2
5-Year Peer Rank	46	7
10-Year Peer Rank	74	29
# Traditional Managers Below Median S.I.	7/15 (47%)	3/20 (15%)
Alternatives Portfolio	Underperforming	Outperforming
Private Equity Allocation %	4%	18%
Infrastructure (Real Assets) %	1%	9%

- At the onset of the Meketa relationship, the portfolio had underperformed expectations, policy benchmarks, and peers – and was not structured with a high probability of earning the target return.
- Collectively, we have made tremendous improvements to the System and helped them produce top quartile returns despite a challenging investment environment.
- This was the culmination of a strong partnership and effort among the Board, Staff, and Meketa.

Case Study

Public Markets Transformation

- We have helped to completely revamp the traditional portfolio, replacing low conviction active managers with high conviction managers.
 - As of September 30, 2023, 17 out of 20 managers are outperforming their respective peer medians since inception.
 - 10 out of 20 managers are performing in the top third of their peer universe.
- New portfolio structure is implemented at a significant lower cost than the old structure, saving more than \$900,000 per year.

Asset Class	Old Structure	New Structure	Estimated Fee Savings ¹
Domestic Equity	0.47%	0.36%	\$255,057.28
International Equity	0.84%	0.61%	\$75,710.15
Emerging Equity	0.75%	0.44%	\$285,739.06
Core Bonds	0.23%	0.14%	\$111,163.09
Value Added Bonds	0.59%	0.37%	\$181,462.44
		Total	\$909,132.02

- Meketa has been able to negotiate fee breaks with 7 public managers compared to their stated fees, which we estimate will total more than \$3.3 million over a 10-year period.

¹ Estimated fee savings based on asset values as of September 30, 2022.

No assurance is given that these fee savings will be replicated for future clients. Past success is not a guarantee of future results.

Case Study

MA Public Fund Client Performance (Net as of September 30, 2023)

Client Name	1 Yr	3 Yrs	5 Yrs	7 Yrs	10 Yrs
MA Public Fund Client ¹	9.1%	8.6%	6.5%	7.4%	6.7%
<i>Peer Rank</i>	<i>79</i>	<i>2</i>	<i>6</i>	<i>16</i>	<i>29</i>
<i>Peer Median</i>	<i>10.6</i>	<i>4.4</i>	<i>5.1</i>	<i>6.5</i>	<i>6.3</i>
<i>MWRAERS</i>	<i>7.6</i>	<i>4.0</i>	<i>4.7</i>	<i>5.8</i>	<i>5.7</i>

¹ Performance for 10-year period for Client includes previous consultant performance prior to retaining Meketa.

Fee Proposal

Fee Proposal

→ We are pleased to offer the following General Consulting Services:

Strategic Investment Advice

- Initial Fund Review
- Investment Policy
- Asset Allocation
- Liability & Liquidity Studies
- Manager Evaluation & Selection*
- Performance & Fund Evaluations
- Risk Monitoring
- Board Education
- Client Reporting

Fund Coordination

- Manager Fee Negotiations
- Manager Guidelines
- Supervising Manager Transitions
- Cash Flow Coordination
- Asset Transfer Coordination
- Crisis Response Planning
- Custodian Selection & Evaluation

Our fee to provide the services identified above would be as follows:

\$220,000 per year, payable monthly in arrears,
inclusive of travel on behalf of the System
with a 3% escalator for each year after the first anniversary.

Our fees are guaranteed for 7 years unless there is a change in the Scope of Services.

* Includes fund of funds searches in private markets/alternatives and open-end core real assets. Direct partnership searches would be an additional fee. If MWRAERS is interested in enhanced private market services (i.e., direct partnership investments versus fund of funds structures) for Private Equity/Credit or Real Assets, we would be happy to provide these services in addition to the general investment consulting fees quoted. We estimate the fees for these services could range from \$50,000 to \$150,000 per year depending on the final scope of services and asset classes utilized. These additional services have generated tremendous value to our clients while significantly reducing overall cost to the plan even with the additional cost in these services. We would be happy to discuss these services and the benefits if interested.

Thank You

Thank you for the opportunity to meet with you and present our capabilities.

We are excited about the prospect of serving the



and believe we would be a great fit for your organization.

It would be an honor and a privilege to serve as your investment consultant.

Appendix

Experienced Client Team with Deep Resources



- Each of our clients is serviced by a team of consultants, analysts, and support staff.
- We strive to provide timely and detailed responses to all inquiries from our clients.

* General Consulting, Public Markets, Private Markets, and Defined Contribution counts include overlap of professionals and includes support staff.
 Employee counts as of December 31, 2023.

Massachusetts Public Fund Experience

→ Locally, we currently advise over \$13 billion in assets for 13 public fund clients located throughout the Commonwealth:

- Hingham Contributory Retirement System
- Town of Lexington Contributory Retirement System
- City of Marlborough Contributory Retirement System
- Massachusetts Convention Center Authority
- Massachusetts Educational Financing Authority
- Massachusetts Housing Finance Agency Employees' Retirement System
- Massachusetts Housing Finance Agency Employees' OPEB Trust
- Town of Norwood Retirement System
- Plymouth County Retirement Association
- Pension Reserves Investment Management Board (MA PRIM)
- City of Quincy Retirement System
- Town of Wellesley OPEB
- Worcester Retirement System

Client counts as of December 31, 2023; assets as of September 30, 2023.

Meketa Private Markets Overview

Heritage

- Over 20 years of investing in private markets. Reviewed or recommended over \$37 billion in commitments since 2000, including more than \$13 billion on a discretionary basis since 2006.
- Team of 54 professionals in seven offices across North America and Europe.
- Diverse client base; public and private pensions, endowments, foundations, and others. Client assets range from \$100 million to \$300 billion.

Approach

- Cover the full private markets opportunity: Private Equity, Private Debt, Real Estate, Infrastructure, and Natural Resources.
- Broad range of services: discretionary management, strategic & tactical advice, project due diligence, monitoring & reporting, and cash flow coordination.
- Proven philosophy: select top-quartile funds; emphasize value creation, market inefficiencies, and demonstrated manager skill.

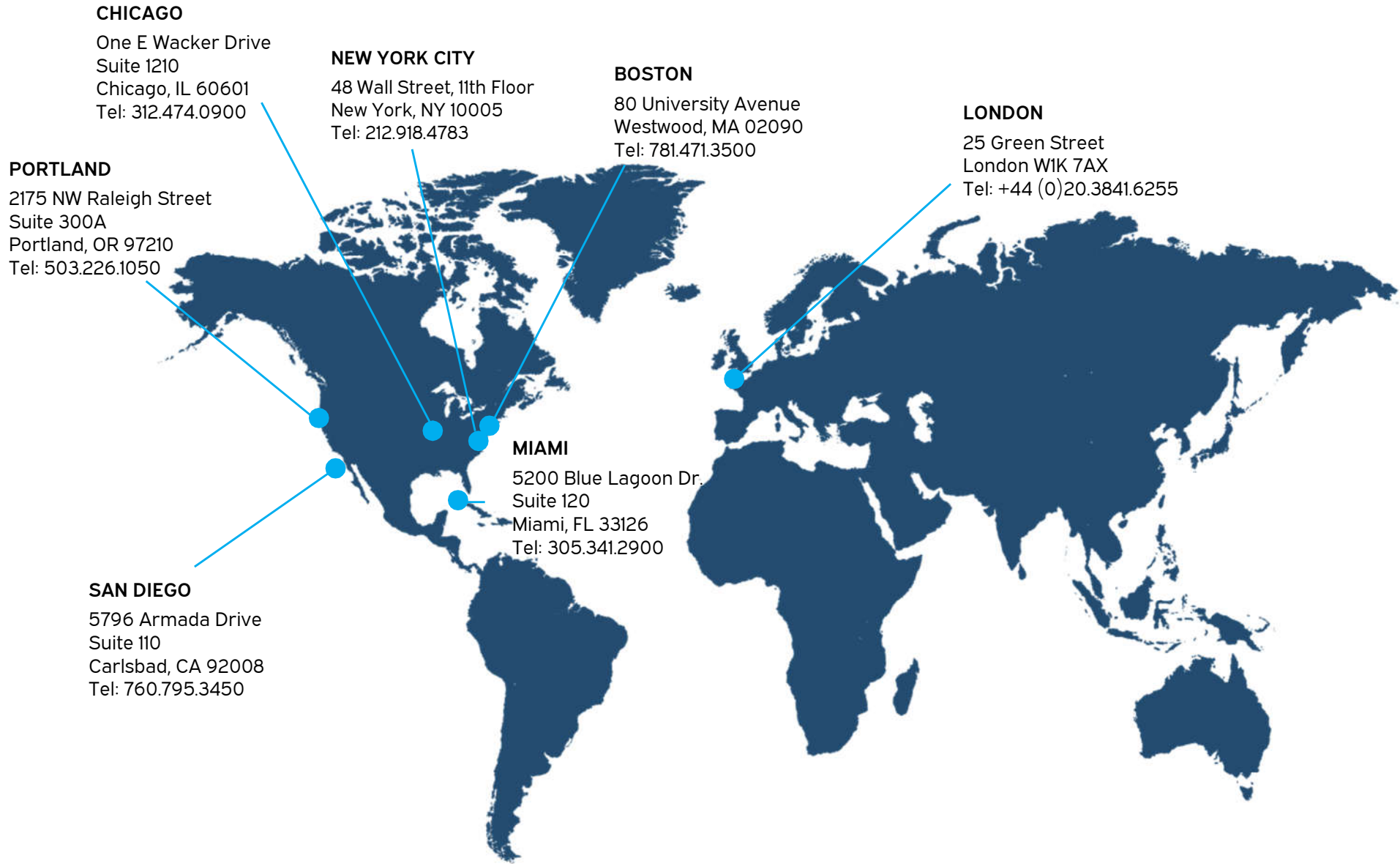
Performance as of June 30, 2023

Discretionary Performance	3 Yrs	5 Yrs	7 Yrs	10 Yrs
Meketa Private Equity Composite ¹	25.5%	20.1%	20.4%	18.9%
<i>MSCI ACWI²</i>	<i>11.0%</i>	<i>8.1%</i>	<i>9.9%</i>	<i>8.8%</i>
Meketa Real Estate Composite ¹	12.7%	9.1%	10.3%	11.5%
<i>NCREIF ODCE Equal Weighted (Net)²</i>	<i>7.9%</i>	<i>6.4%</i>	<i>6.7%</i>	<i>8.3%</i>
Meketa Infrastructure Composite ¹	11.6%	9.1%	10.0%	11.4%
<i>CPI + 3%²</i>	<i>8.9%</i>	<i>7.0%</i>	<i>6.5%</i>	<i>5.8%</i>

¹ Meketa asset class returns are the aggregate net return for private equity, real estate, and infrastructure funds made on a discretionary basis by active Meketa clients as of 6/30/2023. The Net returns are net of partnership fees and net of Meketa fees (40 basis points). These are calculated by Meketa based on reconciled manager provided cash flows and beginning and ending market values. The market values for certain partnerships were either estimated or cash flow adjusted from prior manager reported market values. Returns do not reflect results of any one client. All such investments face the potential for losses. Past performance is not indicative of future results.

² Public TWR returns represent: MSCI ACWI for Meketa Private Markets Composite and Private Equity; NCREIF ODCE Equal Weighted (Net) for Real Estate; CPI + 3% for Infrastructure.

Contact Information



Disclaimer

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Any case studies or investment examples provided are for illustrative purposes only and are meant to provide an example of Meketa's investment process and methodology. There can be no assurance that Meketa will be able to achieve similar results in comparable situations. This information does not constitute an exhaustive explanation of Meketa's investment process, investment allocation strategies or risk management. Information contained herein has been obtained from a range of third-party sources. While the information is believed to be reliable, Meketa has not sought to verify it independently. As such, Meketa makes no representations or warranties as to the accuracy of the information presented and takes no responsibility or liability (including for indirect, consequential, or incidental damages) for any error, omission, or inaccuracy in the data supplied by any third party. Any estimates contained in this presentation are necessarily speculative in nature and actual results may differ. Past performance is not necessarily indicative of future results. For additional information, please contact your Meketa consultant.

Meketa merged with Pension Consulting Alliance (PCA) on March 15, 2019. Data presented in this presentation may include information related to PCA prior to the merger with Meketa. This information could include years of tenure with the firm, client inception dates, and services offered, among other items.



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



FEBRUARY 7, 2024

Verus presentation for

Massachusetts Water Regional Authority Employees' Retirement System

MWRA / Verus partnership

PRIMARY SERVICE TEAM

Mark Brubaker, CFA

- Lead Consultant
- Primary contact and overall lead strategist for MWRA
- Co-head of Verus public sector team
- Experience with PERAC

Mike Patalsky, CFA

- Co-Lead Consultant
- Asset allocation and portfolio structure modeling specialist
- Experience with PERAC

Chris Shelby, CFA

- Private Markets Lead
- Private markets research specialist

Evan Benedict

- Support Consultant
- Assistance with portfolio structuring

SUPPORTING TEAMS

STRATEGIC RESEARCH AND RISK

Ian Toner, CFA

Chief Investment Officer

Thomas Garrett, CFA, CAIA, FRM

Managing Director
Strategic Research

Dan Hougard, FSA

Associate Director
Actuarial Services

PERFORMANCE MEASUREMENT

Justin Hatley

Director
Performance Analytics

Kelli Barkov

Sr Associate Director
Performance Analytics

COMPLIANCE & REGULATORY ISSUES

Warren Spencer, JD, LL.M.

Chief Legal Officer
and Chief Compliance Officer

Kraig McCoy, CFA

Chief Financial Officer
and Chief Operating Officer

MANAGER RESEARCH

Marianne Feeley, CFA

Managing Director
Public Markets

Vincent Francom, CFA, CAIA

Director
Public Markets

Philip Schmitt

Director
Public Markets

Colleen Flannery, CFA

Associate Director
Public Markets

Vincent Phan

Senior Private Markets
Research Analyst
Private Markets

We have assembled a team of senior professionals for MWRA with the experience and knowhow to assist your Board, Committee, and Staff with every aspect of your investment program

Verus overview

Experienced team, specialized resources, customized approach, delivered results

BY THE NUMBERS

Est. 1986

93 employees and 5 office locations

100% employee-owned

by 35 shareholders

Over \$1 trillion*

in total client assets

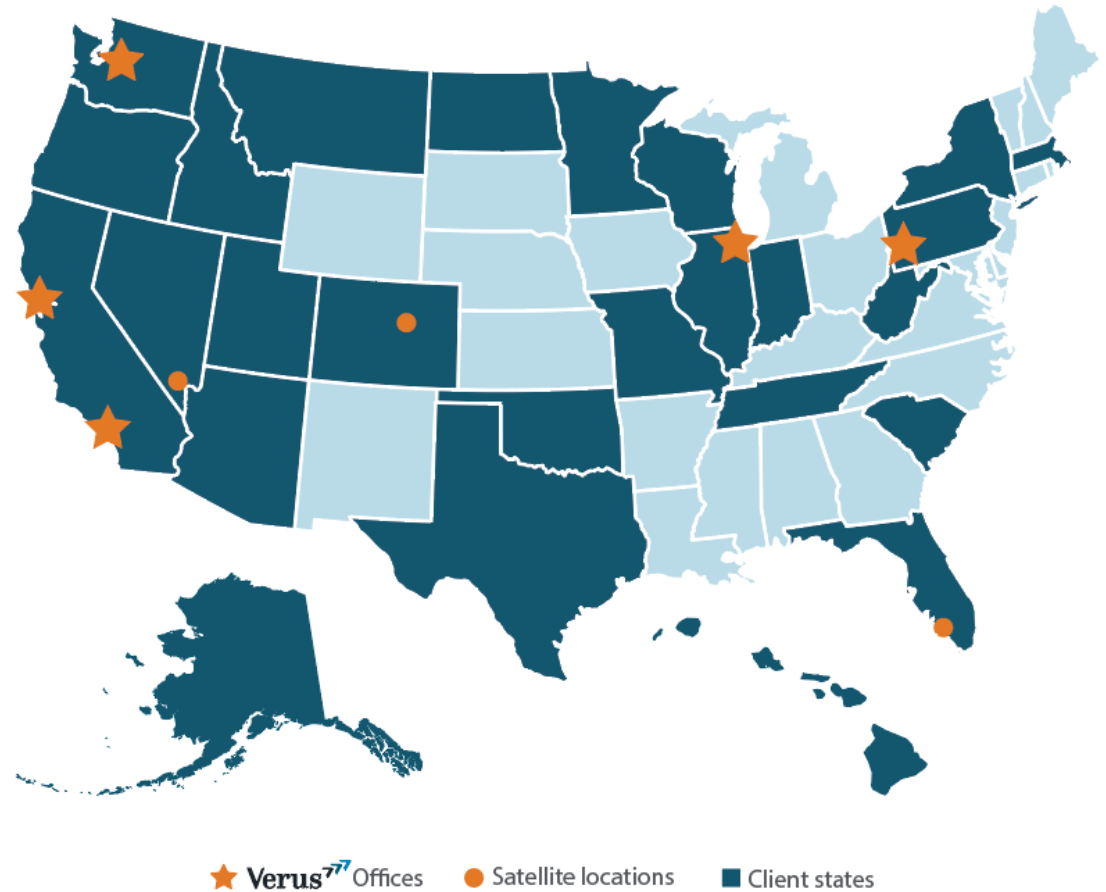
30 public clients

\$953 billion in client assets

5 to 1

client to consultant ratio

NATIONAL PRESENCE



*Includes Verus' total assets under advisement; preliminary as of 1/1/24.

Partnering with clients that invest like you

REPRESENTATIVE PUBLIC CLIENTS



Illinois Police Officers'
Pension Investment Fund



Sacramento County Employees'
Retirement System

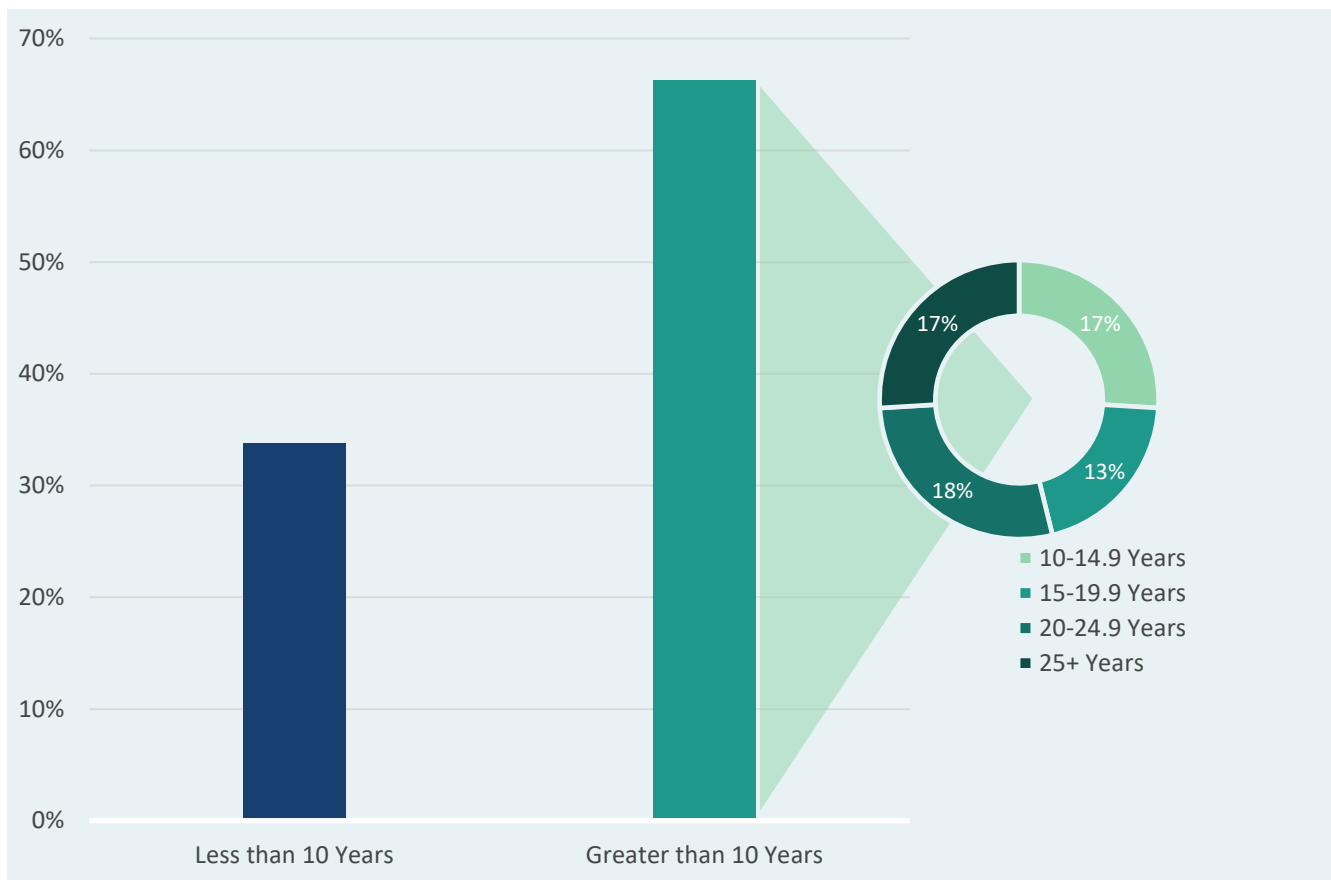


This is an excerpt of Verus clients as of November 2023 who have provided permission to use their name or logo. It is not known whether the listed clients approve of Verus or the advisory services provided

Top priority – client satisfaction

Consistent history with our clients

66% OF OUR CLIENTS HAVE BEEN WITH VERUS FOR OVER 10 YEARS



Verus was known as "Wurts & Associates" from 1986 to 2015. Percent of relationship length determined by number of clients. Data as of 9/30/23.

2021 CLIENT SERVICE SURVEY RESULTS



- Responsiveness **4.7**
- Policy and Strategy Expertise **4.6**
- Knowledge of Portfolio History **4.6**
- General Personality Fit **4.6**
- Tenured Experience **4.6**

A comprehensive breadth of services

Verus is a full-service investment consulting firm with specialized resources across all the key areas critical to investors like MWRA Employees' Retirement System

Asset Allocation

- Capital market assumptions
- Asset allocation and spending
- Risk mgmt.
- Liquidity analysis
- Market research

Governance

- Defining long-term goals
- Enterprise risk tolerance evaluation
- Committee education
- IPS development and ongoing refinement
- Employing fiduciary best practices

Performance

- Quarterly review of macro and capital markets
- Quarterly portfolio analytics
- Peer comparisons

Research

- Committee and staff education
- Structuring asset class portfolios
- Manager search selection, and monitoring
- Portfolio planning
- Evaluation of manager and program fees

Risk Advisory

- Risk policy development
- Proprietary risk reporting as well as customized reports
- Implementation and management of a best-in-class risk system

OCIO

- Custom governance structures
- Operational extension of staff
- Daily portfolio monitoring
- Timely tilt implementation
- GIPS-compliant performance

Initial observations

Asset Allocation

- ✓ Current policy allocation generates an expected return of 7.0%
- ✓ Current asset allocation policy is well-diversified across public and private market asset classes
- ✓ **Recommendation:** Verus will conduct Enterprise Risk Tolerance exercise with Board - modest improvements are possible

Private Markets

- ✓ Real estate portfolio ~72% Core / 22% Value-added
- ✓ Private Equity and Debt portfolio ~90% PE / 10% Debt
- ✓ Solid manager lineup overall
- ✓ **Recommendation:** Implement a more consistent pacing model across vintage years

Plan Characteristics

- ✓ Plan is well funded (89% based on 2022 PERAC Annual Report)
- ✓ 6.9% actuarial rate of return
- ✓ Fiduciary governance: 840 CMR and ERISA
- ✓ IPS: Consistency of returns / risk of loss are primary considerations.

Asset Class Structure

- ✓ Small cap overweight in U.S. equity
- ✓ Emerging markets overweight in Non-U.S. equity
- ✓ **Recommendation:** Consider: 1.) Reducing or eliminating structural differences relative to benchmarks; 2.) Increasing passive allocation in large cap U.S. equity; 3.) Reducing overlap in non-U.S. equity manager structure

Manager Selection

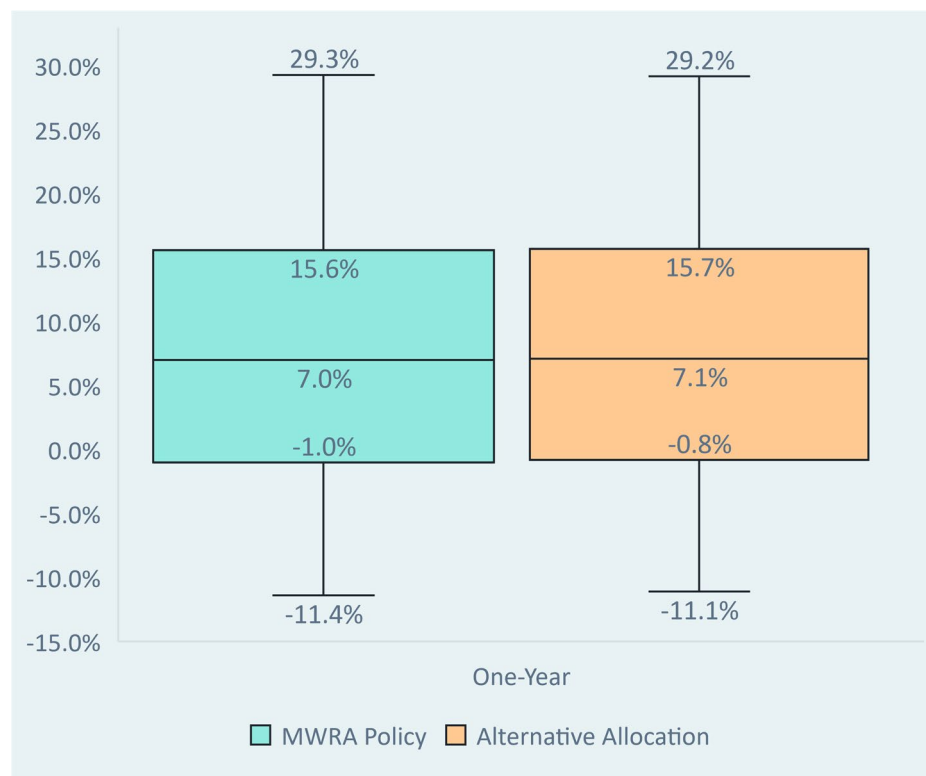
- ✓ Public equity manager performance has lagged the benchmarks
- ✓ Fixed income performance has been strong
- ✓ **Recommendation:** Consider potential active manager searches for non-U.S. equity to introduce more complementary strategies

Asset allocation

ASSET ALLOCATION	MWRA Policy	Alternative Allocation
Global Equity	50.0	46.0
Total Equity	50.0	46.0
Core/Core Plus Fixed Income	20.0	20.0
Credit Opportunities	0.0	5.0
Total Fixed Income	20.0	25.0
Real Estate	12.0	10.0
Total Real Assets	12.0	10.0
Hedge Funds (FoF)	6.0	5.0
Private Equity and Debt	12.0	14.0
Total	100%	100%

Verus – 10 Year Forecasts ¹	MWRA Policy	Alternative Allocation
Return (geometric)	7.0	7.1
Standard Deviation	12.4	12.3
Sharpe Ratio	0.29	0.30
Downside risk: 25% probability	-1.0	-0.8
Downside risk: 5% probability	-11.4	-11.1

1-YEAR DISTRIBUTION OF RETURNS

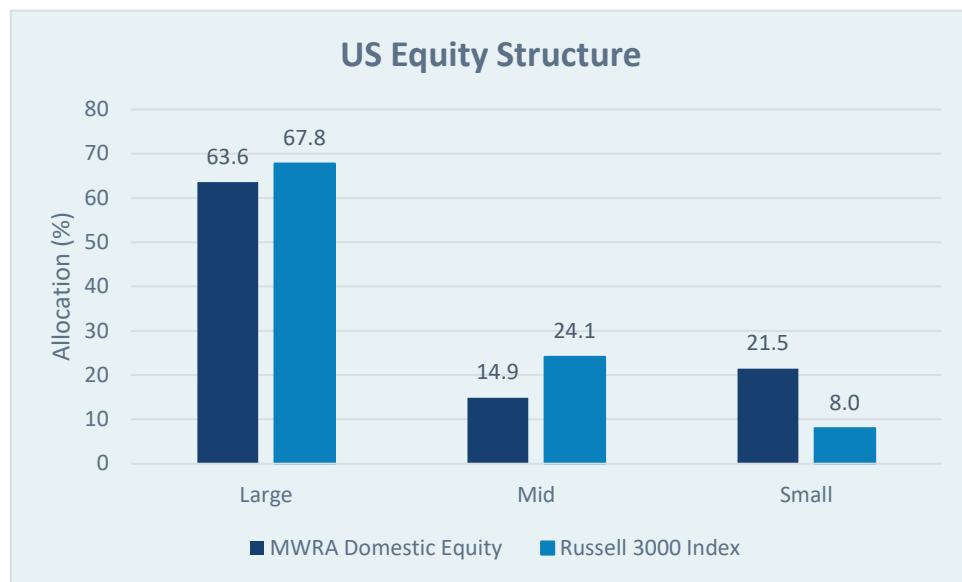


¹ Verus 10-year capital market assumptions (2024)

Source: MPI

Current portfolio structure

US EQUITY



	MWRA Domestic Equity	Russell 3000
Market Capitalization	\$367,524	\$444,813
Price/Book (LTM)	5.0	1.1
Price/Earnings (LTM)	26.7	28.3
Yield	1.4%	1.6%
Top 10 Holdings %	38.7%	24.5%

INTERNATIONAL EQUITY

Manager	Developed Markets	Emerging Markets
SEG Baxter Street	95.8%	4.3%
Schroder International Alpha	84.3%	15.8%
Baillie Gifford International Growth	85.6%	14.4%
Axiom Emerging Markets	10.6%	89.4%
ABS Emerging Markets	13.2%	86.8%
MWRA International Equity Composite	62.5%	37.5%
MSCI ACWI ex-USA Index	72.8%	27.3%

5-YEAR EXCESS RETURN CORRELATIONS VS. MSCI ACWI EX-USA INDEX

	Baillie Gifford	Schroder Intl Alpha	SEG Baxter
Baillie Gifford	1.00		
Schroder Intl Alpha	0.48	1.00	
SEG Baxter	0.53	0.46	1.00

5-YEAR EXCESS RETURN CORRELATIONS VS. MSCI EM INDEX

	ABS EM	Axiom EM
ABS EM	1.00	
Axiom EM	0.36	1.00

Source: eVestment, MPI. Proxies were used in the absence of index holdings data.

Verus guiding principles to identify alpha

WHAT WE LOOK FOR



Alignment

Alignment reflects how the strategy is supported by a stable organizational, incentive and team structure



Edge

Reflects articulation of an inefficiency or market-based belief and willingness to take risk based on that belief



Implementation

Reflects an investment approach that is sensible and repeatable



Optimal use of risk

Reflects an effective framework of assessing, exploiting and managing risk inherent in the investment process



Understandable performance

Historical and future performance sensitivities are consistent with manager's expressed process

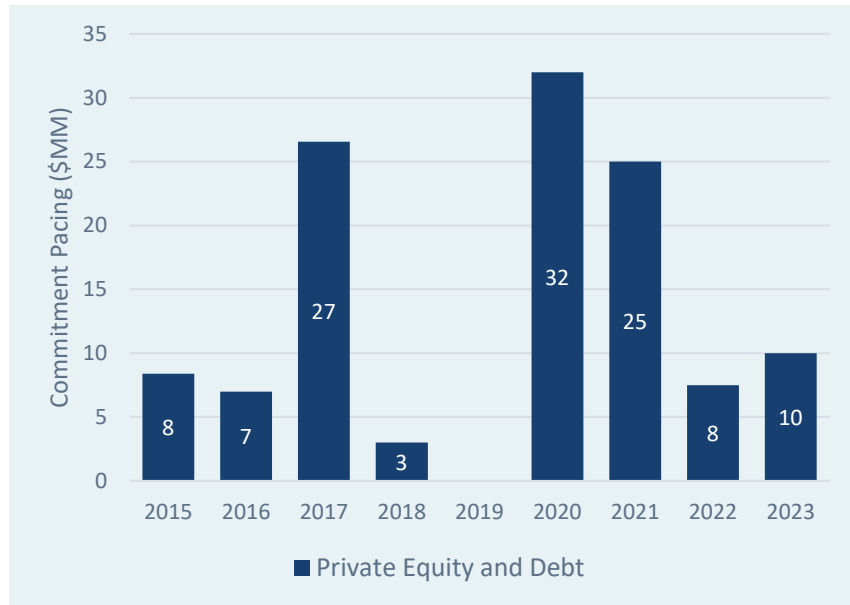
HOW WE COMMUNICATE OUR ASSESSMENT

Rating	Conviction	Defining Characteristics
IQ1	Very High	Earns Verus' highest conviction. Above-average characteristics most likely to achieve the strategy's desired results.
IQ2	High	Maintains Verus' high conviction. Above-average characteristics most likely to achieve strategy's desired results.
IQ3	Positive	Meets institutional quality standards that can achieve desired investment results. Strengths outweigh weaknesses.
4	Low	Concerns with the product's ability to meet institutional-quality standards.
5	Very Low	Significant issues inhibit the product's ability to meet institutional-quality standards.

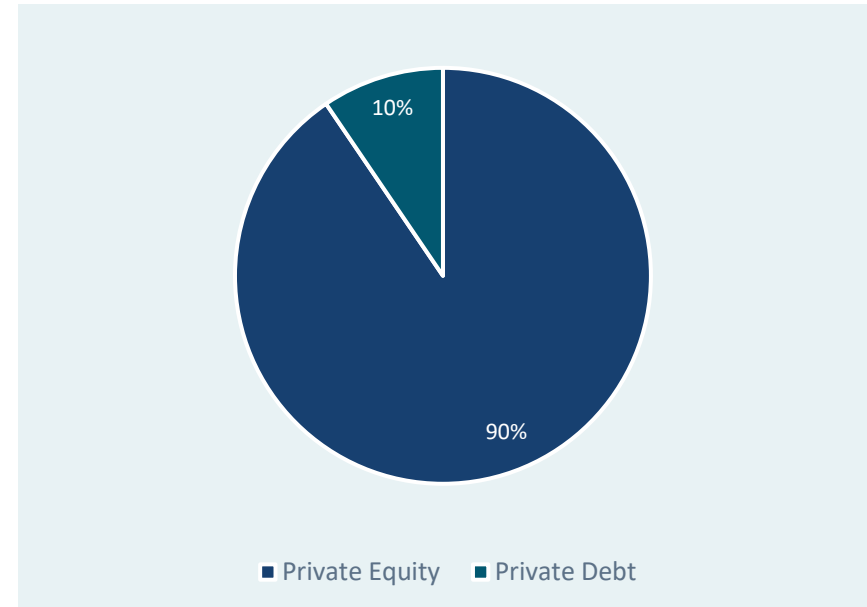
Private equity and debt portfolio design

Program development emphasizing consistency and conviction

MWRA EMPLOYEES' RETIREMENT SYSTEM
COMMITMENT PACING



MWRA EMPLOYEES' RETIREMENT SYSTEM ASSET
CLASS STRUCTURE – CURRENT MARKET VALUE



PROGRAM DESIGN

- **Goal setting** – defining roles and expectations for each private markets asset class in the portfolio
- **Portfolio development** – establishing exposure and deployment targets are key to program success
- **Governance and education** – adherence to PERAC requirements with Board and staff education

Source: MWRA Employees' Retirement System Monthly Performance Report – as of December 31, 2023

Proposal and fee

Verus proposes a \$175,000 annual retainer fee

UNDER THE DIRECTION AND GENERAL SUPERVISION OF MWRA EMPLOYEES' RETIREMENT BOARD, VERUS WILL PROVIDE THE FOLLOWING SERVICES:

- Upon selection and on an annual basis thereafter, review the System's Statement of Investment Policies, and, if necessary, make reasoned recommendations for amendments thereto.
 - At least once per year during the duration of the agreement, prepare and present to the Board a written plan establishing investment objectives and propose a target asset mix (Asset Allocation Plan).
 - Attend monthly board meetings virtually and in person as needed.
 - Provide monthly analysis of each of the System's Investment Managers of actual and relative performance, compliance with the PERAC's regulations, and adherence to the Manager's agreement with the Board.
 - Conduct PERAC-compliant searches for managers and custody service providers in accordance with established search and evaluation procedures as directed by the board.
 - Provide additional reporting and analysis as needed to facilitate the Board's completion of annual actuarial valuations, ACFR and PERAC Annual Statement of Financial Condition.

A partnership with Verus



EXPERIENCED TEAM

Senior-level team of non-profit experts serving in an extension-of-staff framework



SPECIALIZED RESOURCES

Deep public and private markets research teams providing access to great managers



CUSTOMIZED APPROACH

Highly customized investment programs tailored to meet the needs of each client



DELIVERED RESULTS

History of value-add through asset allocation, manager selection, and customization

Resources of a large firm with the values of a boutique organization. Focused on providing customized solutions tailored to each client's unique needs.

Appendix

Biographical information



Mark Brubaker, CFA

Managing Director | Senior Consultant

Mr. Brubaker is primarily responsible for providing strategic investment advice to help ensure clients meet their long-term investment objectives. He also serves on the Verus management committee, OCIO investment committee, and is a shareholder of the firm. For more than thirty years, Mr. Brubaker has served public and corporate pensions, endowments and foundations, hospitals and insurance companies. He has worked closely with Boards of Directors, Investment Committees, executives and staff in developing asset allocation policy, implementing optimal portfolio structure across all asset classes, evaluating and recommending investment managers and providing topical investment research and education.

Contact:

T: 412.784.6678

F: 206.622.0548

mbrubaker@verusinvestments.com

Prior to joining Verus in 2020, Mr. Brubaker was a managing director and member of the Board of Directors at Wilshire Associates. He also served as the Head of Wilshire's OCIO Solutions Group and was also a member of the Wilshire Consulting Investment Committee and the Wilshire Manager Research Oversight Committee. He joined Wilshire in 1997, originally serving as an investment consultant to large institutional investors.

Mr. Brubaker has worked with several PERAC clients over the course of his career and served as lead consultant for the Massachusetts Port Authority Employees' Retirement System for over 20 years. He currently is a co-consultant on the Verus team that serves MassPRIM.

Prior to joining Wilshire, he worked at Westinghouse Electric Corporation, where he was responsible for over \$9 billion in defined benefit, defined contribution, and foundation assets. He also served as a Managing Director for PNC Asset Management where he led the OCIO business for their large client segment.

He earned a bachelor of arts (BA) in economics from Yale University and holds a master's degree in business administration (MBA) from Carnegie Mellon University. Mr. Brubaker earned a Chartered Financial Analyst (CFA) designation and is active in the CFA Society of Pittsburgh.

Biographical information



Contact:

T: 412.784.6678

F: 206.622.0548

mpatalsky@verusinvestments.com

Michael Patalsky, CFA

Managing Director | Senior Consultant

Mr. Patalsky has over 24 years of experience advising institutional investors on managing their asset portfolios. His experience spans all functions of asset management across a variety of client types, including asset allocation/portfolio strategy development, risk management, asset-class level portfolio structuring, and investment manager due diligence and selection with public and private investments. He is also a member of the alternative investments committee.

Mr. Patalsky was previously Director of Investments at Willis Towers Watson, where he served as lead consultant to both investment advisory and OCIO clients. He was a managing director and principal at Wilshire Associates, where he had a nine-year career advising Fortune 500 corporations, university foundations, other non-profits, and public funds. Other previous experience includes working in PPG Industries, Inc.'s Benefits Investment and Financing group, managing about \$5 billion in pension, defined contribution, and foundation assets, and at Hewitt Associates in their Defined Contribution Services practice.

Mr. Patalsky graduated from University of Notre Dame with a bachelor of business administration degree in finance. He holds a master's degree in business administration (MBA) from Carnegie Mellon University Tepper School of Business and is a Chartered Financial Analyst (CFA) charterholder.

Biographical information



Christopher Shelby, Jr., CFA

Managing Director | Private Markets

Mr. Shelby provides investment advice to clients to help implement and maintain private markets portfolios and is a member of the private markets investment team. Mr. Shelby focuses on the sourcing of investment opportunities, performing due diligence, monitoring investments, and generating investment content. Mr. Shelby's coverage spans the private markets with a focus on private credit and private equity strategies with additional responsibilities across venture capital, growth equity, and real assets.

Prior to joining Verus in 2021, Mr. Shelby was a Senior Vice President at Wilshire Advisors where he was a member of the Private Markets Group. Mr. Shelby's responsibilities included both the sourcing, due diligence, execution, and monitoring of primary, secondary, and co-investment opportunities across private markets asset classes. Additionally, Mr. Shelby worked with Wilshire's client base to provide private markets consulting services including investment pacing, portfolio construction, and ongoing monitoring and education.

Mr. Shelby graduated from the University of Pittsburgh with Summa Cum Laude honors earning a bachelor of science (BS) degree in business administration, majoring in finance with a minor in economics. He is a CFA Charterholder and a member of the CFA Society of Pittsburgh.

Contact:

T: 412.784.6678

F: 206.622.0548

cshelby@verusinvestments.com

Verus investment philosophy

1. Return objectives, tolerance for risk, and the strategic mission of the enterprise should drive strategic asset allocation.

2. Risk-free rates and risk premia drive most market returns and are themselves influenced by market and economic fundamentals.

3. Investment skill exists, and the deployment of active management where inefficiencies can be exploited is often essential to achieving investment success in both public and private markets.

4. Fees and costs must be managed and minimized where appropriate.

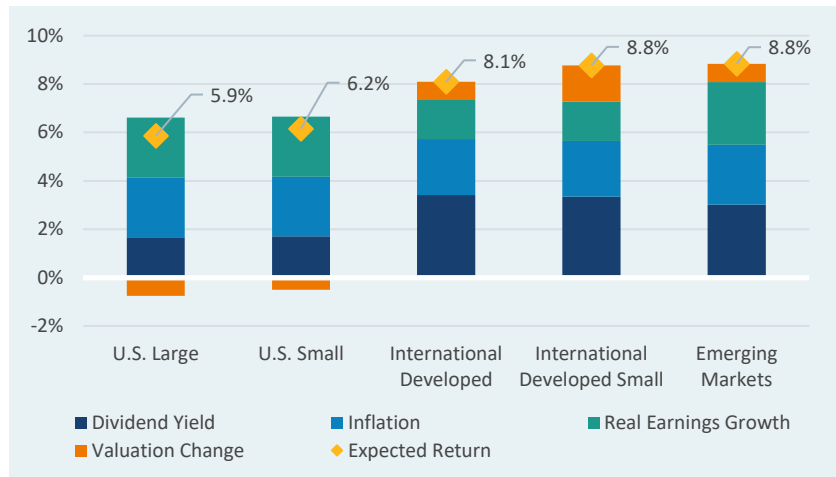
5. Good results can best be achieved by managing uncertainty using varied risk management tools, complemented by discipline, skepticism and humility.

6. A portfolio should be as simple as possible for the goals it is designed to achieve. Investment complexity requires strong governance and appropriate investment oversight.

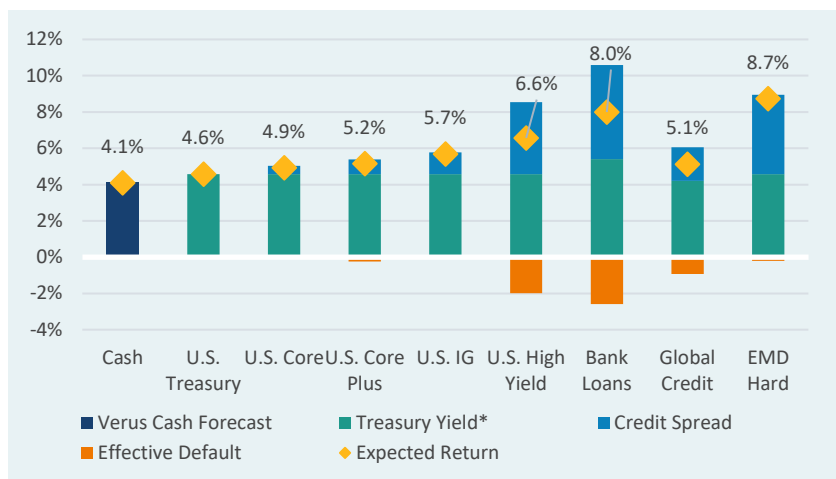
Capital market assumptions

- Verus' capital market assumptions are founded on sound academic principles, and clients are given full transparency to our methodology.
- Published officially every December, the forecasts include 10- and 30-yr forecasts across over 45 asset classes, sub-asset classes, and styles.
- Monthly forecast updates are also available for more timely consideration of shifting markets.

2024 EQUITY RETURN FORECASTS



2024 FIXED INCOME RETURN FORECASTS



Inflation

We use a weighted average of market expectations (25%), and professional year inflation forecast. The market can be inferred by taking the difference Treasury yield and the 10-year Treasury yield as the breakeven inflation rate.

Long term inflation expectations year. Household inflation expectations moderated along with market-pr

INFLATION EXPECTATIONS



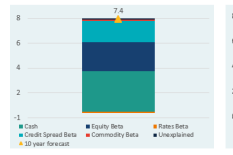
Source: U. of Michigan, Philly Fed, as of 9/10/22

Verus⁷⁷⁷

Hedge fund styles

As mentioned, we do not believe hedge funds should be modeled as a single asset class, and in most situations we recommend modeling individual hedge funds in line with the underlying exposure set. In line with this view, we forecast three categories – equity hedge funds, credit hedge funds, and hedge funds. To forecast hedge fund returns, we identify historical hedge fund performance that can be attributed to public market beta. This means our forecast has two components: public market return (explained return) and the non-public market return (unexplained return).

HEDGE FUNDS: EQUITY



Source: Verus

Verus⁷⁷⁷

Private credit

Below we illustrate the specific building blocks of our private credit forecasts. The build up method is used to calculate a gross investment level return, which is adjusted to account for fund level leverage, management fees, and carried interest.

	Direct Lending - Unlevered	Direct Lending - Levered	Credit Opportunities*	Junior Capital / Mezzanine	Distresses
Base Interest Rate	2.5%	2.5%	Base Interest Rate 2.5% - 3.2%	Fixed Rate Coupon 8.5%	Return expectations for distressed have been developed on a range based basis given the diversity of strategies included in the asset class.
Spread	5.5%	5.5%	Spread 4.5% - 9.0%	Paid-in-Kind Coupon 3.5%	Distressed strategies are highly opportunistic by nature and returns are generally, if not entirely, driven by capital appreciation limiting the ability to use a build up method.
Original Issuance Discount	2.3%	2.3%	Original Issuance Discount Adjusted over 3 years	Annualized Equity Upside 0.8%	Distressed strategies typically target 10%+ net returns, but market conditions often weigh heavily into the overall performance.
Gross Return	8.6%	8.6%	Gross Return 7.7% - 12.0%	Gross Return 12.8%	Periods of market volatility, dislocation, and economic downturns generally provide a more attractive investment environment for distressed strategies where outperformance may be expected.
Leverage Cost	NA	5.3%	Leverage Cost 5.3%	Leverage Cost NA	Historically, median fund level net returns have ranged between 0-10% although top to bottom quartile dispersion is has been wide historically.
Leverage Level	0.0x	1.0x	Leverage Level 0.3x - 0.5x	Leverage Level 0.0x	
Levered Gross Return	8.6%	12.3%	Levered Gross Return 8.9% - 15.4%	Levered Gross Return 12.8%	
Effective Management Fees	1.0%	1.8%	Effective Management Fees 1.5% - 2.0%	Effective Management Fees 1.5%	
Carried Interest	0.7%	1.3%	Carried Interest 1.1% - 2.7%	Carried Interest 2.3%	
Total Net Return	6.6%	9.5%	Total Net Return 8.5%	Total Net Return 9.0%	Total Net Return 5.1%

*Return expectations for credit opportunities have been developed on a range based basis given the diversity of strategies included in the asset class. Values represent the mid-point estimate of these ranges. For Credit Opportunities, our return assumption is the midpoint of the total net return range of 6.6% - 10.7%. Source: Verus

Verus⁷⁷⁷

Capital Market Assumptions 2023 19

Navigating the current environment



THOUGHTFUL DIVERSIFICATION

Get the traditional beta positioning correct to ensure diversification across risk premiums



LIQUIDITY ASSESSMENT

Use private markets to create more efficient portfolio structures, liquidity needs permitting



FOCUSED ACTIVE RISK

Allocate active risk and fees with conviction to skilled managers to capture market inefficiencies



TACTICAL TILTS

Portfolio tilts and tactical tilts within asset classes in response to valuation anomalies or opportunities

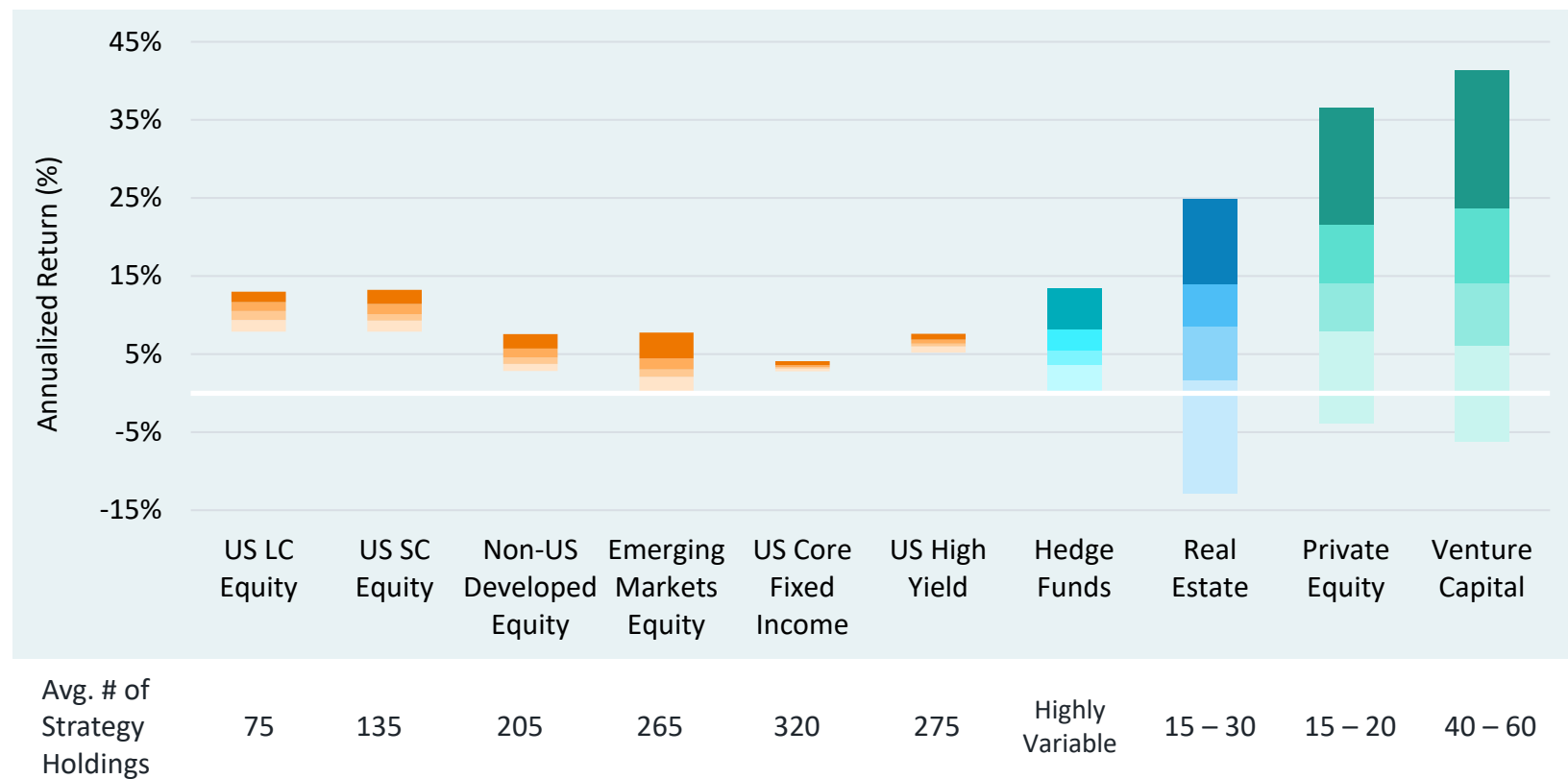


EFFECTIVE IMPLEMENTATION

Use of overlays and targeted rebalancing to minimize costs and retain alpha

Alpha is not guaranteed. Manager selection and portfolio structure are critical.

DISPERSION OF MANAGER RETURNS BY ASSET CLASS – BASED ON RETURNS OVER 15 YEARS¹



Alpha comes from skilled investors making concentrated investments.

Investors need the resources to identify and gain access to top-tier managers.

¹ Source: eVestment Alliance and Refinitive C|A. Universe returns for public equity, fixed income and hedge funds are average annualized time-weighted returns (TWRs) for 15 years ending June 30, 2023. Universe returns for real estate, private equity and venture capital are internal rate of returns (IRRs) calculated since inception to June 30, 2023. Vintage years include 2005-2020.

Significant resources to support our clients

CONSULTING SERVICES



Shelly Heier, CFA, CAIA
President

Joseph Abdou, CFA
Mark Brubaker, CFA
Zeca Cardoso, CFA, FRM, CAIA
John Crosbie, CFA
Eric Crowder, CFA
Marc Gesell, CFA
Samantha Grant, CFA, CAIA
Brian Kwan, CFA, CAIA
Victor Lee
Jeffrey MacLean
Kiran Malik, CFA
Timothy McEnery, CFA
Eileen Neill, CFA
Brent Nelson
John Nicolini, CFA
Mike Patafsky, CFA
Dan Quilico, CFA
Claudia Schloss, CFA
Danny Sullivan, FRM, CAIA
Jason Taylor
Annie Taylor, CFA
John Teramana, CAIA
Anne Westreich, CFA
Scott Whalen, CFA, CAIA
Evan Benedict
JC Faubion, CFA
Alex Russo
Zarif Urozaliyev
Linda Wu, CFA
Lukas Seeley

PUBLIC MARKETS



Marianne Feeley, CFA
Managing Director

Colleen Flannery, CFA
Vincent Francom, CFA, CAIA
Kyle Jangard, CFA
Paul Kreiselmaier, CFA
Chibueze Odoh
Trevor Parmelee, CFA, CAIA
Sneha Pendyala
Stephen Reller
Philip Schmitt
Samantha Grant, CFA, CAIA
Jeffrey MacLean
Ian Toner, CFA
Anne Westreich, CFA

PRIVATE MARKETS



Faraz Shooshani
Managing Director

Jing Chen
Tony Flores
Matt Foppiano
Steve Hempler
Kin Lam
John Nicolini, CFA
Vincent Phan
Christian Reed
Chris Shelby, CFA
John Wasnock
Shelly Heier, CFA, CAIA
Brian Kwan, CFA, CAIA
Eileen Neill, CFA
Brent Nelson
Michael Patafsky, CFA
Ian Toner, CFA

INVESTMENT ANALYTICS & PERFORMANCE



Justin Hatley
Director

Kelli Barkov
Demitri Castaneda
Jonah Coffee
Jason Fajardo
Elaine Gee
Lamine Kaba
Crystal Nicholls
Madison Martin
Nicholas Pecache
Palmer Pederson
Jonathan Powell
Ian Schirato
Phillip Thomas
James Wadner
Cholo Villanueva

INVESTMENTS



Ian Toner, CFA
Chief Investment Officer



Thomas Garrett, CFA, FRM, CAIA
Managing Director |
Strategic Research

Adam Babson
Sam Geschickter
Dan Hougard, FSA
Michael Parnell
John Santopadre, CFA
Kyle Schmit
Mark Brubaker, CFA
Shelly Heier, CFA, CAIA
Kraig McCoy, CFA
Annie Taylor, CFA
Scott Whalen, CFA, CAIA

BUSINESS DEVELOPMENT & MARKETING



Ted Hermann
Business Development



Amanda Schroeder
Director of Marketing

Emmanuel Canteras
Ashley Moore
Heather Robison
Alex Russo

BUSINESS OPERATIONS



Kraig McCoy, CFA
Chief Financial Officer



Warren Spencer, JD, LLM
Chief Legal Counsel,
Chief Compliance Officer

Jonathan Henderson
Thomas Lam
Lauren Thompson
Joe Wilson
Harold Wu

Sonia Banks
Jennie Elliott
Caroline Honour
Mellisa Ingraham, SHRM
Dana Larkin
Anneke Meulblok
Katie Vierig
Ashley Moore


Verus is a full-service investment consulting firm with specialized resources across all the key areas critical to non-profit investors

Bold signifies primary responsibilities. Others indicate secondary responsibilities.

Comprehensive research capabilities

Leveraging our cumulative knowledge to drive client results

Public Markets



Led by
Marianne Feeley, CFA
32 years of experience

10 professionals
14 average years of experience

Private Markets



Led by
Faraz Shooshani
24 years of experience

11 professionals
14 average years of experience

Strategic Research



Led by
Ian Toner, CFA
33 years of experience

11 professionals
13 average years of experience

Liquid Alternatives



Led by
Paul Kreiselmaier, CFA
29 years of experience

2 professionals + Aksia
20 average years of experience

Verus employs more research personnel **on a per-client basis** than most of our peers.

157

unique client relationships

32

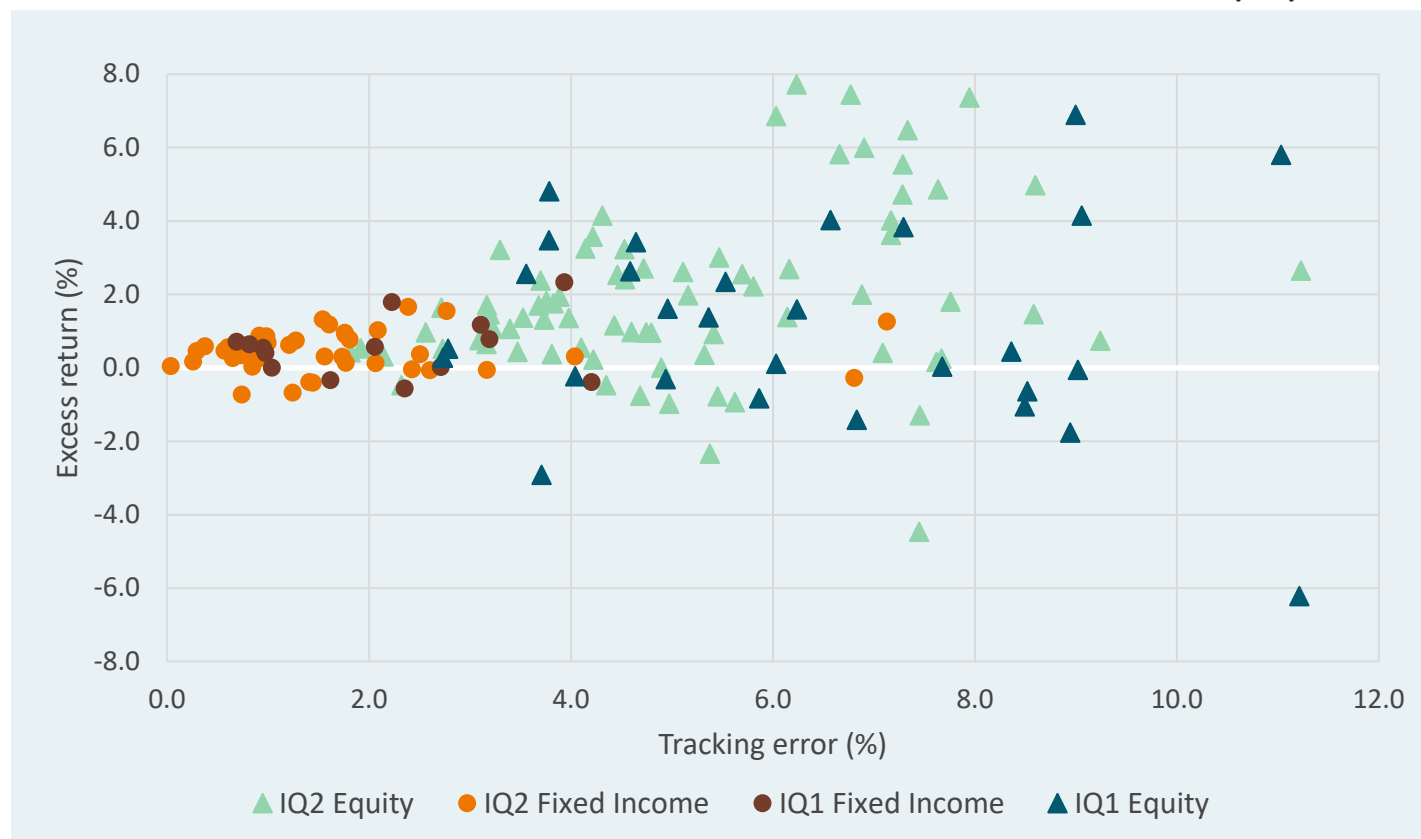
professionals dedicated full-time to research

4.9

client-to-research professionals

Our high-conviction managers add value

5-YR EXCESS RETURN AND TRACKING ERROR VS. MANAGER BENCHMARK AS OF 3/31/23



160

IQ1 and IQ2
public markets
products with 5-year
performance record

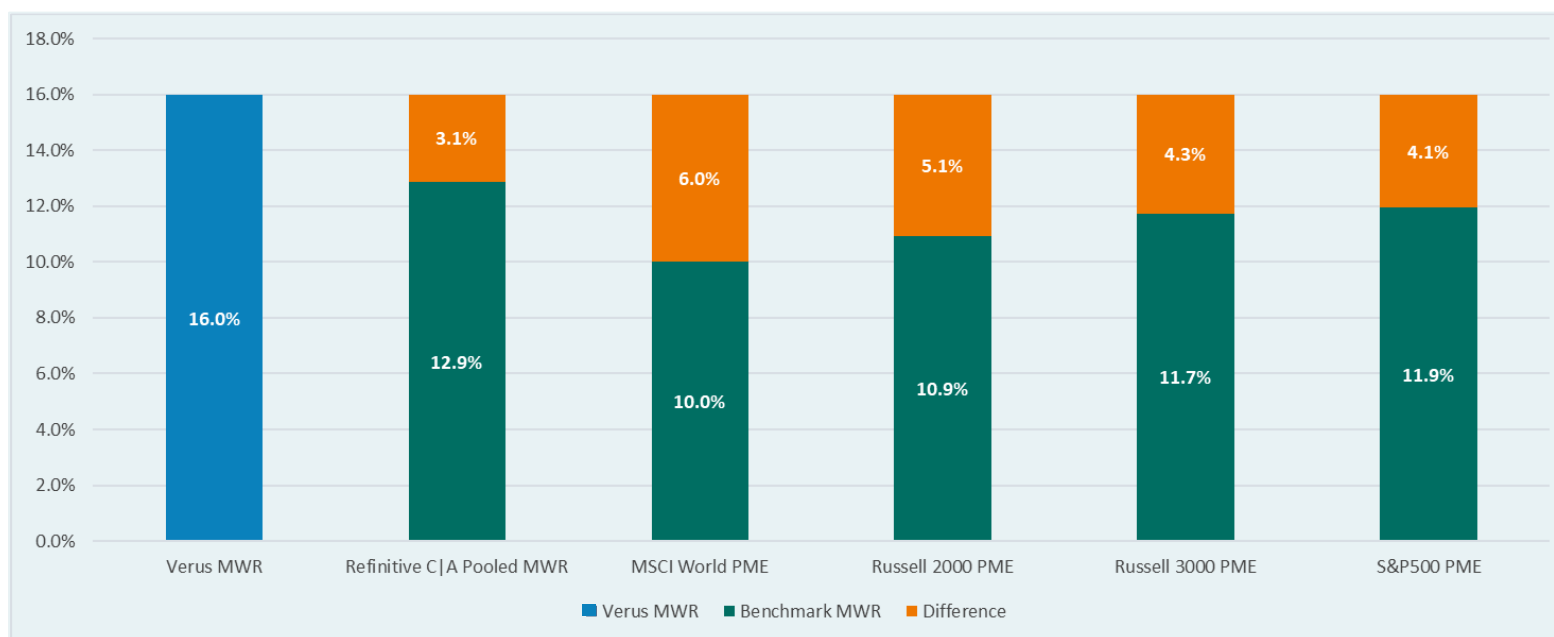
>80%

have generated
positive excess
returns relative to
manager's preferred
benchmark

Chart represents IQ1 and IQ2 institutional quality recommended manager products with a five year track record (160 IQ1 and IQ2 product: 29 IQ1 Equity, 83 IQ2 Equity, 16 IQ1 Fixed Income, 46 IQ2 Fixed Income). IQ ratings represent Verus' authorized recommended products based on conviction level for long term applicability, and take into account a wide range of quantitative and qualitative factors. Excess returns and tracking error based on manager's self reported returns and preferred benchmarks in eVestment. While returns are primarily gross of fees, except for 18 products, the graphics presented would not be perceptively altered by a 100% net of fees presentation. Although benchmarks reported appear reasonable, clients may choose alternative benchmarks for assessment of excess returns.

Verus client results for private equity

VERUS PRIVATE EQUITY MONEY WEIGHTED RETURNS VS. BENCHMARKS



Verus recommended funds across vintage years 2006-2020 have returned 16.0%*; outperforming the relative benchmarks across market cycles.

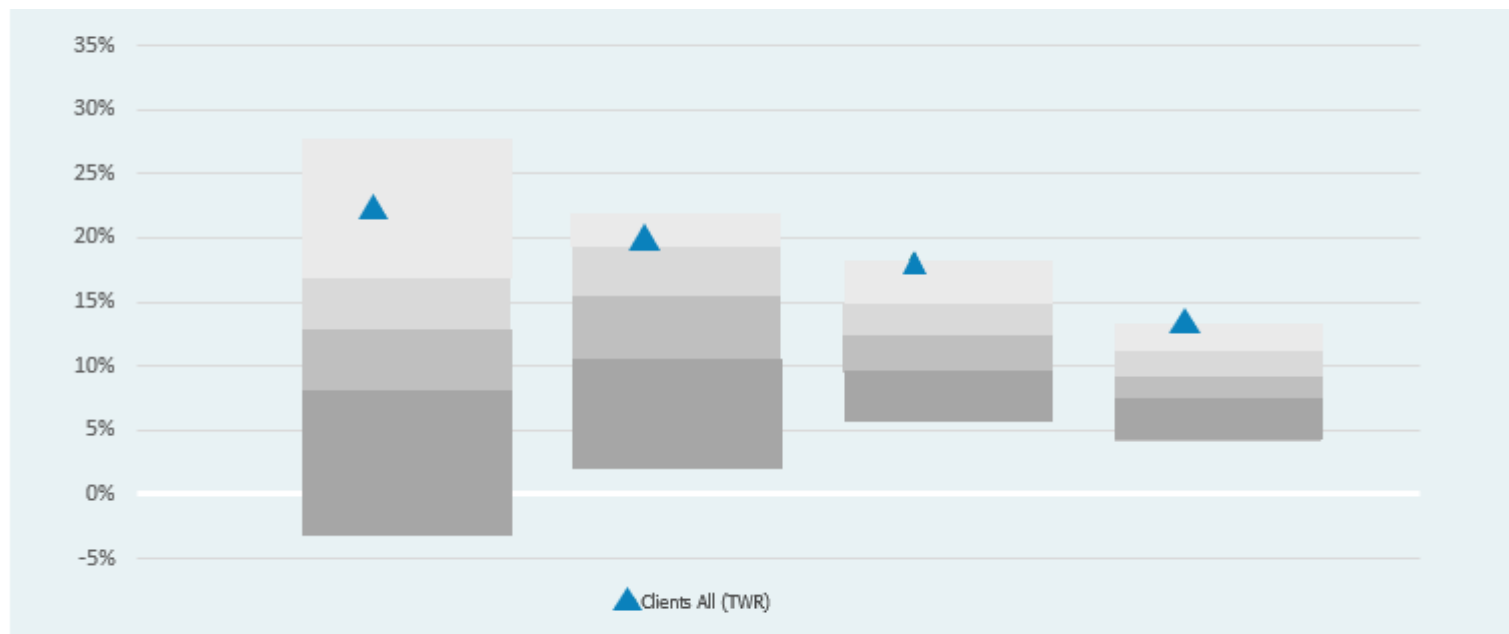
MONEY-WEIGHTED RETURNS (“MWR”) ARE FOR THE PERIOD FROM JANUARY 1, 2006, TO DECEMBER 31, 2022

Vintage Years	Number of discrete fund investments	Cumulative Commitments (\$M)	Cumulative Paid-In (\$M)	Cumulative Distributions (\$M)	Unrealized Value (\$M)	Total Value (\$M)	DPI	TVPI	RVPI	PIC
2006-2020	327	\$4,215.1	\$3,883.2	\$3,911.6	\$3,093.3	\$7,005.0	1.01x	1.80x	0.80x	0.92x

* Represents a money-weighted return net of investment manager fees and net of Verus consulting fees. Please refer to the “End Notes to Performance Information” for important additional information.

Peer comparison for private equity

VERUS PRIVATE MARKETS TIME WEIGHTED RETURNS VS. INVESTMENT METRICS ALL FUNDS PRIVATE EQUITY UNIVERSE



Verus recommended funds across vintage years 2006-2020 performance and ranking vs. other institutional investors

TIME-WEIGHTED RETURNS ("TWR") ARE FOR THE PERIOD FROM JANUARY 1, 2006, TO DECEMBER 31, 2022

	3 YEAR	5 YEAR	10 YEAR	15 YEAR
5th Percentile	27.0%	21.8%	18.1%	13.1%
Top Quartile	21.9%	18.8%	15.0%	11.0%
Median Quartile	17.3%	15.3%	13.1%	9.2%
Lower Quartile	12.0%	10.4%	9.7%	7.4%
95th Percentile	-3.0%	2.1%	5.8%	4.2%

	Return	Rank	Return	Rank	Return	Rank	Return	Rank
Clients All TWR	22.3%	24	19.6%	19	18.0%	6	13.4%	3

Rank 1 = Best
Rank 100 = Worst

* Represents a time-weighted return net of investment manager fees and net of Verus consulting fees. Please refer to the "End Notes to Performance Information" for important additional information.

Keeping clients informed to help guide better decision-making

ASSET ALLOCATION & IPS GUIDELINE MONITORING

Monitor current weights vs. policy weights, including the min and max allowable ranges

MEANINGFUL PEER COMPARISONS & BENCHMARKING

Investment Metrics collects data from 45 institutional consultants and 5 third party data contributors
5,000+ monthly and 800+ daily indices

PERFORMANCE ATTRIBUTION ANALYSIS

Calculations both at the total portfolio, asset composite, and manager levels

CUSTOMIZED PRIVATE MARKETS REPORTING

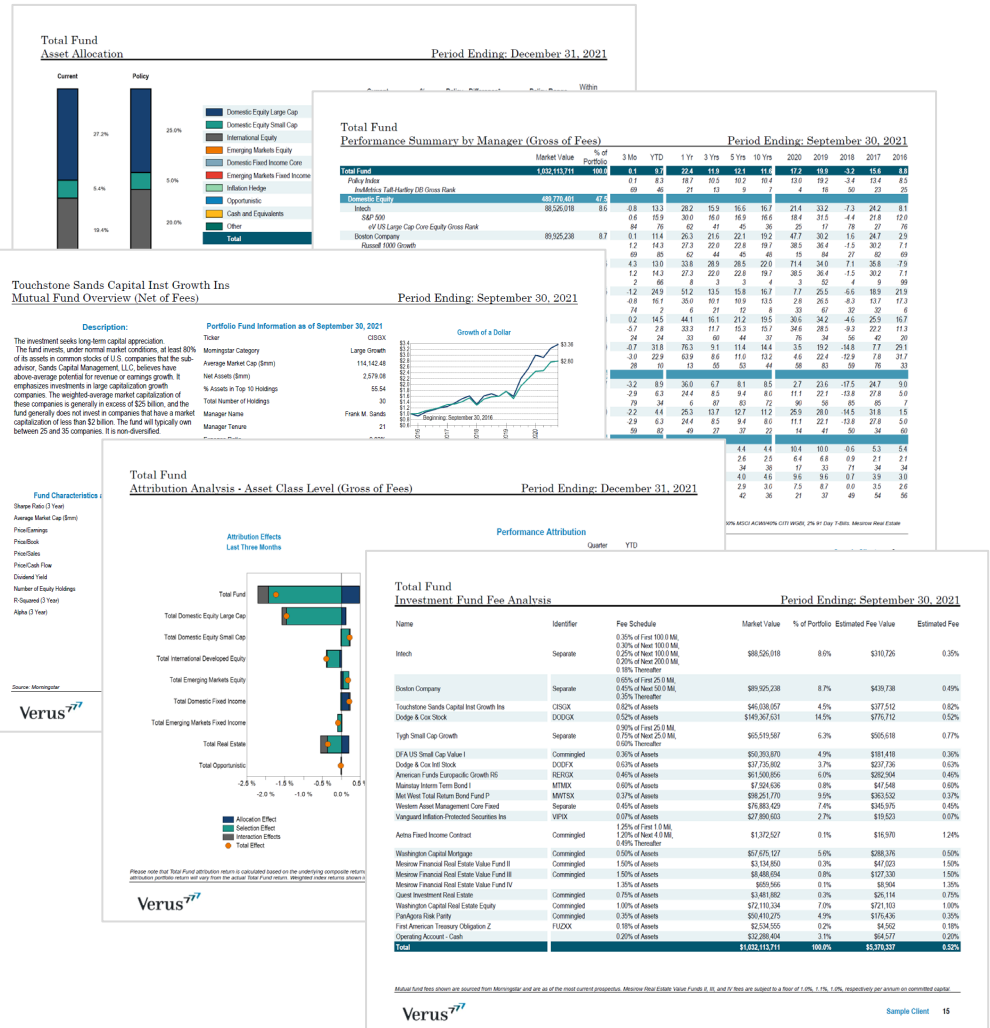
We provide detail related to vintage year, sector, industry and peer rankings for IRR, DPI, and TVPI

INVESTMENT MANAGER FEES

Track fees at the individual manager level

BOARD EDUCATION AND PROACTIVE COMMUNICATION

Apprising clients about markets and portfolio construction is a key component of our services



Why Verus?

KEY CRITERIA

VERUS CAPABILITIES

✓ Organizational Capabilities

Specialized resources across all the key areas critical to non-profit investors

✓ Relevant Experience

+37 years of experience working with non-profit entities

✓ Portfolio Construction

Custom solutions tailored to meet each client's unique goals, circumstances, values, and beliefs

✓ Investment Team

Experienced, senior-level team of non-profit experts who are readily accessible, offer their best independent judgement, and work tirelessly to support our clients' needs

✓ Cultural Fit

Partnership approach working in collaboration with our clients

✓ Client Satisfaction

Consistent history of **client satisfaction**



End Notes to Performance Information

Money-Weighted Return Performance:

- Represents pooled performance of Verus recommended private equity funds across vintage years 2005-2019 in all advisory clients' portfolios monitored in Solovis from January 1, 2006 through December 31, 2022, as defined by the fiduciary review process.
- All fund investments are tracked and recorded by Verus using Solovis, a portfolio management system software. Returns are net of investment manager fees and net of Verus consulting fees.
- Verus consulting fees are calculated on a modeled fee basis utilizing clients' targeted PE allocations multiplied by their Total Plan market value at year end. As a component of the Total Plan private equity valuations are based on September 30, 2022 valuations and adjusted for fourth quarter cash flows.
- The Refinitive C|A benchmark return is derived from private equity dollar-weighted IRRs, and the calculation is based on the overall market return for Global Private Equity funds as published by Refinitive C|A.
- Public Market Equivalent ("PME") returns adapt the representative public market index into a money-weighted return metric that accounts for the irregular and fluctuating cashflows of the investments.
- The distribution to paid in ("DPI") multiple, also known as the realization multiple, is calculated by dividing cumulative distributions by cumulative paid in capital.
- The residual value to paid in capital ("RVPI") multiple measures the remaining market value of the fund's capital which has not yet been realized. It is calculated by dividing the residual value (or fair market value) by cumulative paid in capital.
- The total value to paid in capital ("TVPI") multiple, also known as the net multiple, measures the total market value credited by the fund. It is calculated by dividing the sum of cumulative distributions and residual value (or fair market value) by cumulative paid in capital.
- The paid in capital ("PIC") multiple measures how invested the fund is. This is calculated by dividing cumulative paid in capital by committed capital.

Time-Weighted Return Performance:

- Represents time-weighted performance of Verus recommended private equity funds across vintage years 2005-2019 in all existing clients' portfolios monitored in Solovis through December 31, 2021, as defined by the fiduciary review process.
- All fund investments are tracked and recorded by Verus using Solovis, a portfolio management system software. Returns are net of investment manager fees and net of Verus consulting fees.
- Verus consulting fees are calculated on a modeled fee basis utilizing clients' targeted PE allocations multiplied by their Total Plan market value at year end. As a component of the Total Plan private equity valuations are based on September 30 valuations and adjusted for fourth quarter cash flows.
- TWRs are calculated by Solovis and compared to Investment Metrics All Trust Funds PE universe, both as of December 31, 2021
- While IRR is generally a more accurate measure of performance in private markets, comparable institutional universe reporting IRRs is not available.
- Rank 1 is best, 100 is worst.

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