



## Presentation for Investment Consulting Services - September 20, 2023

# Table of Contents

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1. Introductions
2. Response to Questions
3. Q&A and Closing Remarks
4. Appendix

# Introductions

# STRS Ohio Team

## Proposed Client Consulting Team

**Colin Bebee, CFA**



**Portland, OR**  
Managing Principal  
Consultant

**C. LaRoy Brantley**



**Westwood, MA**  
Managing Principal  
Consultant

**Stephen P. McCourt, CFA**



**San Diego, CA**  
Managing Principal  
Co-CEO

## Experience

- 13 years of industry experience
- Joined Meketa/PCA in 2010; Shareholder
- Lead consultant on select public pension and healthcare funds as well as a member of Meketa's Capital Markets Research team
- Architect of several of Meketa's proprietary modeling approaches and member of Asset-Liability Risk Management Committee
- BS: Linfield College (Finance/Economics)
- BS: Oregon State University (Computer Science)
- Primary consultant for 4 clients and secondary consultant for 1 client; assets range from \$5.9 B to \$135.4 B

- 24 years of industry experience
- Joined Meketa in 2017; Shareholder
- Co-Chair: Emerging and Diverse Manager Committee
- Member: Endowment & Foundation Practice Group, Investment Policy, and Diversity Leadership Committees
- Has served as trustee for close to two decades on the Massachusetts PRIM Investment Committee
- Currently serves as a trustee on the Board for Hollins University, an all-women's college in Roanoke, VA
- MBA: MIT Sloan School of Management; BA: Amherst College
- Primary consultant for 3 clients and secondary consultant for 3 clients; assets range from \$107 M to \$47.8 B

- 29 years of industry experience
- Joined Meketa in 1994; Shareholder
- Lead consultant on various public and private pension funds for both general and private markets consulting
- Speaker at numerous industry events
- Member: Board of Directors, Fiduciary Management (OCIO), Private Markets Policy, and Diversity Leadership Committees
- ALM: Harvard University; BS: University of Vermont
- Primary consultant for 6 clients, secondary consultant for 3 clients, and tertiary consultant for 1 client; assets range from \$244 M to \$442.4 B

Additional Team Members  
Investment Analyst  
Performance Analyst  
Client Service Administrator

Governance  
Investment Policy Committee  
Marketable Securities Oversight Committee  
Private Markets Policy Committee

# Additional Presenter



Hayley Tran, CFA, CAIA  
Managing Principal  
Co-Head of Equity Research

- 16 years of industry experience
- Joined Meketa in 2021; Shareholder
- Research consultant focusing on manager due diligence and selection in Global Equities
- Member: Global Macroeconomic Investment and Marketable Securities Oversight Committees
- BA: Wellesley College

# Meketa Overview

45

Years of Experience

243

Clients

\$1.7 T

In Assets under Advisement

\$1.5 T

In Public Fund Assets

- Four decades of investment advisory experience
  - Advising Defined Benefit and Defined Contribution plans, and Endowments/Foundations
  - Working with Public, Corporates, Endowments/Foundations, Healthcare, Taft-Hartley, and Non-Profits
- Over 240 clients\*
  - 134 Defined Benefit plans
  - Over 180 General Consulting clients
  - Over 100 Private Market clients
- Staff of 247, including 165 investment professionals
  - 69 consultants and 45 analysts
  - 62 investment operations
  - 72 corporate & business administration
- One Line of Business
  - 100% of our revenue comes from our clients
  - No proprietary products

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



# Significant Public Fund Experience

- We were hired by our first public fund client in 1988\*.
- We currently advise on over \$1.5 trillion in assets for 95 public fund clients throughout the nation.



\* PCA began working with public funds in 1988. As of June 2023.

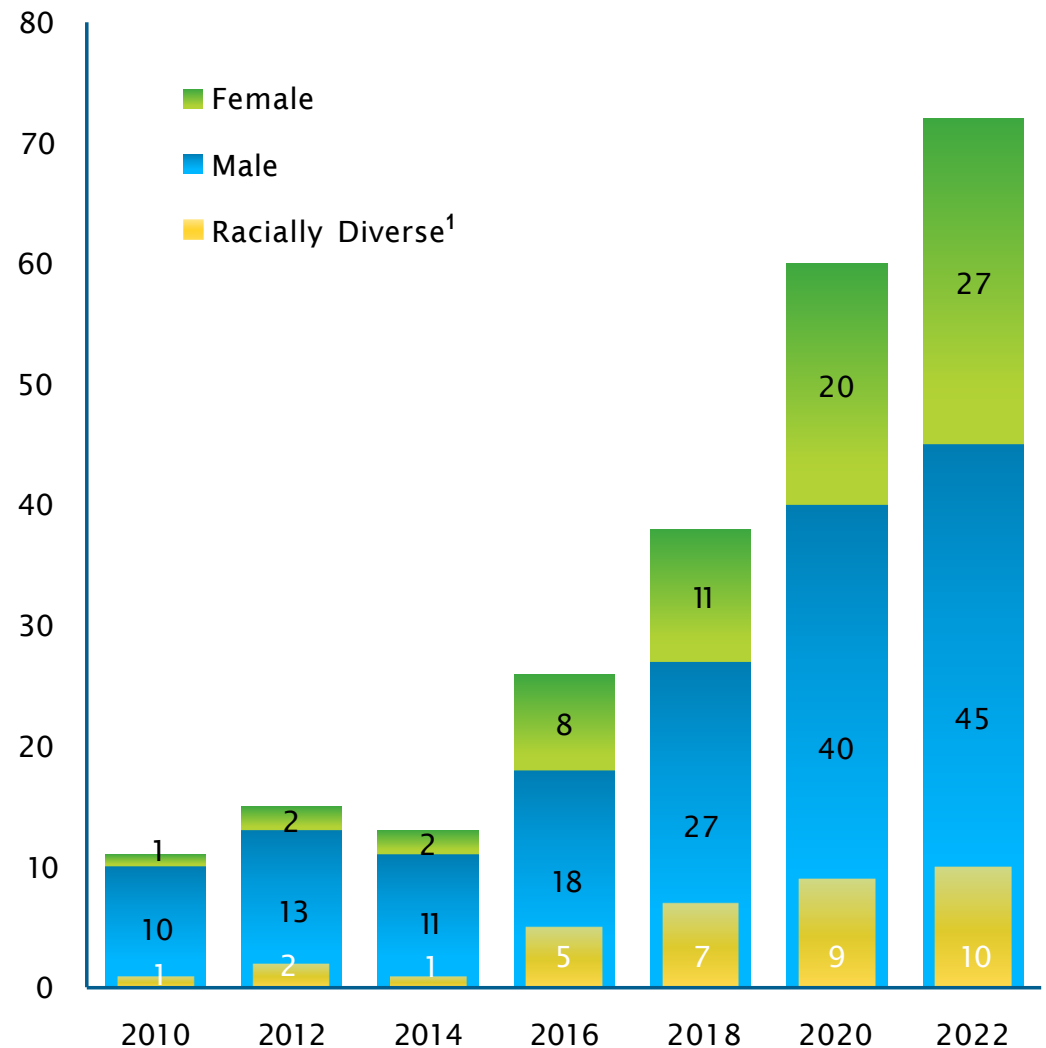
# Employee-Owned

We empower individuals to become owners of the firm, with no single shareholder owning more than 25%.

Our Co-CEO structure and team orientation across business groups enhance and secure our collaborative culture.

Our collegial atmosphere is exemplified by an open-door policy with approachable management as well as a formal process of continual feedback.

## Shareholders



<sup>1</sup> Racially Diverse includes shareholders counted in the male and female categories.



## Response to Questions

# 1) Best Fit for STRS Ohio & Role of Consultant

## → **Multi-faceted team with complementary skillsets and experience:**

- Significant public fund experience, including clients of similar size and structure as STRS Ohio.
- Proposed team focuses on most important decisions: asset allocation, governance, and monitoring.
- Co-lead consultant has experience as both a teacher and public fund Trustee.

## → **We work for the Board, full stop.**

→ As we will discuss in later sections, governance is a critical element at a plan where Staff has significant delegated authority.

## → Our focus will be two-fold:

- Review and enhance appropriate policies that express the Board's expectations of the investment portfolio.
- Prudently monitor the investment authority the Board has delegated to Staff.

## 2) Fee Proposal

**We constructed our original proposed fees based on the RFP Scope of Engagement:**

Scope of Engagement
<ul style="list-style-type: none"><li>• Asset-Liability Studies (3 to 5 years)</li><li>• Review of Investment Policies, Fund Governance, and Annual Investment Plan</li><li>• Performance Monitoring and Reporting</li><li>• Manager Due Diligence and External Manager Searches</li><li>• Market Research and Education</li><li>• Other Duties</li><li>• Defined Contribution Program</li><li>• Special projects as requested</li></ul>
Proposed Fees
<ul style="list-style-type: none"><li>• \$545,000 for the first year. 4% increase for each year thereafter.</li></ul>

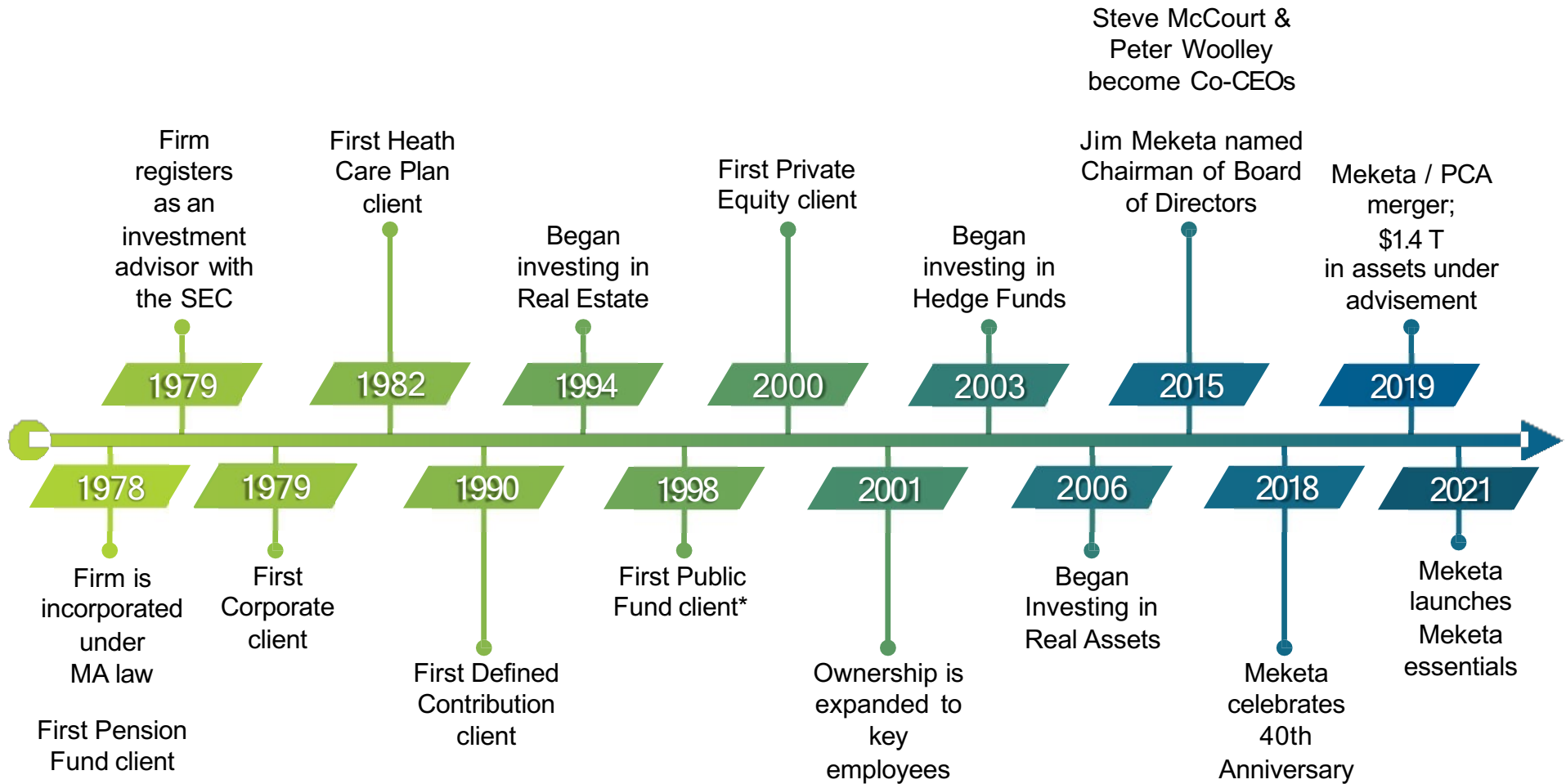
**This represents a fee for a comprehensive full retainer engagement focused on the total portfolio(s) and liquid markets mandates.**

**We are open to modifications to the Scope and corresponding fee changes.**

Meketa's proposed standalone fee for the defined contribution plan is \$120,000. If retained to provide services for all three plans (defined benefit, health care, and defined contribution), Meketa's total fee would be \$625,000 for the first year, increased by 4% for each year thereafter.

Basic asset allocation/asset-liability studies are included in our fees. Basic Simulation-Based Optimization (SBO) studies are \$60,000 per study; Robust SBO Studies are \$100,000 per study.

### 3) Experience with Defined Benefit and Health Care Plans

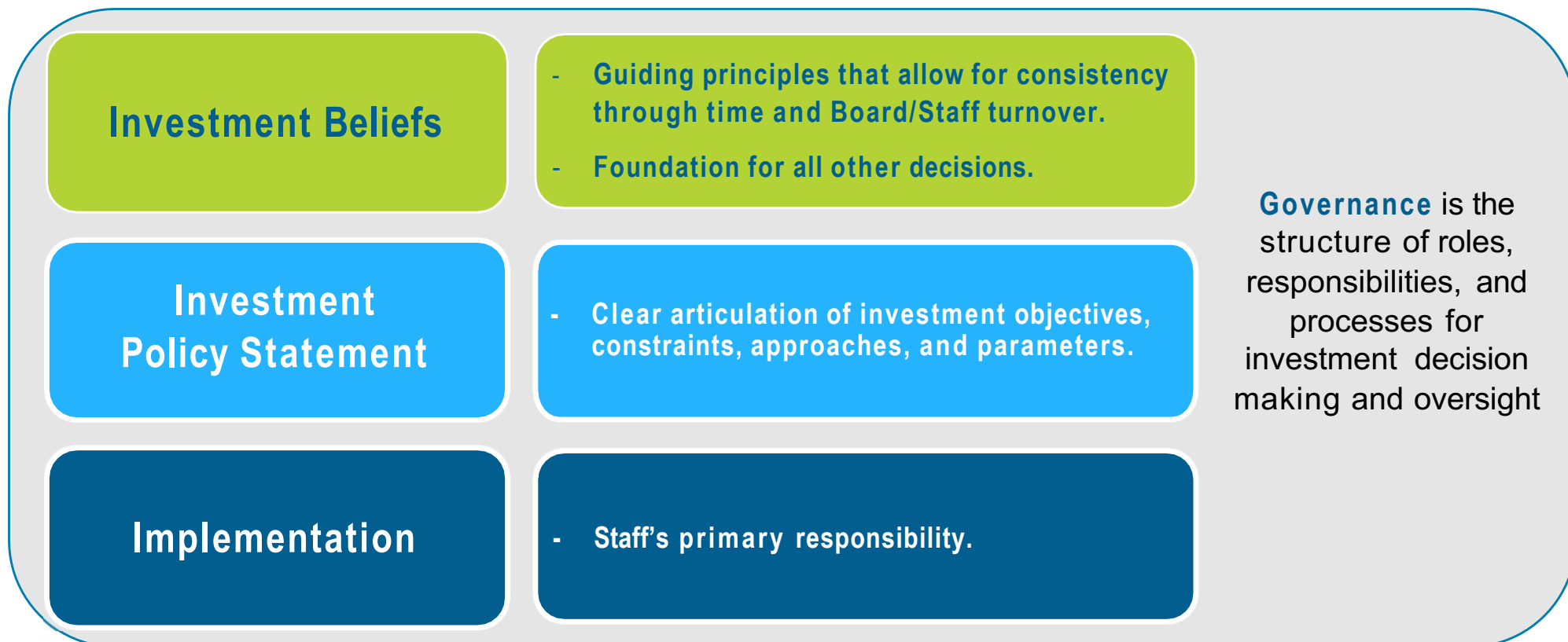


**45-Year History**

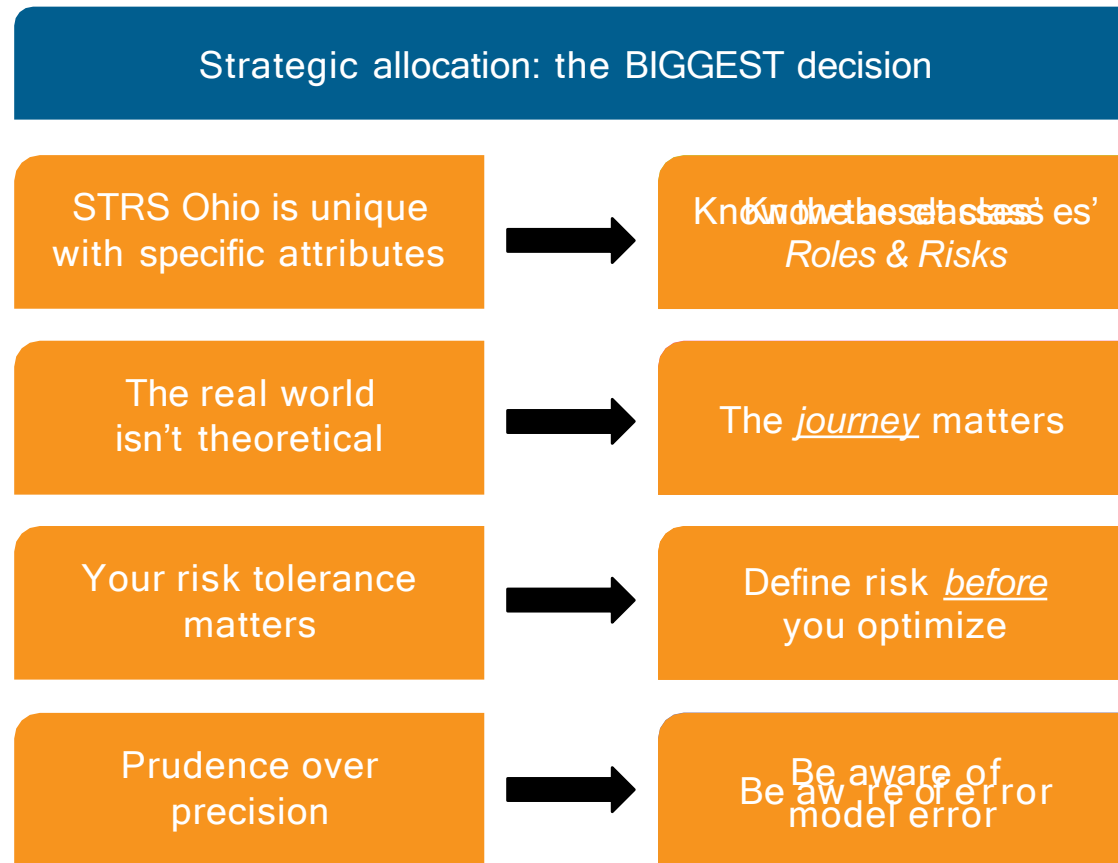
\*PCA began working with public funds, including those of similar size as STRS Ohio, in 1988.

## 4) Role of Investment Beliefs, Investment Policy, and Governance

- Prudent decision-making is critical to the long-term success of any retirement plan.
- For systems that delegate authority to Staff, each of these roles has elevated importance.
- By developing strong governance policies before assets are moved, Boards can increase the likelihood of making sound investment decisions, therefore increasing the likelihood of long-term success.
- Good process today facilitates better outcomes for tomorrow.



## 5) Asset-Liability Modeling and Asset Allocation Philosophy



Objective: A process that blends awareness/understanding with a reasonably effective policy.

## 5) Asset-Liability Modeling and Asset Allocation Philosophy

### 3 key high-level steps to the A/L process:

1.

Develop an understanding of how the financial condition of STRS Ohio may vary based on outcomes of STRS Ohio's investment portfolio.

2.

Set a consensus definition and view of the risk(s) STRS Ohio should bear.

3.

Once a view/tolerance for risk has been established, select an appropriate long-term investment strategy (i.e., a policy portfolio / strategic allocation).

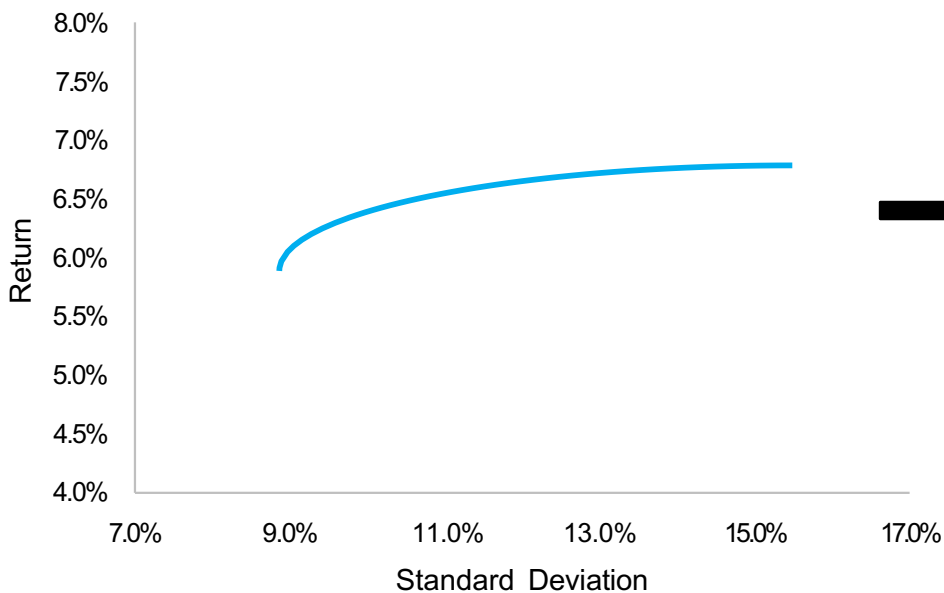


# 5) Asset-Liability Modeling and Asset Allocation Philosophy

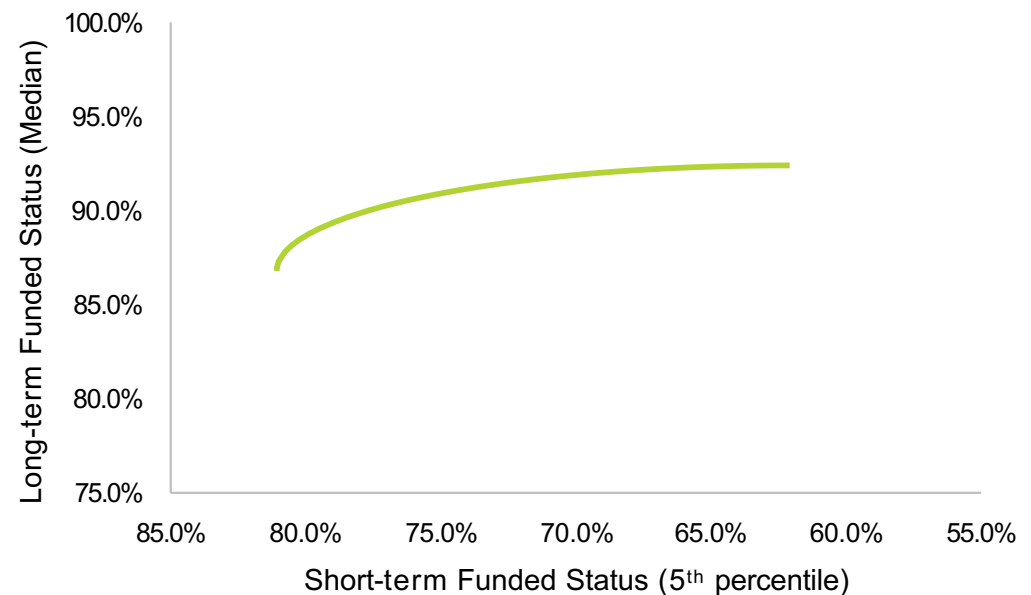
→ Two critical principals:

- The liability structure should be fully integrated into the optimization process, not simply overlaid across potential asset allocation structures.
- Success of a defined benefit system is determined in dollars, not returns.

Traditional Efficient Frontier



System-oriented Efficient Frontier



## Other Example System-oriented Metrics

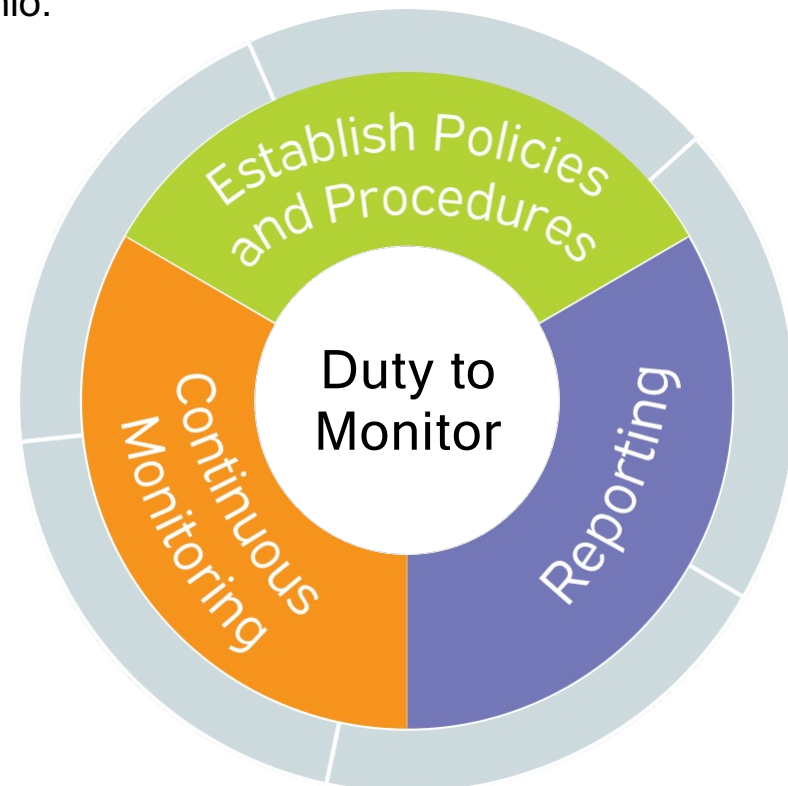
- Long-term vs. short-term funded status probabilities
- Frequency of funded status threshold breaches vs. severity
- Expected median vs. 5th percentile total contributions

## 6a) Internal Investment Management Programs

- STRS Ohio has an investment staff of over 100 investment professionals with significant implementation authority.
- Staff is effectively an investment management organization and should be monitored as such.
  - Review of processes, philosophy, approach, etc. (i.e., investment and operational due diligence)
  - Regular monitoring and reporting of activity
- Meketa works with some of the largest pension systems in the United States, several of which have internal management programs similar to STRS Ohio.

With implementation authority delegated to Staff, the Duty to Monitor becomes the paramount Board responsibility.

A general consultant assists the Board in performing these duties, similar to how internal Staff monitors external managers.



## 6b) Use Cases for Active and Passive Management

- The default case for any asset class should be passive or passive-like implementation.
- In certain alternative asset classes, there is no passive option. The implementation is a given, and thus, analysis should be predicated on the class itself adding value relative to alternatives.
- When pursuing active management, there should be clear expectations for added value, volatility of added value (tracking error), and probability of success/conviction based on manager skill.
- We are firm believers that there is a place for both active and passive management approaches in portfolio construction based on asset class efficiency.

### Primary Areas for Passive Management

- US Equity (particularly large cap)
- Treasury-based Fixed Income

## 7) Investment Management Costs

→ **Net-of-fee returns are all that matters.**

- It is prudent to pay significant investment management costs so long as strong net-of-fee, risk-adjusted returns are anticipated.

→ However, the global capital markets are extremely competitive/efficient and generating alpha is challenging.

→ All else equal, lowering investment management costs is the only guaranteed return.

- Without meaningful probabilities of generating alpha, shifting to lower cost implementations is advised.

→ Costs should be measured on ex-ante (before) and ex-post (after) bases.

→ STRS Ohio has considerable size/scale to leverage during external manager negotiations. This advantage can be further enhanced by leveraging Meketa's overall market footprint.

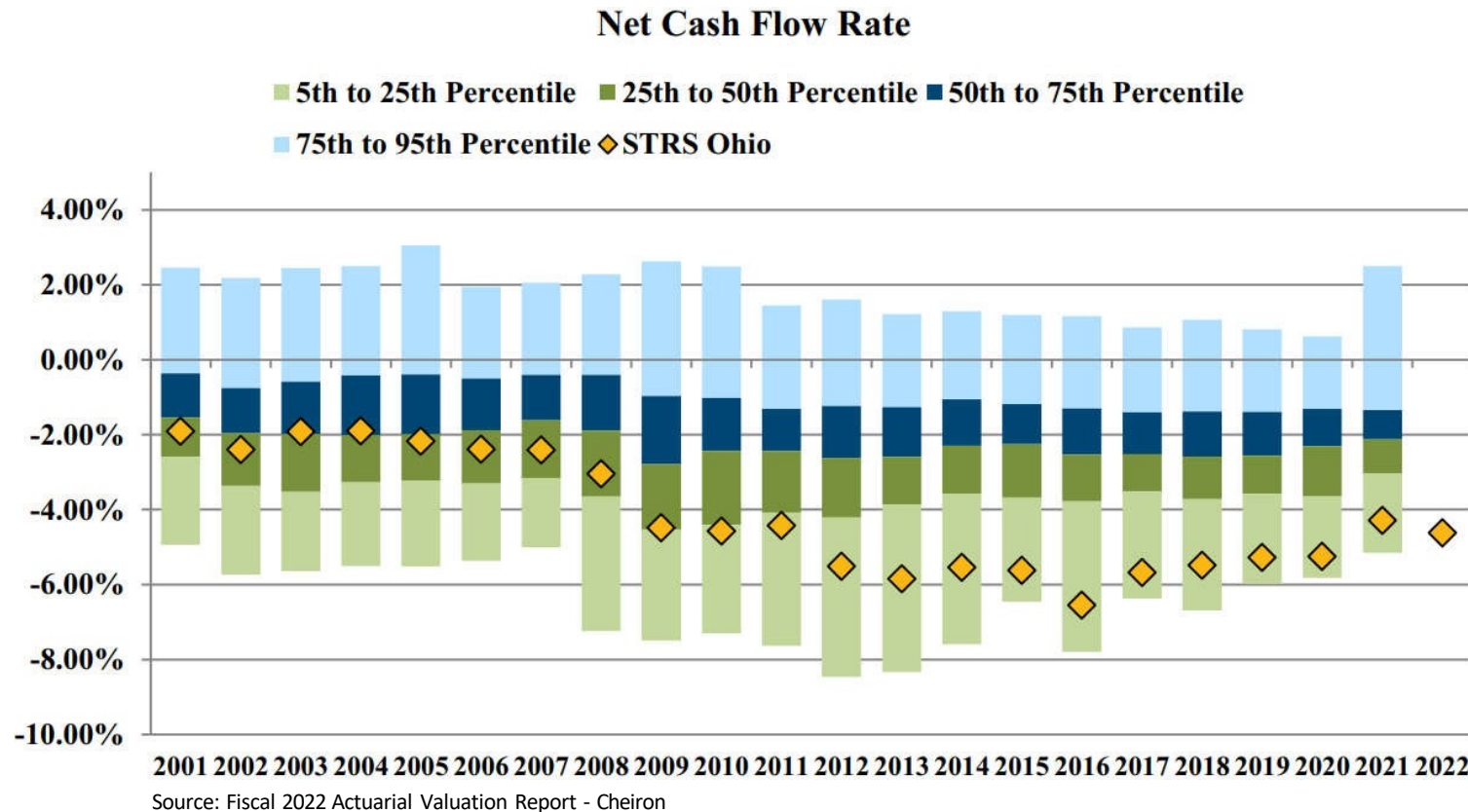
- Unlike certain competitors, Meketa does not receive any revenue from the investment manager community and thus we have no conflict with respect to negotiating fees on behalf of our clients.

→ Finally, fees should be monitored on a "total expense ratio" basis.

- Ex: Commingled fund operating costs.
- Ex: Internal management investment costs.

## 8) Maturity of DB Fund and Liquidity Management

→ STRS Ohio has a meaningful net-negative cash flow.



→ 2022 was likely a year where liquidity management was more challenging for STRS Ohio.

→ The portfolio's traditional diversifier (i.e., Core/Treasury Fixed Income) was in a meaningful drawdown and strategies with "positive" returns were illiquid.

## 8) Maturity of DB Fund and Liquidity Management

- The 2022 market environment is likely the largest vulnerability for STRS Ohio:
- Liquid risk-oriented markets experienced large drawdowns.
  - Inflationary bias of market environment also impacted the portfolio's largest diversifier.

### Liquidity: Role vs. Attribute

#### Role

An asset class's specific assignment or purpose within a portfolio.

#### Attribute

A description or characteristic that may help or impede the role of a class.

#### Example: Liquidity (tradability)

U.S. Treasuries exhibit significant liquidity during all market environments and are much more consistent than Public Equity; *Liquidity is a role.*

Public Equity happens to be liquid, but such liquidity is not always beneficial (e.g., selling equity during a bear market); *Liquidity is an attribute.*

- A fully integrated asset-liability study that reflects potential economic realities (e.g., non-normal distributions, inflationary/deflationary scenarios, etc.) can help mitigate liquidity perils.

## 9) Investment Benchmark Philosophy

- Benchmarking is simply an approach to interpreting investment results.
- There are two main questions that require answers:
  1. At the asset allocation level, are we in the correct asset classes?
  2. At the asset class level, how well did we implement?
- With a large-scale investment staff and delegated authority, measuring investment results requires more nuance and discussion.
  - This often means examining multiple benchmarks for different reasons.
  - Attribution results increase in importance.

### Reference Portfolio Benchmark

- Used primarily to determine asset allocation success.
- Can be simple equity/bond mix or more detailed mix of liquid market proxies.

### Policy Portfolio Benchmark

- Consistent with STRS Ohio's current policy benchmark.
- Compared to reference benchmark for asset allocation decisions.
- Compared to actual portfolio to examine certain elements of implementation success.

### Asset Class and Manager Benchmarks

- Measurement of selection/implementation success.
- Primarily used to examine more granular drivers of performance.



# 10) Process for Monitoring/Reporting Investment Performance

→ Receiving timely, accurate, and relevant reporting is critical for proper governance.

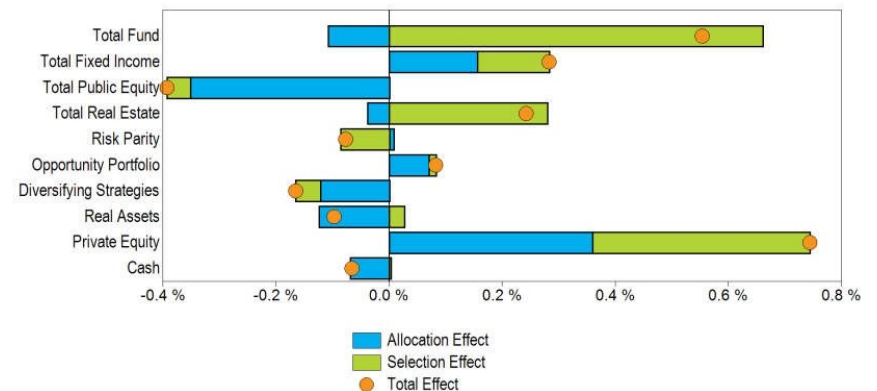
→ Meketa's reporting focus:

- Long-term orientation
- Concise reports compared to seemingly endless numerical output
- Multi-faceted views of contributors/detractors (i.e., attribution analysis)
- Discussion of ex-ante approach compared to ex-post results
- Actionable vs. unactionable elements
- Allocation vs. implementation results
- “Economic reality” of private markets

Performance Review Summary

Category	QTD Results	5 Year Results
Performance vs. Policy Benchmark	Underperform 1.5% vs. 2.8%	Outperform 8.1% vs. 7.5%
Performance vs. Actuarial Rate	NA	Outperform 8.1% vs. 6.9%
Performance vs. InvMetrics All DB > \$10B Net Median	Underperform 1.5% vs. 2.5%	Outperform 8.1% vs. 6.9%
Actively Managed Public Markets vs. Benchmarks	19 of the 30 actively managed stock and bond portfolios outperformed their respective benchmarks (after fees)	16 of the 25 actively managed stock and bond portfolios outperformed their respective benchmarks (after fees)
Category	Quarter-End	Notes
Compliance with Targets	Out of Compliance	Private Equity remains well above target, while public equity and fixed income are underweight.

Attribution Effects  
5 Years Ending June 30, 2023



# 11) Best Ideas for Risk-Adjusted Returns

- STRS Ohio has produced a highly competitive track record.
  - The Board and Staff should be proud of these results.
- We are firm proponents that major asset allocation changes should only be made during comprehensive asset-liability studies. Hence, the below ideas are potential changes.

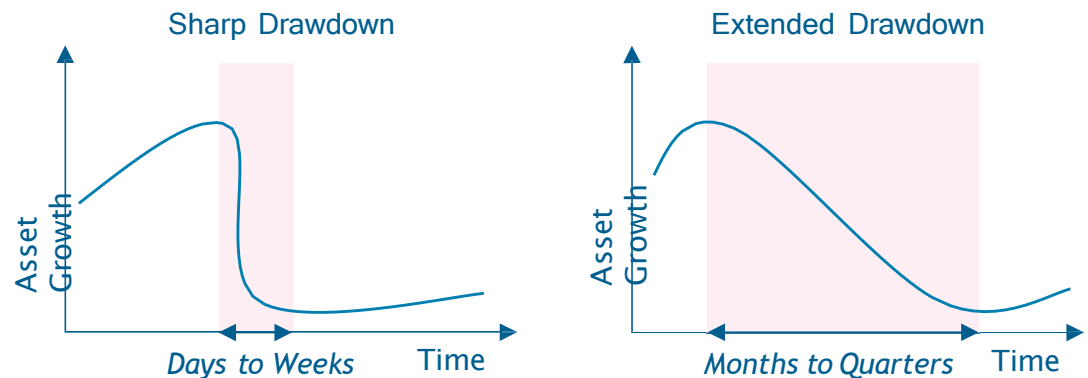
## 1) Explore increased private markets

- Dedicated allocations to segments currently held in Opportunistic may be worthwhile
- Subject to prudent pacing and liquidity stress tests

OPPORTUNISTIC/DIVERSIFIED PORTFOLIO (AS OF APRIL 30, 2023)			
Theme	(in millions) Projected % of Total OD Market Value	\$ Market Value	\$ Market Value Maximum
Banking, Insurance and Asset Management	10%–20%	\$ 1,331	\$ 2,000
Direct and Co-Investments	10%–25%	\$ 1,210	\$ 2,250
Direct Lending	15%–25%	\$ 1,762	\$ 2,500
Energy & Natural Resources	0%–5%	\$ 406	\$ 500
Hedge Funds	0%–2%	\$ 135	\$ 200
Infrastructure	0%–5%	\$ 65	\$ 500
Liquid Alternatives	5%–25%	\$ 418	\$ 2,000
Public-Private Investment Funds	0%–2%	\$ 0	\$ 50
Specialty Finance	30%–45%	\$ 3,371	\$ 4,750
<b>Total</b>		<b>\$ 8,698</b>	<b>\$14,750</b>

## 2) Build out a dedicated “diversifying strategies” class

- In particular, improve diversification during inflationary challenges



### First Responders

Primary Role: First line of protection in an equity drawdown

Strategy Examples: Long Volatility, Long Duration US Treasuries, Tail Risk Strategies

### Second Responders

Primary Role: Second line of protection in an equity drawdown

Strategy Examples: Trend Following, CTAs, Managed Futures

## 12) Investment Manager Due Diligence and Searches

- Meketa maintains a large-scale manager research group capable of conducting due diligence on both internal and external investment teams.
- Unlike some of our competitors, Meketa does not receive any compensation from asset managers.

- What is the thesis for creating value?
- Is it well-suited for the market conditions ahead?

### Strategy



- Is it stable, well-resourced, with a healthy culture?
- What is the manager's plan for growth?
- Any upcoming succession issues?

### Firm



- Are they experienced, talented, ethical, and motivated?
- Which individuals are most responsible for the track record?
- Is alignment appropriate?

### Personnel



- Is it repeatable and well-documented?
- How are decisions made?

### Process



- Are terms appropriate?
- Are the managers' interests aligned with LPs?
- Are fees reasonable, negotiable?

### Offering



- Is it robust and relevant?
- Has it been cycle-tested?
- What advantage does the manager have over its competition?

### Track Record



# 12) Investment Manager Due Diligence and Searches



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



As of September 2023.



Q&A and  
Closing Remarks

# Distinguishing Characteristics

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## Why Meketa Investment Group?

- We have **creative investment solutions** to help our clients earn their respective target returns despite today's challenging investment environment.
- We are **public fund experts** who can share our insights, best practices, and lessons learned from our decades of experience.
- We believe we have **strong alignment of interests** with STRS Ohio.
- **Transparent and Objective**: We have no internal products and seek to minimize any conflicts of interest, which allows our clients to trust our research and decisions.



# Thank You

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

***We are excited about the prospect of serving***



***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.***

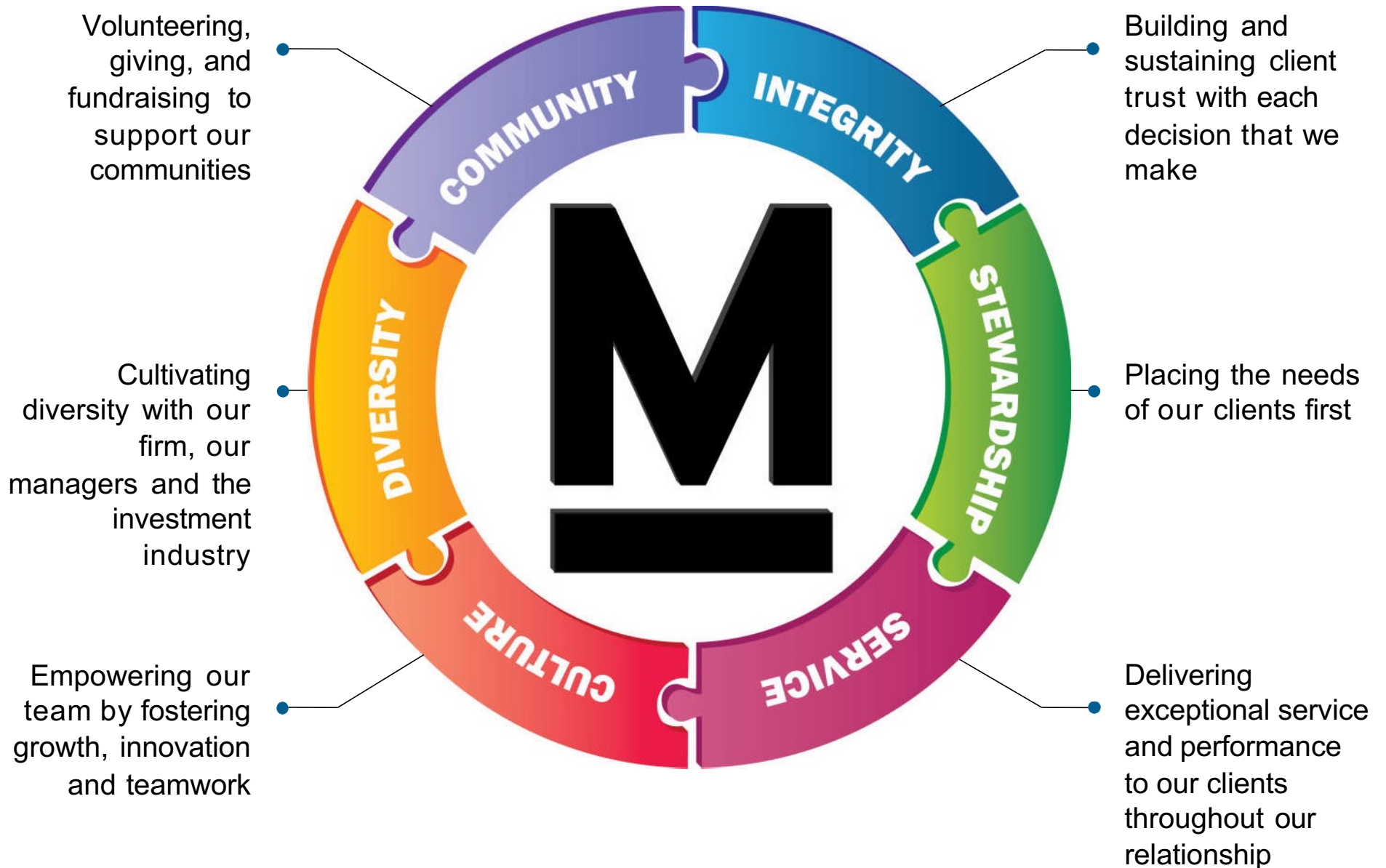
## Who We Are



- Our unwavering culture will continue to be driven by our history and supported by our people. This commitment will ensure long-term success.
- We help individuals and communities achieve their financial goals through responsible, ethical, and thoughtful research and relationships.
- Our clients are our #1 priority. We engage in partnerships offering customized solutions and pride ourselves on our responsive nature, collaboration, and ongoing education.

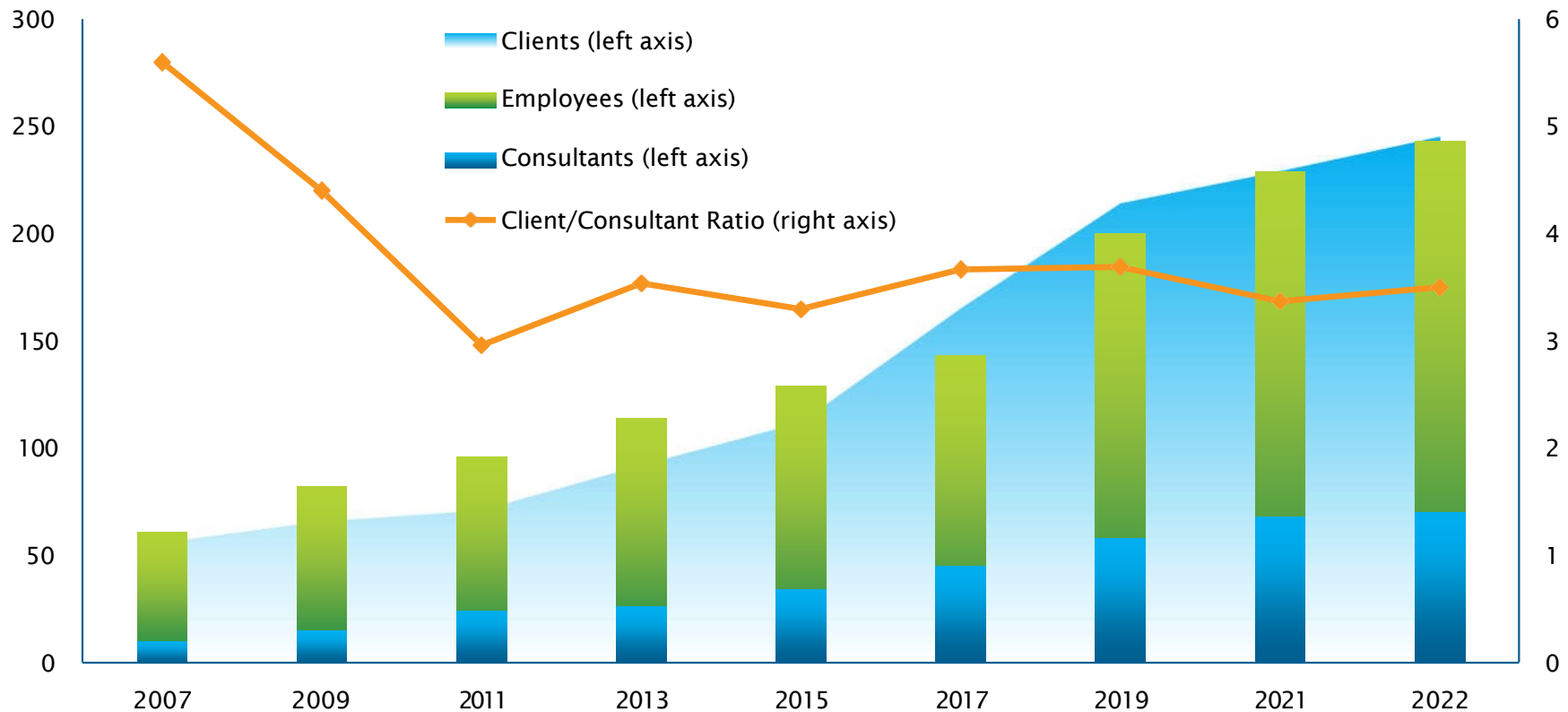
# Appendix

# Our Values



# Committed to Client Service

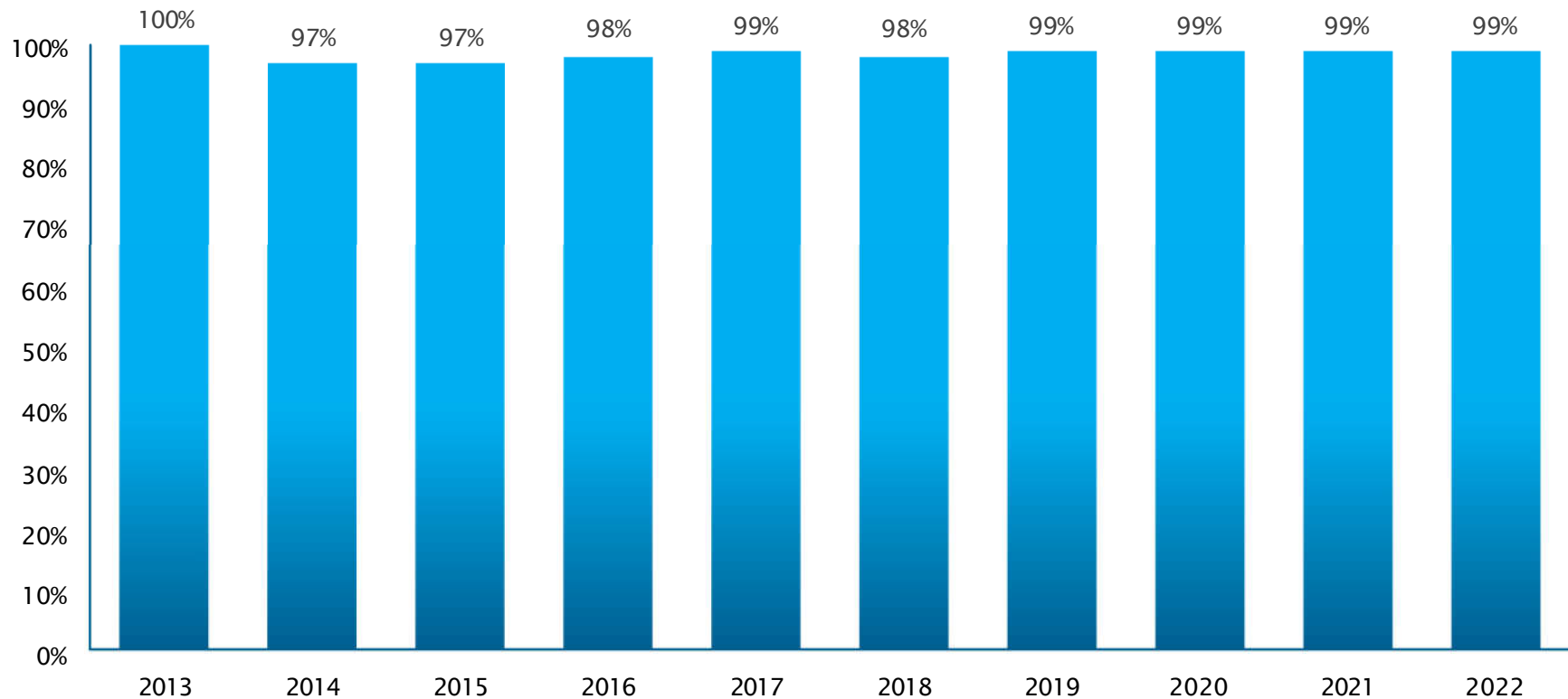
- We work directly with each client to meet their unique objectives.
- Low client to consultant ratio means we know our clients and their portfolios well.
- Timely and proactive advice has resulted in strong client retention.



# Client Satisfaction

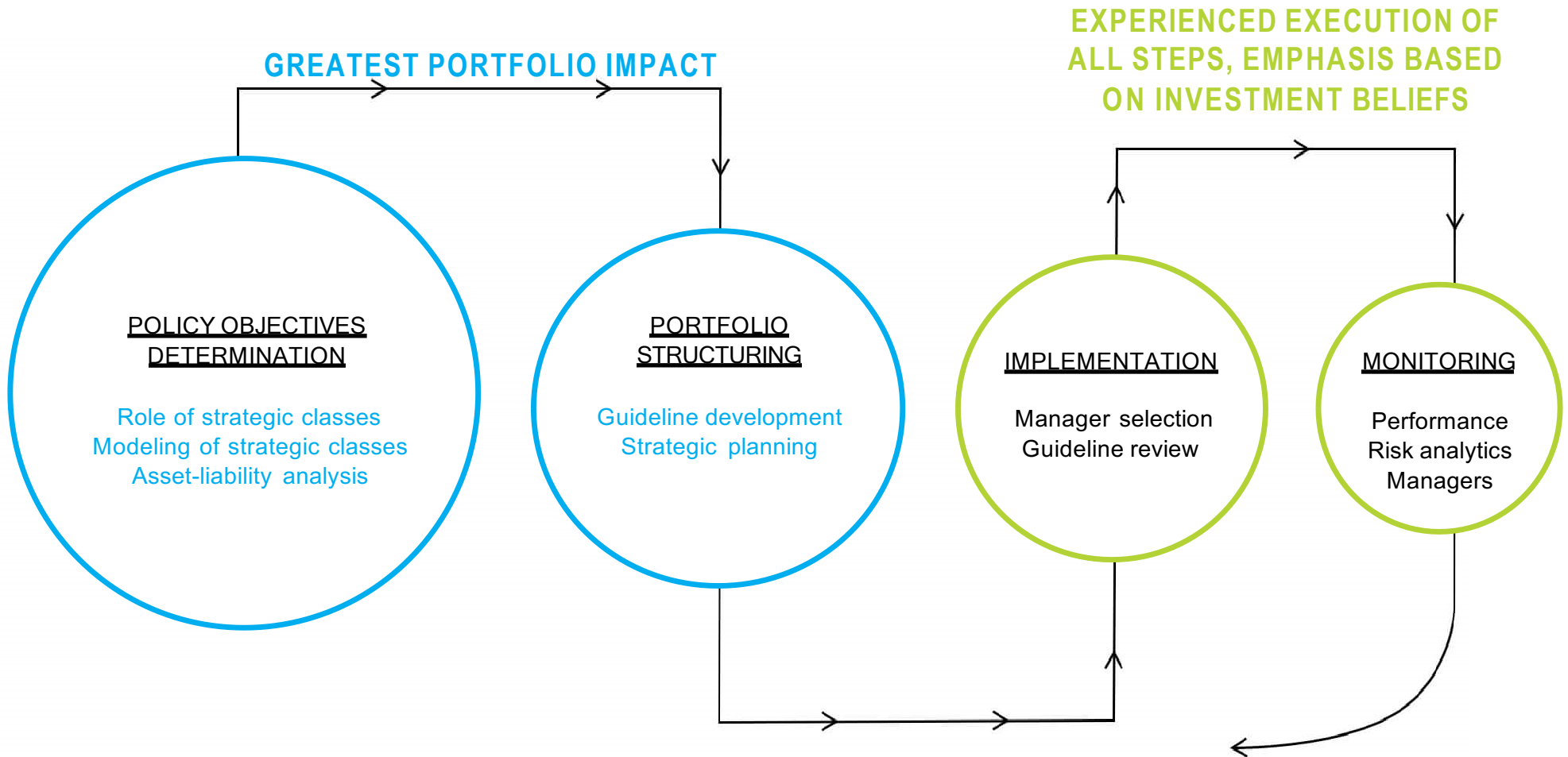
- Consistent and controlled growth has resulted in strong retention.
- Nearly 100% client retention rate<sup>1</sup> shows we have been able to keep our clients happy.

## Annual Client Retention Rate



<sup>1</sup> 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.

# Meketa's Approach Emphasizes Major Decisions

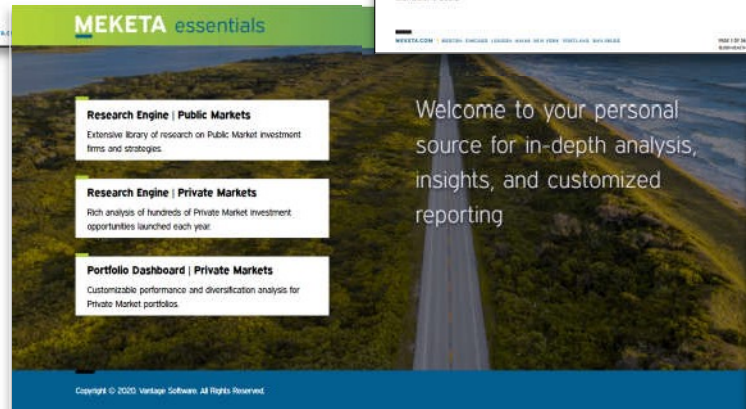




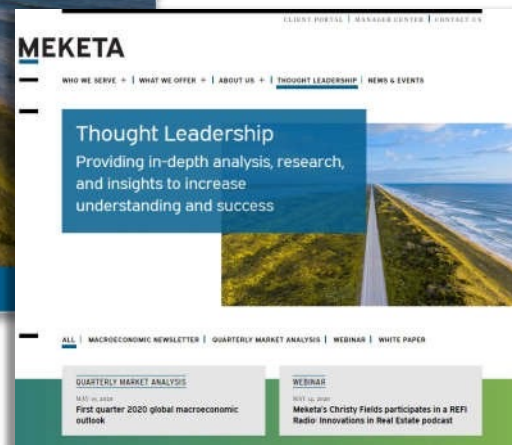
# Proactive Communication



- Timely, actionable research topics
- Flexible formats and delivery
- Customized client education materials on the topics of interest to your organization
- Direct access to subject matter experts throughout the organization to answer your questions
- Training on topics that impact your investment goals
- MEKETA essentials (client portal)
- Meketa Investment Perspectives



Welcome to your personal source for in-depth analysis, insights, and customized reporting





# Asset Allocation Tool

→ Our asset allocation tool is fully customizable and allows users to create various asset mixes, return assumptions, and peer comparisons.

→ It includes the following modules:

- Portfolio Statistics
- Risk Decomposition
- Tracking Error Contribution
- Probability of Achieving Target Return
- Expected Return Percentiles
- Value at Risk
- Historical Scenarios
- Stress Tests
- Economic Regime Management
- Liquidity Analysis
- Sequence of Returns
- Monte Carlo Simulation

The screenshot displays the MEKETA Asset Allocation Tool interface. The top navigation bar includes the MEKETA logo and the page title "Asset Allocation / Asset Allocation Tool Example / Asset Study 2021".

The main content area is divided into two sections:

- Portfolio Statistics:** A table comparing asset groups across three policies (Policy A, Policy B) and a Benchmark.
- Asset Classes:** A table showing the composition of asset classes for Policy A, Policy B, and the Benchmark.

The left sidebar contains a navigation menu with the following items:

- Asset Mixes
- Asset Groups
- Correlations
- Settings
- Portfolio Statistics
- Risk Decomposition
- Tracking Error Contr...
- Targets by Asset Mix
- Probability of Achiev...
- Percentiles
- Value at Risk

Asset Group	Policy A	Policy B	Benchmark
State Sensitive	20.00%	21.50%	17.50%
Cash Equivalents	25%	3%	1%
Investment Grade Bonds	25%	3%	13%
Long-term Government Bonds	10%	10%	2.5%
TIPS	5%	5.5%	1%
Global Credit	9.00%	8.00%	7.50%
High Yield Bonds	2%	2%	12%
Bank Loans	1%	1%	0.8%
	4%	3%	
	0.5%	1.25%	
	7.00%	6.80%	
	12.93%	13.30%	
	0.46%	0.43%	

Asset Class	Policy A	Policy B	Benchmark
Cash Equivalents	25	3	1
Investment Grade Bonds	25	3	13
Long-term Government Bonds	10	10	2.5
TIPS	5	5.5	1
High Yield Bonds	2	2	12
Bank Loans	1	1	0.8
Private Debt	4	4	3
Emerging Market Bonds (Local)	1	0.5	1.25
Emerging Market Bonds (Global)	1	0.5	1.25
Total	100	100	100

# Reporting

**An emphasis on thorough reporting is necessary to support investment insights. Below are typical steps of the reporting process.**

## Data Gathering

Data is gathered from several sources. We have automated custodial and direct manager feeds that enable quick data processing. We also collect statements from managers directly.

## Data Reconciliation

Once data is gathered, we begin the reconciliation process. We compare information between all received sources to bolster the accuracy of data.

## Systems Interaction

Once data has been reconciled, we engage our primary performance system Investment Metrics as well as assess if other tools are needed to produce a full report.

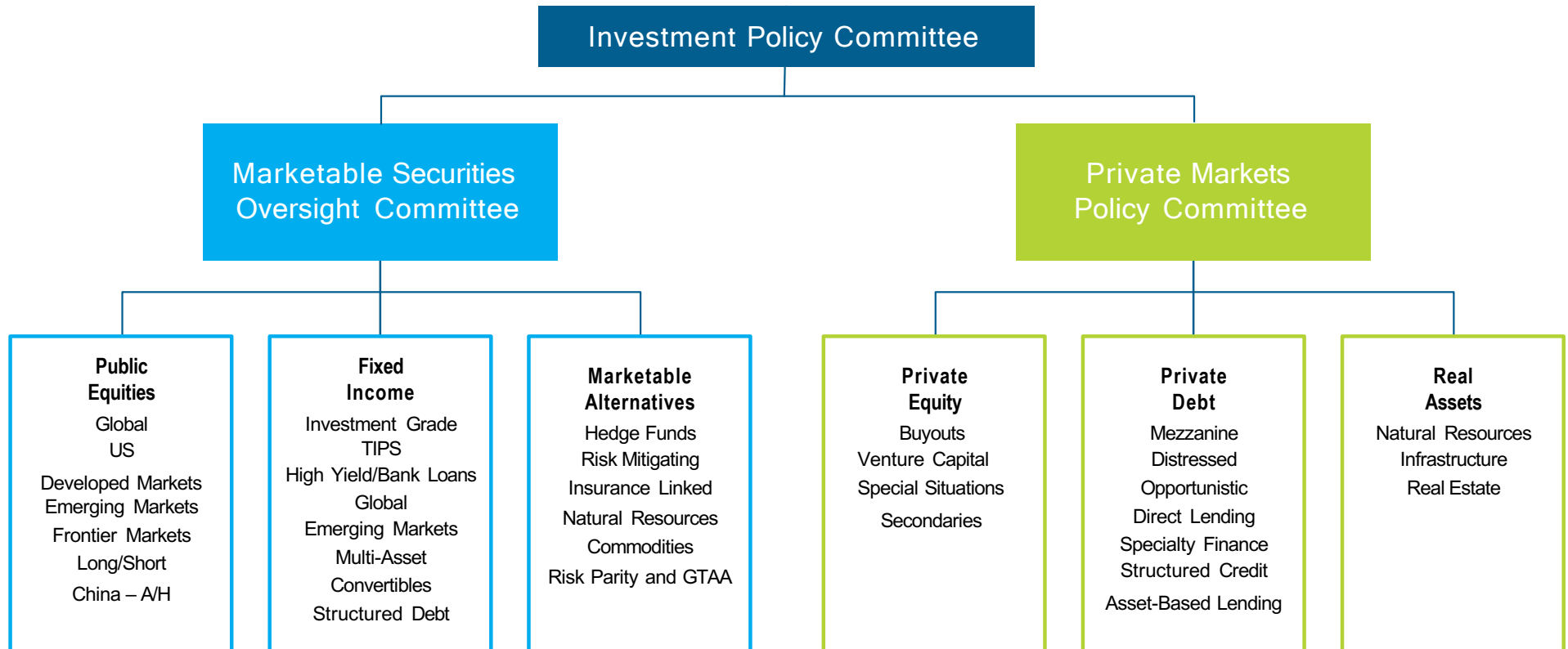
## Report Production

With all information produced, our Client Service Associates work to combine all materials into concise report packages for easy consumption.

The Reporting Process



# Broad Manager Research Coverage



## Investment Committee Structure

- We maintain dedicated resources across public and private markets asset classes.
- Our due diligence teams report to the firm’s Marketable Securities Oversight and Private Markets Policy Committees.
- Investment Committee structure draws on the expertise of the firm’s senior professionals.

# Manager Evaluation, Selection, and Monitoring

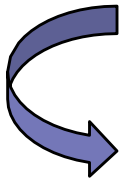
## Initial Analysis

### Idea Sourcing:

- Industry networks
- Clients
- Database screening
- 3<sup>rd</sup> party capital introduction

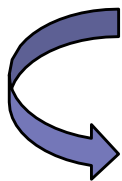
### Funneling:

- Quantitative screen
- Qualitative screen
- Peer group analysis



## Extensive Due Diligence

- Recommendation vetted by respective asset class heads
- Secondary review conducted by broader Public Markets Research Team



## Final Review by Marketable Securities Oversight Committee

- Committee members review for suitability by client type
- Determine respective search list to add



## On-going Monitoring

- Quarterly communication for long-only strategies via DiligenceVault
- Annual meeting for highly rated and/or high exposure strategies

# Private Markets Manager Research Team



John Haggerty, CFA  
Director of Private Markets

## Private Equity



Steven Hartt, CAIA  
Private Markets  
Consultant



Tad Fergusson, CFA  
Private Markets  
Consultant



John Haggerty, CFA  
Director of  
Private Markets



Ethan Samson, JD  
Private Markets  
Consultant



Luke Riela, CFA  
Macro Research  
& Data Analytics



John McCarthy  
Private Markets  
Analyst



Michael Pellatz, CAIA  
Private Markets  
Analyst



Cristen Xhama, CFA  
Private Markets  
Analyst



Judy Chambers  
Private Markets  
Consultant



Molly LeStage  
Private Markets  
Consultant



Jess Downer, CFA  
Private Markets  
Consultant



Jed Constantino, CAIA  
Sr. Private Markets  
Analyst



Bradley Dumais  
Private Markets  
Analyst



Harrison Page  
Private Markets  
Analyst



Balaj Singh, CFA, CAIA  
Private Markets  
Analyst

## Private Debt



Mary Bates  
Private Markets  
Consultant



Maya Ortiz de Montellano, CFA  
Private Markets  
Consultant



Jed Constantino, CAIA  
Sr. Private Markets  
Analyst



John Haggerty, CFA  
Director of  
Private Markets



Tad Fergusson, CFA  
Private Markets  
Consultant



Luke Riela, CFA  
Macro Research  
& Data Analytics



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Chris Andrulis  
Real Estate  
Analyst



Abigail Fischer  
Real Estate  
Analyst



Paige Junker  
Sr. Performance  
Analyst

## Additional Resources

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

As of September 2023.

# Diversity, Equity, and Inclusion

We deeply believe that diversity across many different attributes drives better outcomes for all of us, especially our clients.

We use a mosaic of committees to integrate DEI practices into all aspects of our business model and investment processes.



## Organizational Initiatives

- Diverse representation on all internal committees
- Employee inclusivity training
- Formal networking and mentoring programs
- DEI learning library
- Hiring practices and diversity-focused internship program



## Community Outreach

- Support of women, veteran, and diverse-owned businesses
- Support of organizations that promote social justice and/or underserved communities
- Employee volunteerism and charitable giving



## Industry Involvement

- Semi-annual Emerging & Diverse Manager Research Day
- Evaluate investment management firms' DEI efforts, including benchmarking
- Annually publish results of DEI Questionnaire
- Active participation in organizations seeking to improve DEI in institutional investment

57%

total employees are female or racially diverse<sup>1</sup>

51%

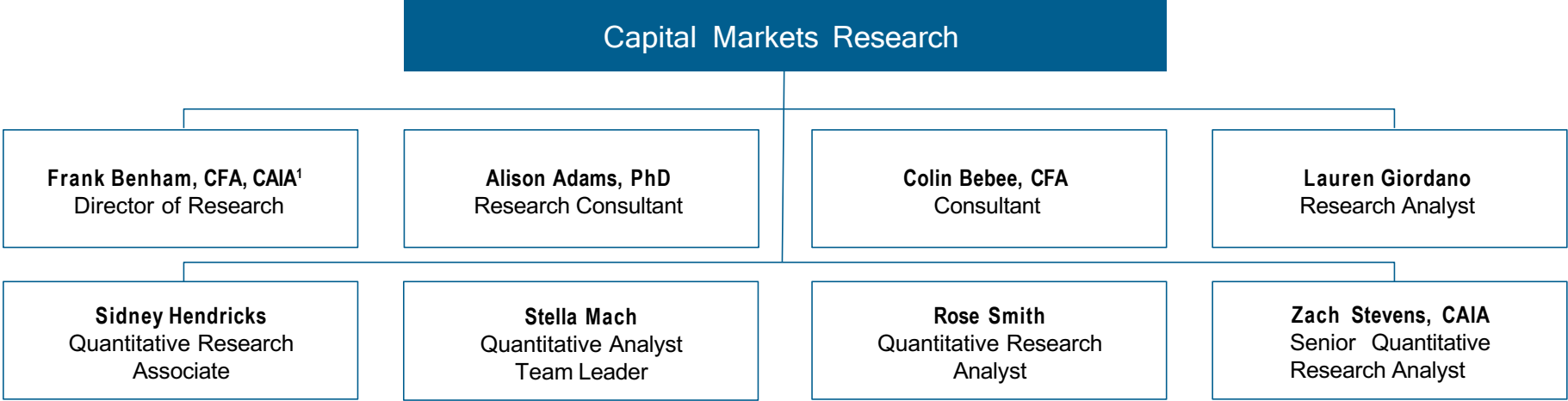
investment professionals are female or racially diverse<sup>1</sup>

46%

firm shareholders are female or racially diverse<sup>1</sup>

<sup>1</sup> As of June 30, 2023.

# Capital Markets Research Team



<sup>1</sup> Mr. Benham serves as Chairman of the Investment Policy Committee and the Strategic Asset Allocation/Risk Management Committee.

# The Mosaic Approach

- The real world risks and objectives faced by investors are complex and often conflicting.
  - These cannot be summarized in a single statistic.
  - Rather, we use a variety of tools to build a more complete picture.
- Our staff has access to the best tools used in the industry, and specialized, proprietary tools developed by our internal team.

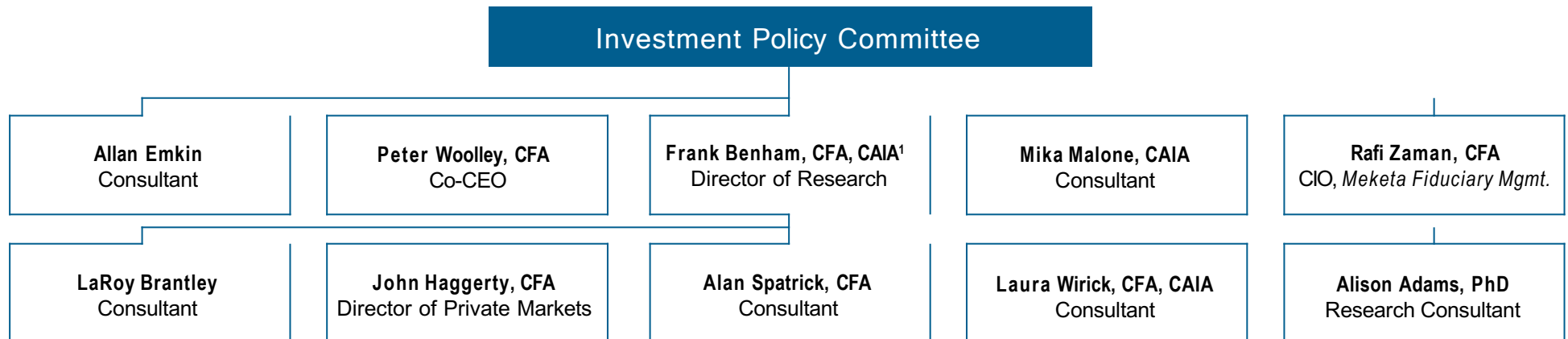
Mean-Variance Optimization	Tracking Error vs. Peers
Risk Budgeting	Historical Scenario Analysis
Alpha Assumptions	Factor Stress Tests
Sequence of Returns Impact	Liquidity Stress Tests
Big Data Simulations	Economic Regime Analysis
High Dimension Optimization	Simulation-Based Optimization

- This approach provides a better understanding of how the plan might behave.



# Generating and Vetting Research Ideas

- Ideas come from many different places:
  - Internally, academia, clients, and money managers
- We have a team of 8 professionals who focus on Capital Markets Research.
- We also work with the resources of the broader firm.
  - In the past 12 months, more than fifty of our investment professionals have contributed to white papers, research notes, or newsletters.
- We use a committee structure to ensure our research represents the best thinking of the firm.
  - This includes our Strategic Asset Allocation / Risk Management Committee, Global Macroeconomic Investment Committee, and our Investment Policy Committee.



<sup>1</sup> Mr. Benham serves as Chairman of the Investment Policy Committee and the Strategic Asset Allocation/Risk Management Committee.

# Strategic Asset Allocation and Risk Management

**Our Strategic Asset Allocation / Risk Management Committee works with our Investment Policy Committee to:**

- Develop firm-wide policy on strategic asset allocation.
- Develop return, risk, and correlation forecasts for asset classes.
- Develop and update model portfolios.
- Oversee publication and update of all white papers.
- Research and determine appropriate risk management strategies for clients.



# Current Research Topics

→ Our research covers a broad array of topics:

Recently Published
Understanding China, Part III
Debt & The Debt Ceiling - Part I
RMS Framework
Functional Asset Classes
Total Fund Benchmarking
Alternative Risk Premia
Climate Scenario Frameworks
Carbon capture, utilization, and storage
Currency Hedging
GP-led secondaries
Five Indicators We Are Watching in the Labor Market

In the Pipeline
Deglobalization
Private Credit
How will we know if we are in a recession
Trend-following Strategies
GP Stakes Strategies
Impact of the "inflation reduction act"
The current landscape in office space
Climate, Carbon Offsets, & Carbon Credits
Retirement Income
Liability Driven Investing
The Debt Ceiling - Part II: the Impact of debt on growth

# Contact Information



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