

AGENDA

A REGULAR MEETING OF THE PORTFOLIO RISK COMMITTEE

AND THE BOARD OF INVESTMENTS*

LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION

300 N. LAKE AVENUE, SUITE 810, PASADENA, CALIFORNIA 91101

8:00 A.M., WEDNESDAY, AUGUST 8, 2018**

*The Committee may take action on any item on the agenda,
and agenda items may be taken out of order.*

- I. CALL TO ORDER
- II. APPROVAL OF THE MINUTES
 - A. Approval of the Minutes of the Regular Meeting of May 9, 2018.
- III. PUBLIC COMMENT
- IV. REPORTS
 - A. Introduction to Risk Budgeting
Andy Sparks, Managing Director, MSCI
(Presentation dated August 8, 2018)
 - B. Investment-Related Services Procurement Process Update.
John McClelland, Principal Investment Officer – Real Estate
(Memo July 24, 2018)
- V. REPORT ON STAFF ACTION ITEMS

August 8, 2018

Page 2

VI. GOOD OF THE ORDER
(For Information Purposes Only)

VII. ADJOURNMENT

*The Board of Investments has adopted a policy permitting any member of the Board to attend a standing committee meeting open to the public. Members of the Board of Investments who are not members of the Committee may attend and participate in a meeting of a Committee but may not vote, make a motion, or second on any matter discussed at the meeting. The only action the Committee may take at the meeting is approval of a recommendation to take further action at a subsequent meeting of the Board.

**Although the meeting is scheduled for 8:00 a.m., it can start anytime thereafter, depending on the length of the Board of Investment meeting preceding it. Please be on call.

Documents subject to public disclosure that relate to an agenda item for an open session of the Board of Investments that are distributed to members of the Board of Investments less than 72 hours prior to the meeting will be available for public inspection at the time they are distributed to a majority of the Board of Investments Members at LACERA's offices at 300 N. Lake Avenue, Suite 820, Pasadena, CA 91101, during normal business hours of 9:00 a.m. to 5:00 p.m. Monday through Friday.

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MINUTES OF THE REGULAR MEETING OF THE PORTFOLIO RISK
COMMITTEE AND THE BOARD OF INVESTMENTS
LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION
300 N. LAKE AVENUE, SUITE 810, PASADENA, CA 91101

WEDNESDAY, MAY 9, 2018

PRESENT: David Muir, Vice Chair

Wayne Moore

Ronald Okum, Alternate

ABSENT: Joseph Kelly

Shawn Kehoe

MEMBERS AT LARGE: Herman Santos

David Green

Keith Knox

Gina Sanchez

STAFF, ADVISORS, PARTICIPANTS

Jonathan Grabel, Chief Investment Officer

Ted Wright, Principal Investment Officer

Esmeralda Del Bosque, Investment Officer

Meketa Investment Group

Leo Festino, Managing Principal

Tim Filla, Vice President

I. CALL TO ORDER

The Meeting was called to order by Vice Chair Muir, at approximately

May 9, 2018

Page 2

1:12 p.m., in the Board Room of Gateway Plaza. Due to the absence of Messrs. Kelly, and Kehoe, the Vice-Chair Muir announced that Mr. Okum, as alternate, would be a voting member of the Committee.

II. APPROVAL OF MINUTES

A. Approval of the Minutes of the Special Meeting of March 5, 2017.

Mr. Moore made a motion, seconded by Mr. Okum, to approve the Minutes of the Special Meeting of March 5, 2018. The motion carried by unanimous vote.

III. PUBLIC COMMENT

There were no requests from the public to speak.

IV. REPORTS

A. Public Market Search Process

Vache Mahseredjian, Principal Investment Officer – Fixed Income
Ted Wright, Principal Investment Officer – Global Equity
Esmeralda Del Bosque, Investment Officer – Fixed Income
(Memo dated April 27, 2018)

Messrs. Mahseredjian, Wright and Ms. Bosque were present and answered questions from the Committee.

V. REPORT ON STAFF ACTION ITEMS

There were no items to report.

VI. GOOD OF THE ORDER

(For information purposes only)

A brief discussion was held on technology direction and various related issues.

May 9, 2018

Page 3

VII. ADJOURNMENT

There being no further business to come before the Committee, the meeting was adjourned at 1:45 p.m.

July 26, 2018

TO: Each Member
Board of Investments

FROM: Jude Pérez 
Principal Investment Officer

FOR: August 8, 2018 Portfolio Risk Committee

SUBJECT: **INTRODUCTION TO RISK BUDGETING**

A presentation from MSCI that introduces risk budgeting is attached. The topic was addressed during the July 10, 2018 Board of Investments Offsite. The concept of risk budgeting is the practice of allocating the total risk of the Fund that the Board is willing to incur to generate returns. Risk budgeting can improve the investment process by enforcing discipline, eliminating unintended or disproportionate bets, and balancing the risk and return of each investment decision.

The presentation will be given by Andy Sparks, Managing Director and Head of Portfolio Management Research for MSCI. Mr. Sparks's biography is attached to this cover memo



Andy Sparks

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**MANAGING DIRECTOR, HEAD OF
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RESEARCH**

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Andy Sparks is Managing Director and Head of Portfolio Management Research. Previously, he was responsible for Fixed income Research Strategies. Andy and his group show how MSCI's analytical models can be used to offer investment insights on topical market issues. In this role, he is able to leverage his extensive knowledge of valuation models, indexes and portfolio risk methodologies. Previously, Mr. Sparks had been Head of Technical Product Management, with responsibility for product vision and leadership in the buildout of MSCI's multi-asset portfolio analytic products.

Prior to joining MSCI in 2011, Mr. Sparks had been Head of Product Management for the POINT business at Barclays Capital, where he had responsibility for product strategy and product execution for the POINT portfolio analytics platform. Mr. Sparks was named the Head of the POINT marketing group at Lehman Brothers in 2004. He also had managerial responsibility for Lehman's index business between 2006-2008.

Mr. Sparks joined Lehman Brothers in 1995. Other senior level positions he held within the bank include Head of Mortgage Strategies and Head of U.S. Rate Strategies. In this role, Mr. Sparks and his group were repeatedly named to Institutional Investor's All-America Fixed Income Research Team. Before joining Lehman, Mr. Sparks had been Head of Mortgage and Rates Research at Citicorp Securities.

Mr. Sparks has an M.A. in Economics from the University of Chicago and a B.A. in Economics from UCLA.



RISK BUDGETING FOR PENSION PLANS

MSCI

August 2018

Andy Sparks | andy.sparks@msci.com

Bryan Murphy, CFA | bryan.p.murphy@msci.com

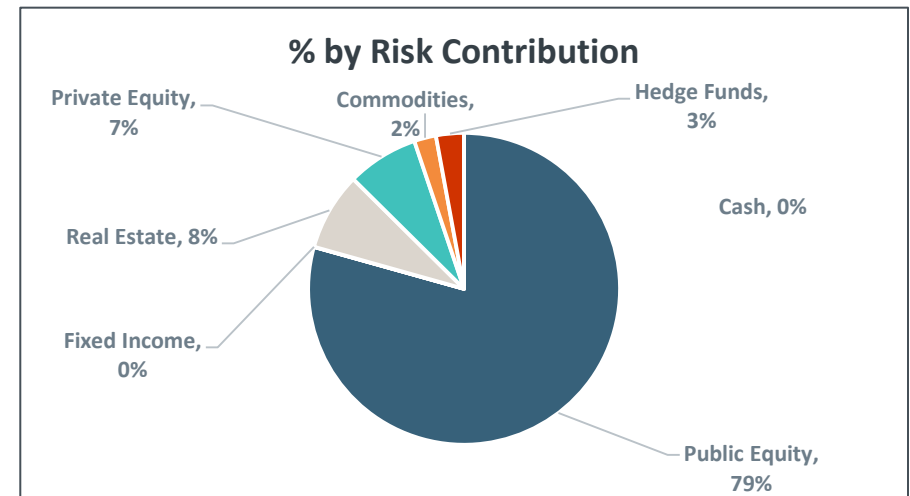
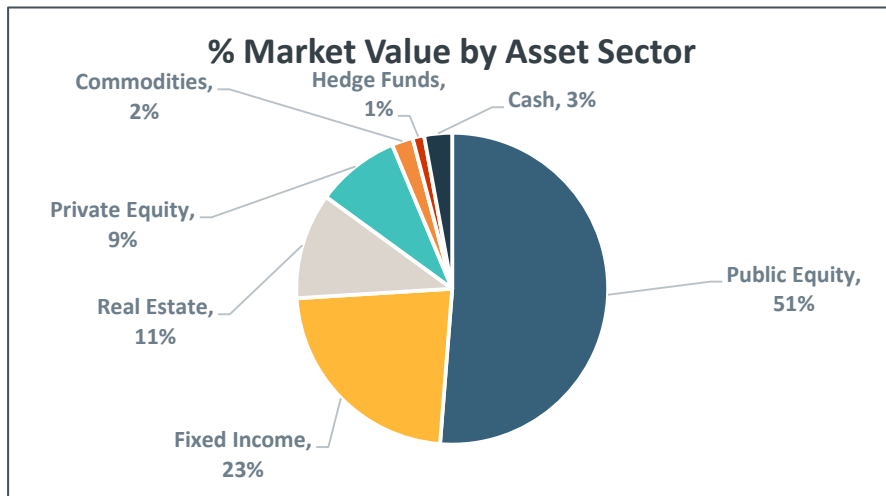
THE IMPORTANCE OF RISK BUDGETING

- Risk Budgeting helps pension plans control their risk / return profiles by incorporating risk tolerance into the asset allocation process¹
- A Risk Budgeting framework improves the investment process by:
 - creating a culture of risk awareness
 - fostering a common dialogue
 - enforcing discipline
 - eliminating unintended or disproportionate bets
 - balancing the ex-ante risk and return across sectors and factors
 - providing a better metric for evaluating management fees based on ability to deliver investment returns according to source of investment risk

¹ For additional reading, see Mina, J. (2005). "Risk Budgeting for Pension Plans." MSCI Client Support Site.

RISK BUDGETING EXAMPLE

- By market value weight, the portfolio's two largest exposures are public equities (51%) and fixed income (23%)
- By contribution to portfolio risk, public equities comprise the significant majority of risk (79%), followed by real estate (8%) and private equity (7%)
 - The volatility of equity returns is much greater than fixed income
 - Fixed income returns are negatively correlated with equities and so fixed income serves as a risk diversifier

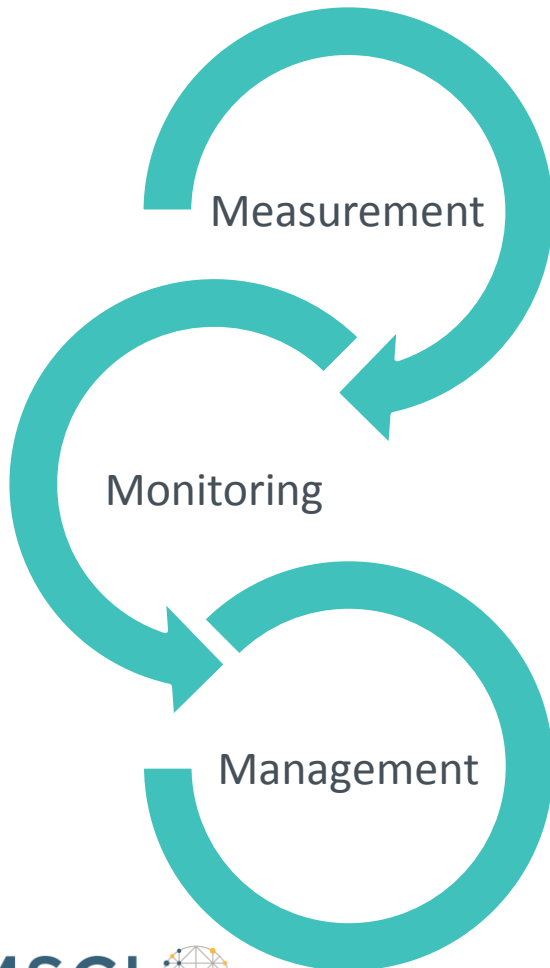


“YOU CAN’T MANAGE WHAT YOU CAN’T
MEASURE”

- Peter Drucker

THREE PILLARS OF RISK MANAGEMENT

- Risk Budgeting is the third phase of a robust risk management implementation



DEFINING & MEASURING RISK

- *Input:* Return requirements, horizon, complexity of instruments
 - Normal vs. extreme events
 - Absolute vs. relative
- *Output:* Risk Policy Statement including risk metric
 - Commonly used risk measures: volatilities, Value at Risk (VaR), portfolio stress tests

RISK MONITORING

- Requires IT and infrastructure resources
- Dashboards & “traffic light” reports
- Escalation procedures

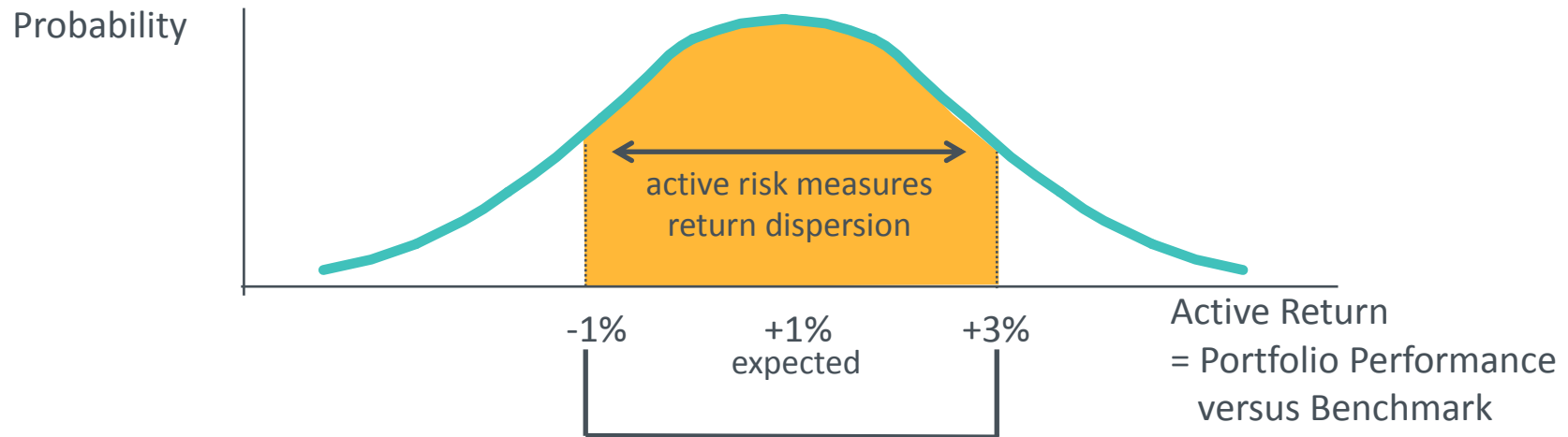
RISK ADJUSTED INVESTMENT MANAGEMENT

- Risk Budgeting
- Rebalancing

RISK MEASURES: EXAMPLE

- **Total Risk:** Forecasted volatility of portfolio returns
- **Active Risk:** Forecasted volatility of return difference (portfolio vs benchmark)
- MSCI uses advanced techniques to model volatility
 - Volatility forecasts more statistically reliable than expected return forecasts

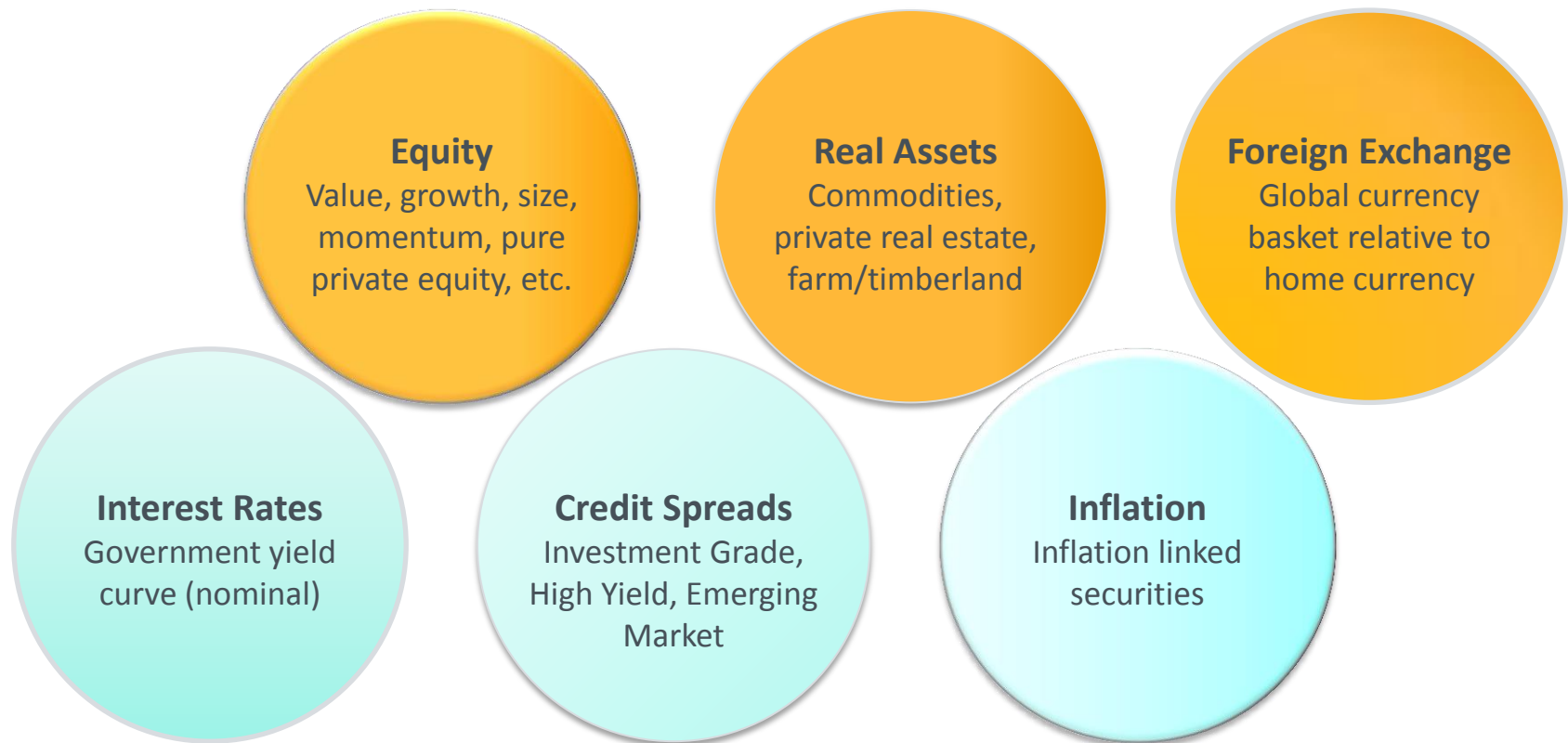
2% active risk with 1% expected active return (outperformance)



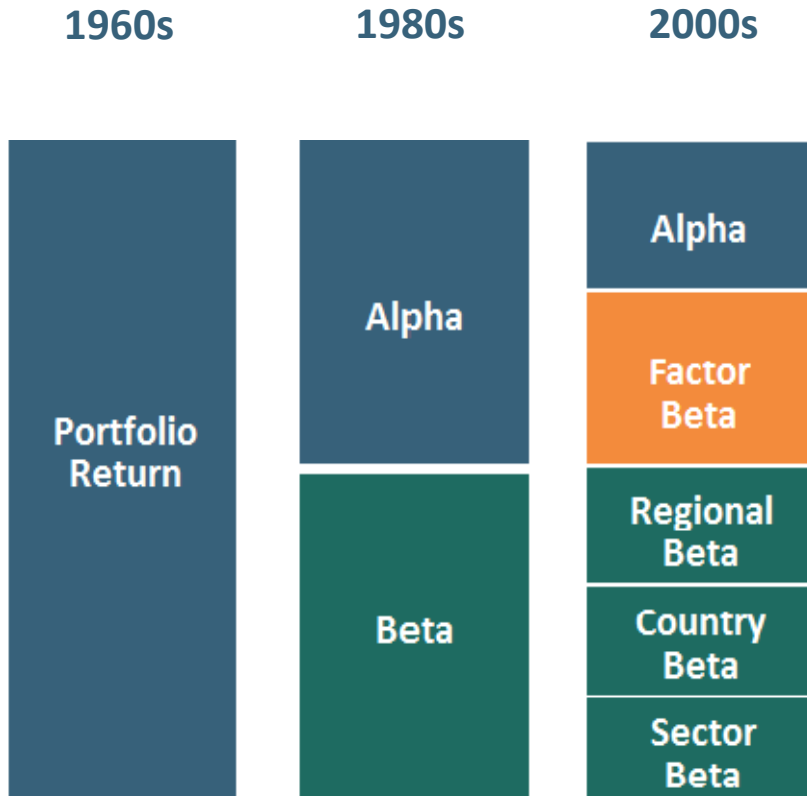
Most likely outcomes are plus or minus 2% of expected active return

FACTORS DRIVING INVESTMENT RETURNS

- A large body of research highlights that long term portfolio performance can be explained by factors²



PORTFOLIO MANAGEMENT: SEPARATING ALPHA FROM BETA



- **Asset Allocation**
 - Empirical evidence suggests that asset allocation and beta are the most important determinants of investment performance
- **Manager selection/evaluation**
 - How much of the manager's performance is alpha and how much is simply factor beta that can be replicated at lower cost?
 - Are my managers investing in offsetting strategies?

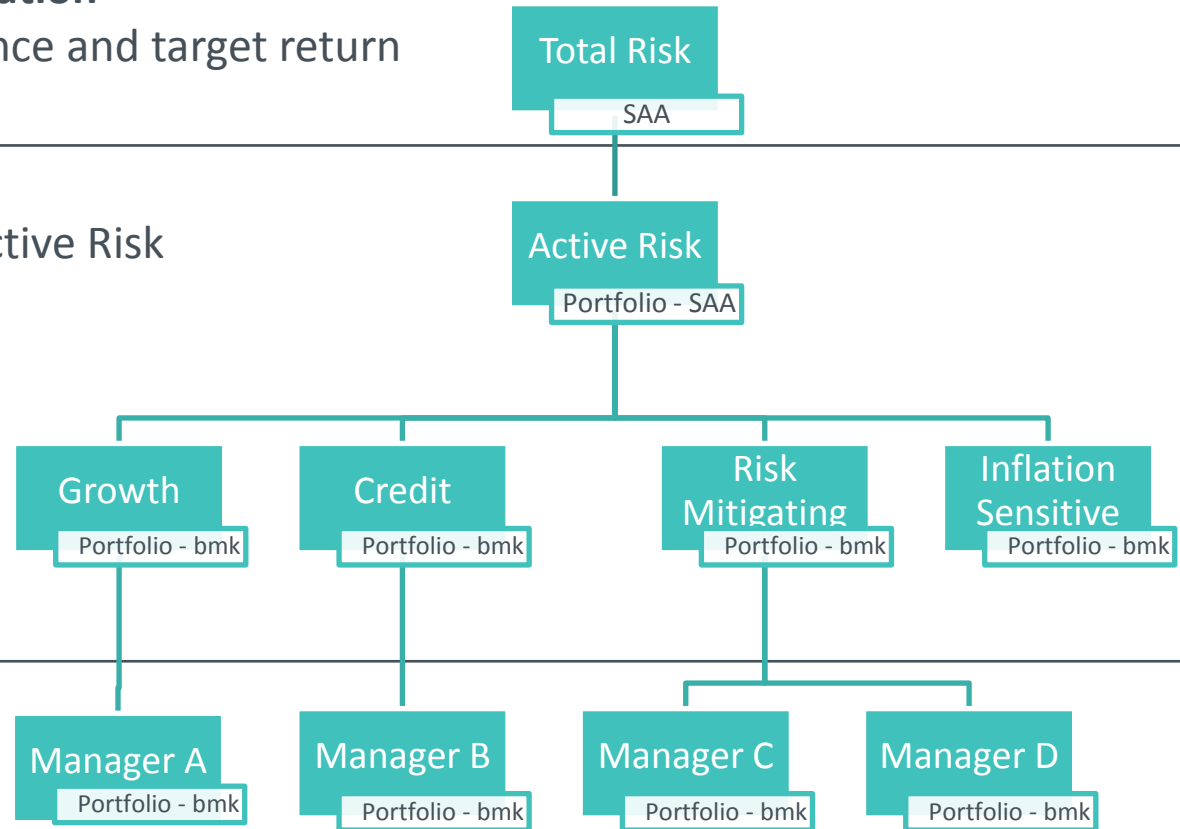
INVESTMENT DECISION LAYERS FOR PENSION PLANS

Total Plan: Strategic Asset Allocation

- Tradeoff between risk tolerance and target return

Tactical Asset Allocation

- Active Risk & Allocation of Active Risk



Manager Selection

- Active vs. Passive
- Alpha vs. Beta
- Beta (factor) selection

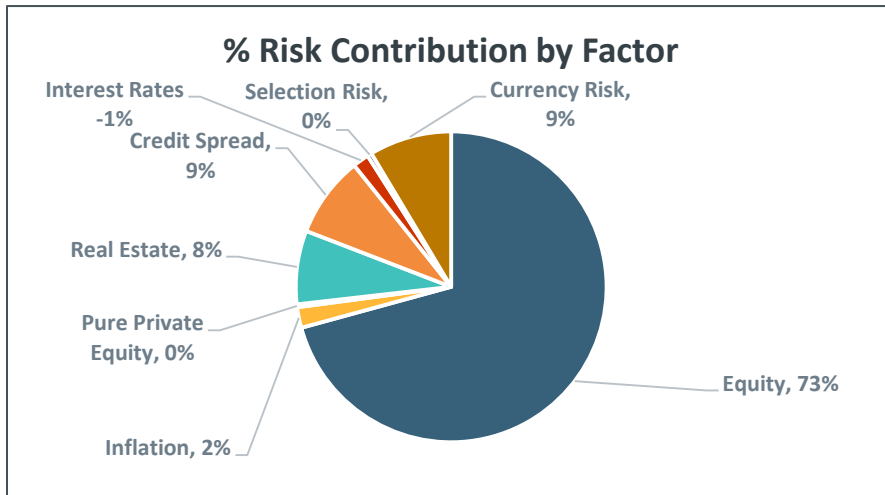
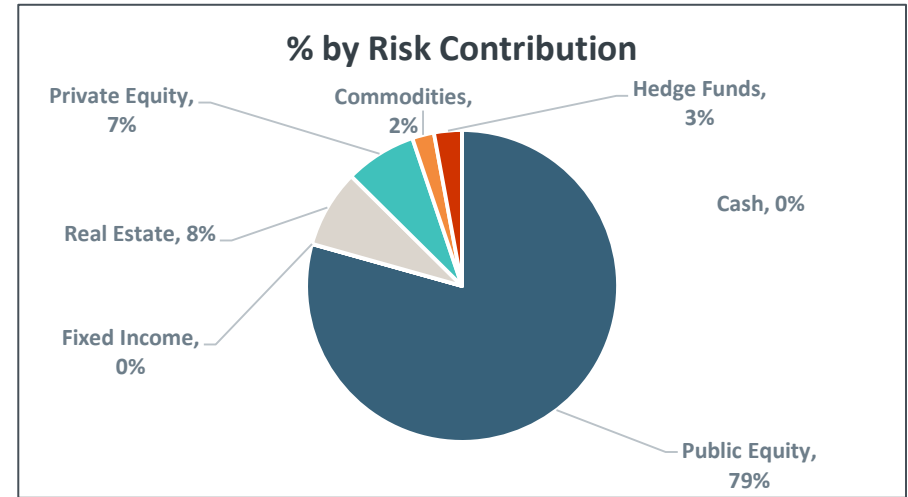
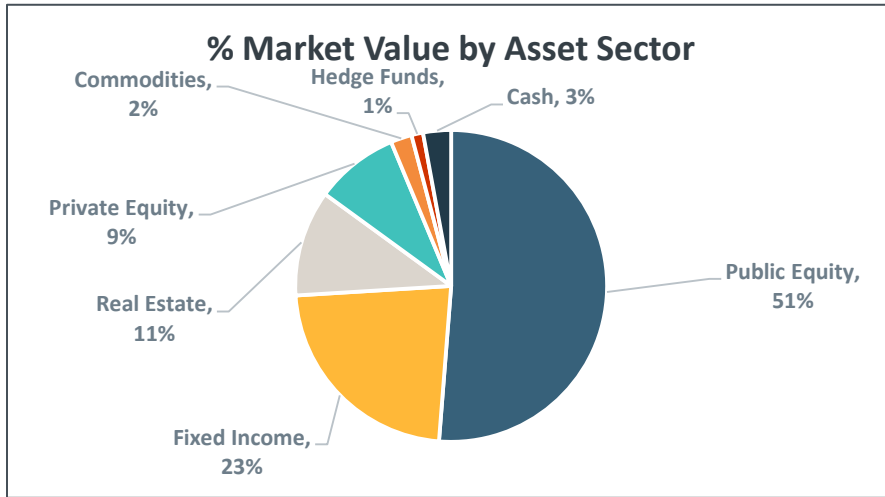
CASE STUDY

- i. **Total Plan Risk Factor Analysis:** Asset Class Weights vs. Risk Weights
- ii. **Tactical Asset Allocation & Overlays:** Allocation-Selection Risk Attribution
- iii. **Asset Class Level:** Risk & Performance Factor Attribution

QUESTIONS

1. Are the sectors with the largest contributions to ex-ante risk the same as those with the highest expected returns?
2. Will future active returns be driven by tactical investment decisions the Plan controls or from investment manager performance?
3. Risk Budget vs. Expense Budget vs. Resource Budget:
 - Are the sectors with the highest portfolio management costs (internal and external) also the sectors contributing the most to portfolio risk?
4. Are managers generating active returns from systematic tilts on factors or through alpha (factor timing and/or pure uncorrelated alpha)?
5. Are the sectors contributing the most to ex-ante risk also generating the largest contributions to ex-post returns?
6. Is the Plan being rewarded adequately for the risk it bears?

1) TOTAL PLAN RISK & FACTOR ATTRIBUTION



- Factor risk contribution highlights large contribution from currency
- Contribution from the interest rate factor is negative as returns on government bonds tend to rise as equity returns fall

2) ACTIVE RISK: ALLOCATION-SELECTION ATTRIBUTION

- Total Plan analysis using solely passive portfolios shows 26bps of Active Risk coming from active over/underweights relative to the policy benchmark

Tactical Asset
Allocation



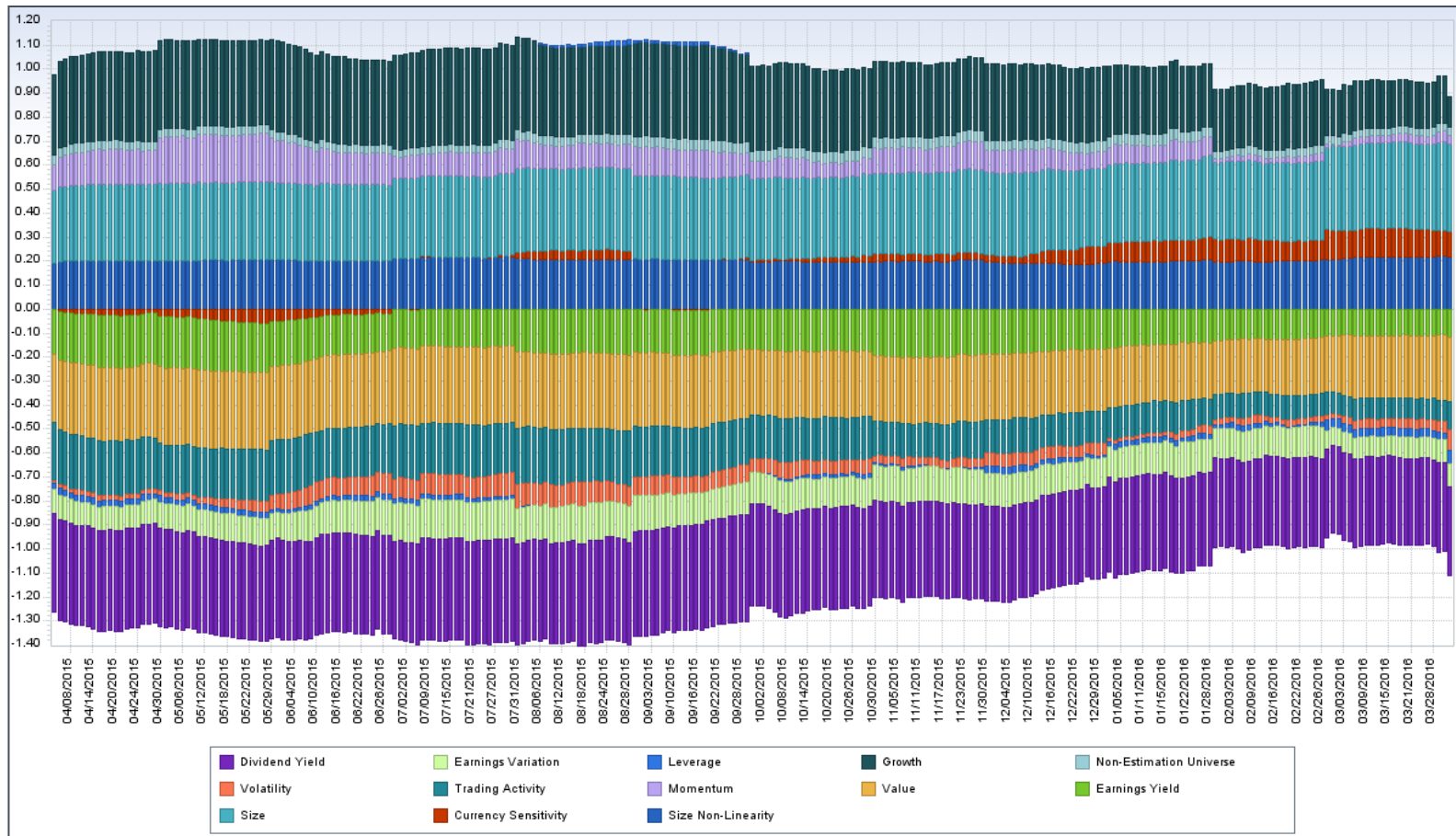
Manager
Selection



Group	Weight(%)	Benchmark Weight(%)	Active Weight(%)	Allocation Risk Contribution	Selection Risk Contribution	Total Contribution
Cash	2.90%	2.00%	0.90%	-0.05	0.00	-0.05
Commodities	2.20%	3.00%	-0.80%	-0.12	0.00	-0.12
Fixed Income	22.78%	23.00%	-0.22%	-0.37	0.00	-0.37
Hedge Funds	1.20%	2.00%	-0.80%	-0.02	0.00	-0.02
Non-U.S. Equity	24.58%	24.00%	0.58%	0.40	0.00	0.40
Private Equity	8.69%	11.00%	-2.31%	-0.53	0.00	-0.53
Real Estate	10.99%	10.00%	0.99%	0.19	0.00	0.19
U.S. Equity	26.67%	25.00%	1.67%	0.76	0.00	0.76
Active Total Risk	100.00%	100.00%	0.00%	0.26	0.00	0.26

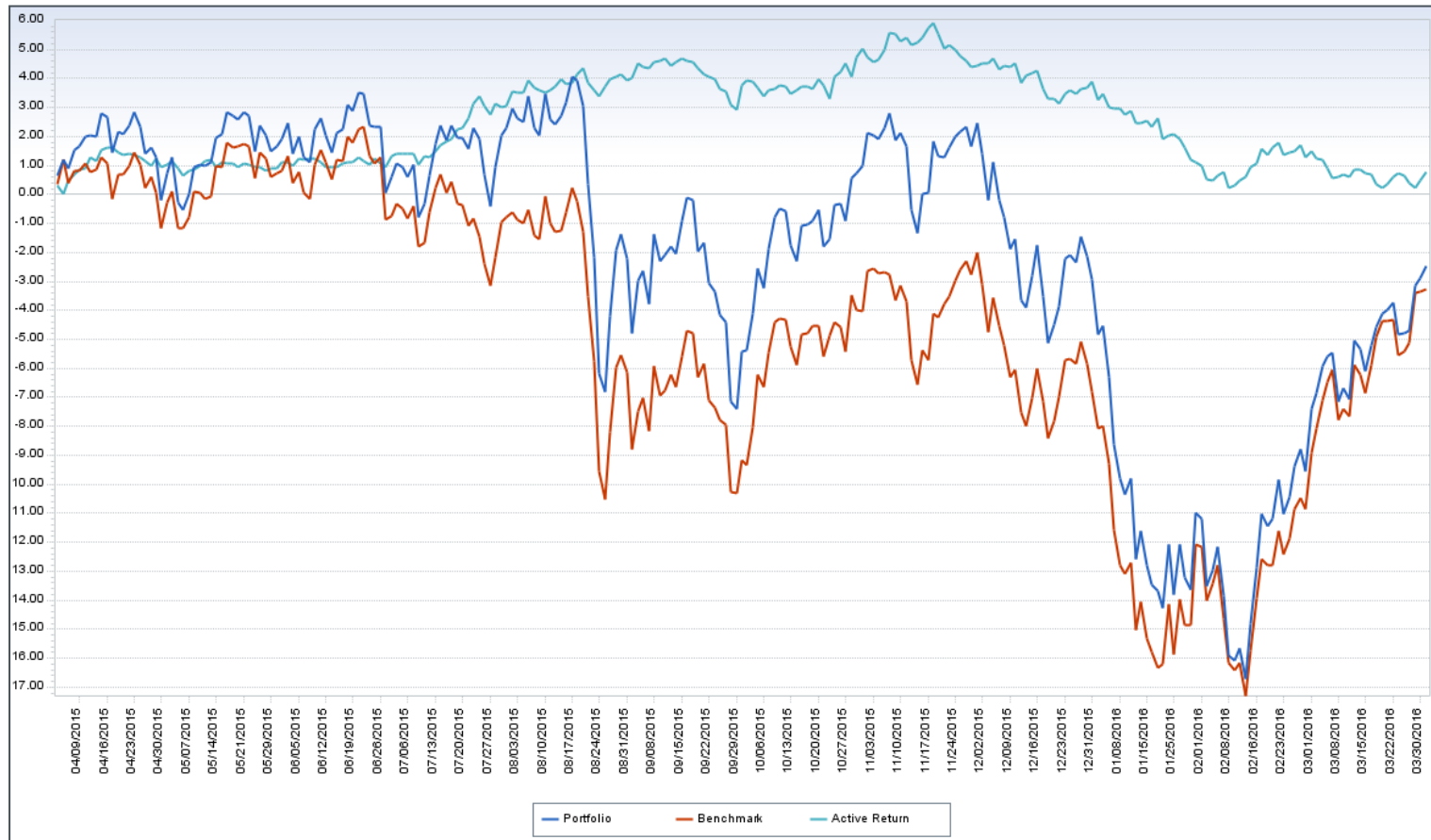
3) MANAGER RISK ALLOCATION: ACTIVE EXPOSURES

Scenario: Portfolio manager believes that growth and momentum stocks will outperform and so constructs the portfolio to tilt toward those factors



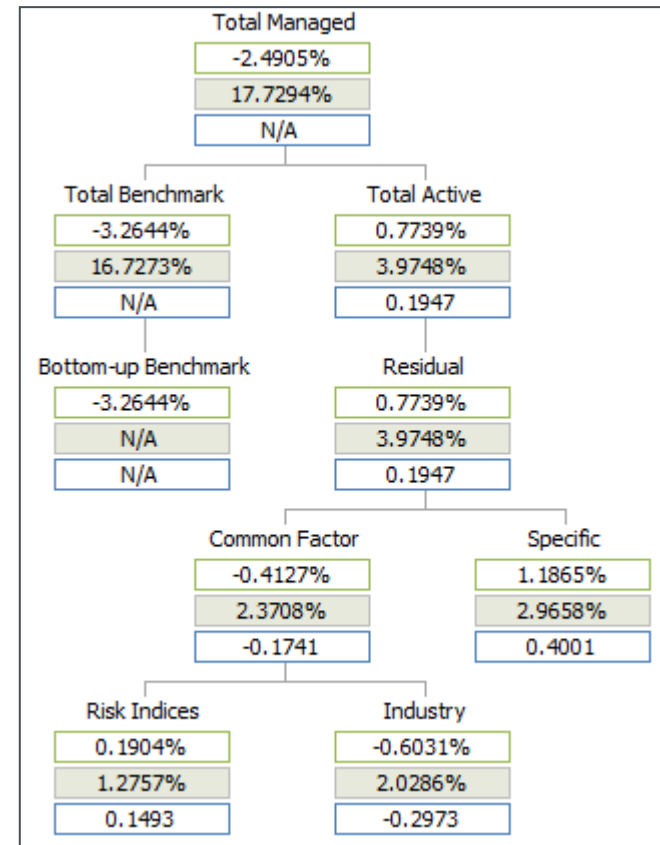
3) PORTFOLIO ALLOCATION: ACTIVE RETURN

Although the Total Return for the portfolio was negative, the Active Return was positive



3) PORTFOLIO ANALYSIS: FACTOR BASED PERFORMANCE

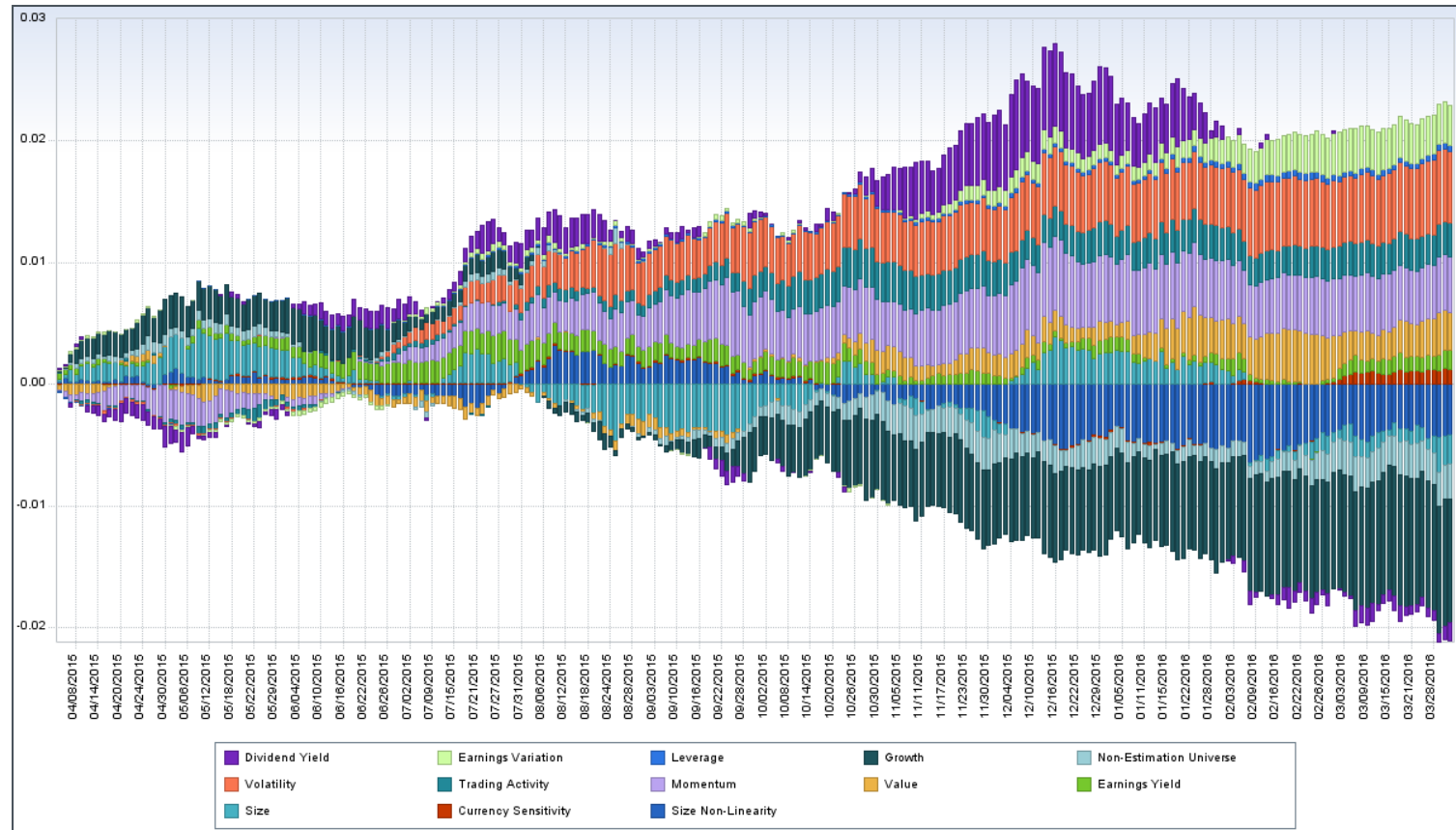
- 77bps of Active Return
- Active Return was largely driven by non-systematic sources (common factor) of risk
- Stock Selection (specific) was the largest contributor to active return



[Full Time-span] [Cumulative] [Net] Return
[Full Time-span] [Cumulative] [Net] Risk
[Full Time-span] [Cumulative] [Net] Information Ratio

3) ACTIVE RETURN: FACTOR BASED PERFORMANCE

The tilt toward momentum helped the portfolio's return but the overweight to the growth factor detracted. The portfolio's outperformance resulted from unintended factor exposures incidental to the manager's strategy.



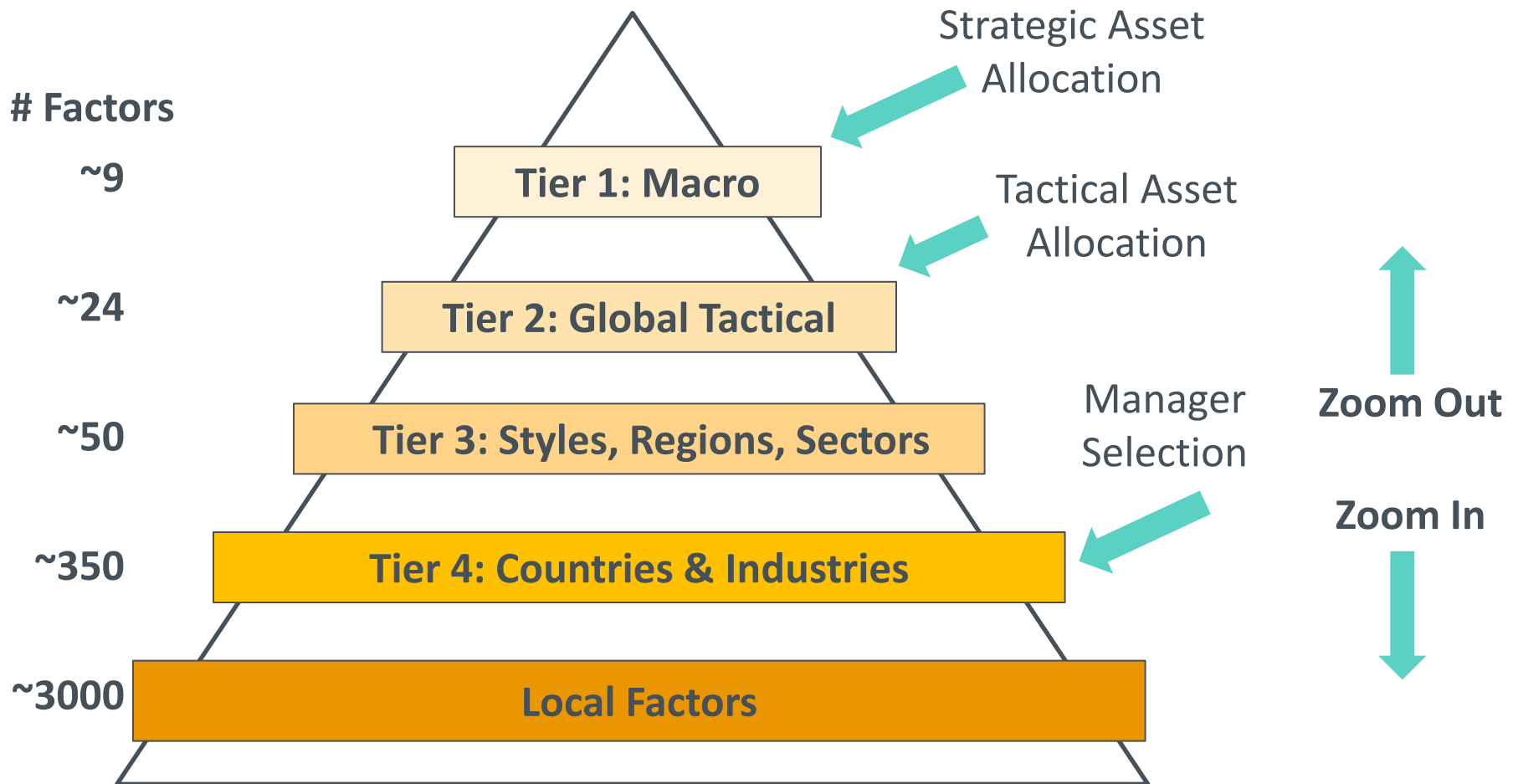
PREREQUISITE TOOLS

- **Factor based risk model** to better understand the sources of risk affecting performance over mid and long horizons
- **High Quality Analytics** to attribute both ex-ante risk & ex-post performance decisions
- **Flexible Software** to accommodate different teams with different needs
- **Portfolio Positions** for organizational consistency & security analytics
- **Market Data & Sec Master** to enrich portfolio positions
- **Operational Service Provider** to collect and manage portfolio data as an independent team separate from portfolio management group
- **Established Risk Governance Policy** developed internally or in partnership with both an 1) independent third party risk advisor and 2) a fintech data & analytics provider

MSCI INTEGRATED MODEL

FACTORS AT DIFFERENT ALTITUDES

Multiple factor tiers allow high and low level views of portfolio risk



CONCLUSION

CONCLUSION

- Risk budgeting incorporates investment risk into the asset allocation decision
- A successful risk budgeting process starts with defining portfolio risk and deciding the level of risk tolerance to be included in the Plan's Risk Policy Statement
- Tools will then be needed to measure and monitor portfolio risk on an ongoing basis
- Risk-adjusted investment management relies on the risk budget to ensure that the portfolio management process is aligned with expectations of risk and risk tolerance
- By extending greater discipline into the allocation process, risk budgeting helps better identify the risk / return tradeoff across sectors and managers and helps eliminate unintended or disproportionate bets

APPENDIX

- I. MSCI Overview
- II. Biographies
- III. References

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INDEXES

950+ ETFs based on MSCI indexes, more than any other index provider (as of March 31, 2017)¹

Over USD 11 Trillion in assets benchmarked to MSCI Indexes²

94% of US pension fund assets invested in global equities are benchmarked to MSCI³

190,000 Indexes calculated daily; 10,000+ in real time



ANALYTICS

Named by IIRRI "Best Sell-Side Market Risk" and "Best Buy-Side Risk Management"

MSCI Global Risk and Performance Engine runs up to 1 Trillion calcs/day

Broad and Deep Asset Coverage:
17+ Million client positions, 2 Million time series, 52 Global FI Markets, 1,300+ issuer curves as of March 2017



ESG RESEARCH*

World's largest provider of ESG data and research⁴

Recognized as a Deep Data Deliver Standard Gold Standard data provider⁴ (One of three firms globally)

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MSCI ANALYTICS LEADERSHIP

Many of the World's Largest Investors rely on MSCI



1750+
Analytics Clients

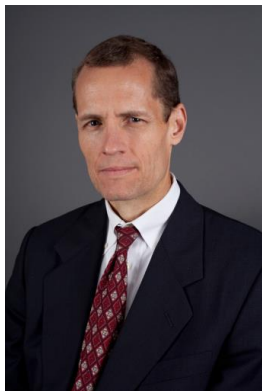
Asset Owners and Consultants	300+
Asset Management	650+
Banks & Others	500+
Hedge Funds	300+

1400+

People Globally Dedicated Fully or Partially to the Analytics Business

Product, Data and Technology	950+
Client Coverage	450+

BIOGRAPHY



Andy Sparks
NEW YORK

MANAGING DIRECTOR, HEAD OF PORTFOLIO MANAGEMENT RESEARCH

Andy Sparks is Managing Director and Head of Portfolio Management Research. Previously, he was responsible for Fixed income Research Strategies. Andy and his group show how MSCI's analytical models can be used to offer investment insights on topical market issues. In this role, he is able to leverage his extensive knowledge of valuation models, indexes and portfolio risk methodologies. Previously, Mr. Sparks had been Head of Technical Product Management, with responsibility for product vision and leadership in the buildout of MSCI's multi-asset portfolio analytic products.

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- Black, F. (1995). “Estimating expected returns.” *Financial Analysts Journal*, January/February: 168-171
- Briand, R. et al (2013). “Foundations of Factor Investing.” MSCI Client Support Site.
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July 24, 2018

TO: Each Member
Portfolio Risk Committee

FROM: John McClelland 
Principal Investment Officer-Real Estate

FOR: August 8, 2018 Portfolio Risk Committee Meeting

SUBJECT: **INVESTMENT-RELATED SERVICES PROCUREMENT PROCESS
UPDATE**

Staff has formed a working group to develop a formal Board-approved procedure that will describe how investment-related services will be procured on an on-going basis. A LACERA-wide Policy for Purchasing Goods and Services is being developed that covers all non-investment-related services.

Investment-related services include, but are not limited to, active managers, passive managers, consultants, independent fiduciaries, master custodians and appraisers. These services are commonly procured using some form of search, either an RFP (request for proposal) or RFI (request for information). On some occasions a sole-source process is utilized. Most frequently the selection of the service provider is completed by the Board. On limited occasions selection is made by staff.

The internal working group has been tasked with: Producing a written process, that will be approved by the Board, and articulates the specific process that the Investment Office will follow when procuring investment-related services. The purpose of this effort is to standardize and provide clear, rule-based guidance to all parties regarding the process that will be followed when investment-related services are procured. Doing so should result in a fair process that removes any procedural ambiguity while facilitating prudently expedited searches.

Some services do not lend themselves to selection using an RFP-like search. For example, private equity fund investments are identified and underwritten as they become available and when they fit a LACERA strategy. Such investments essentially bypass any RFP-like process and go immediately to evaluation, and if deemed appropriate, to the Board for an investment decision.

A Procurement Flow Diagram (**ATTACHMENT 1**) illustrates the various types of services that may be procured as well as the process and evaluation process that may be used. Several imminent procurement efforts are described using the flow diagram.

Each Member, Portfolio Risk Committee

July 24, 2018

Page 2 of 2

Staff anticipates presenting a draft Procurement Process to the Board or committee for discussion in Q4 2018.

Attachment

Noted and Reviewed:



Jonathan Grabel
Chief Investment Officer

JM/dr

Investment Office Procurement Processes

Portfolio Risk Committee

August 8, 2018

John McClelland – Principal Investment Officer

Jude Perez – Principal Investment Officer

Robert Santos – Investment Officer

Chad Timko – Investment Officer

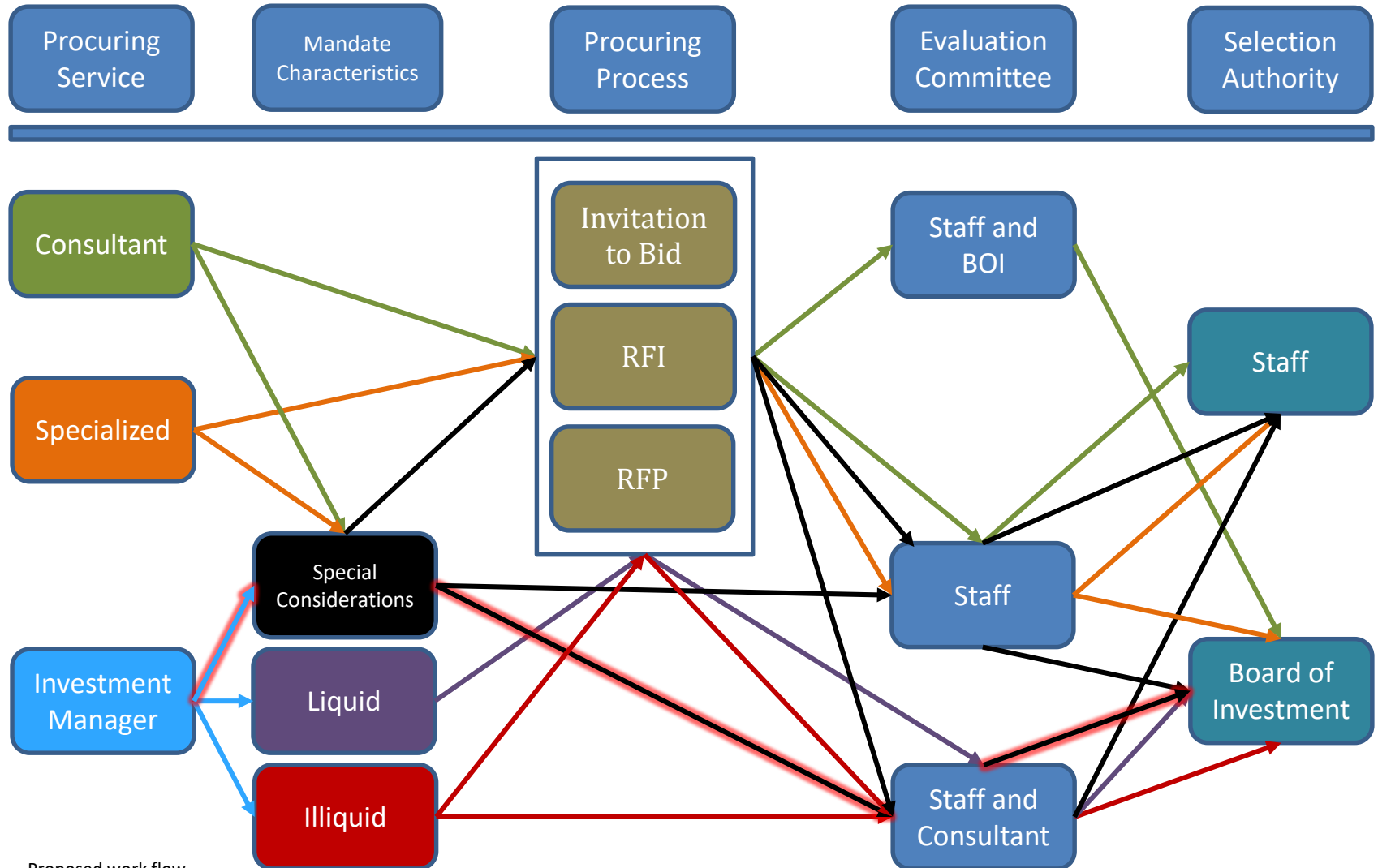
Calvin Chang – Senior Investment Analyst

John Harrington – Staff Counsel



LOS ANGELES COUNTY EMPLOYEES RETIREMENT ASSOCIATION

Procurement Work Flow Diagram

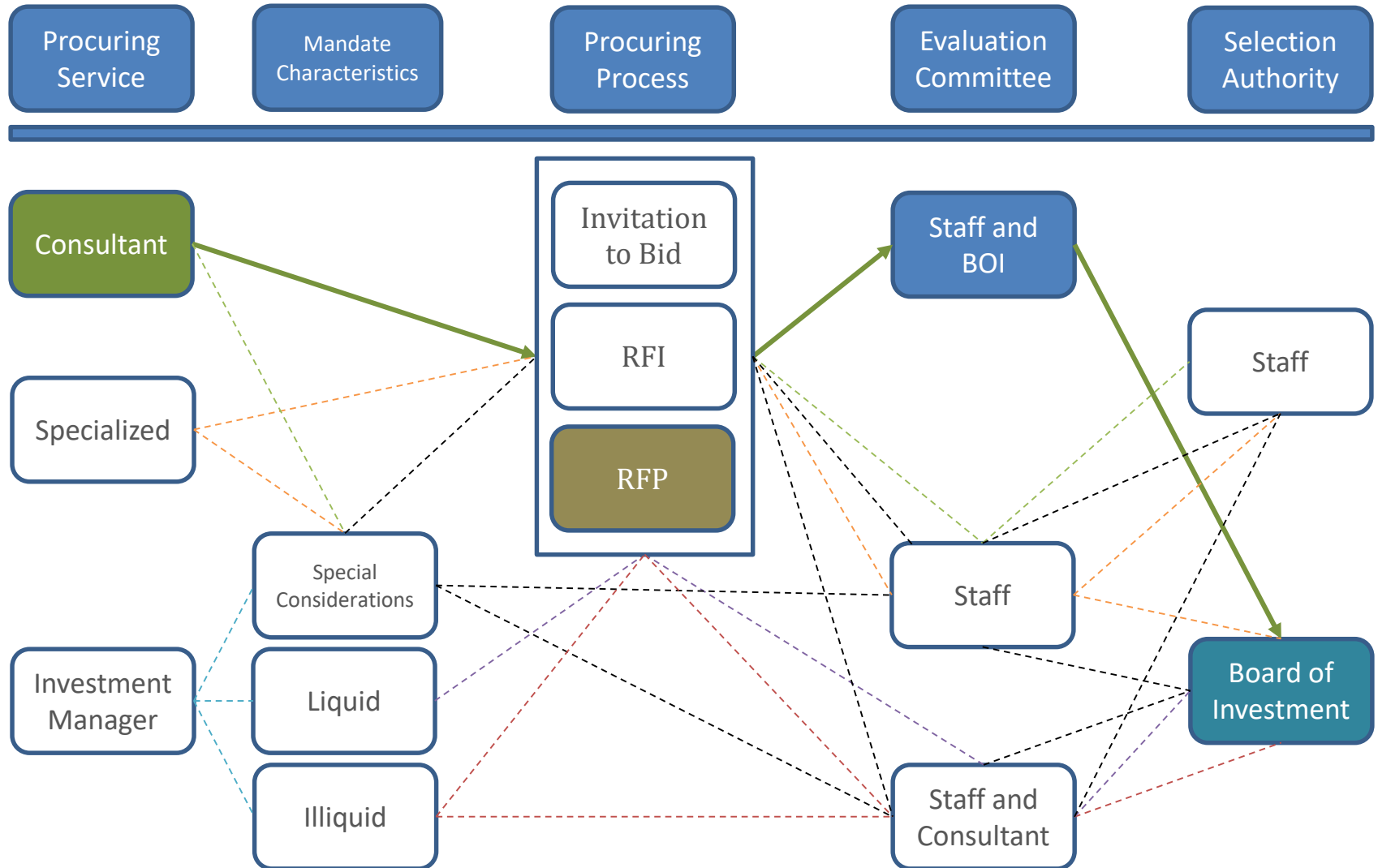


Proposed work flow



EXAMPLE: Real Assets/Illiquid Credit/Hedge

Funds Consultants Search

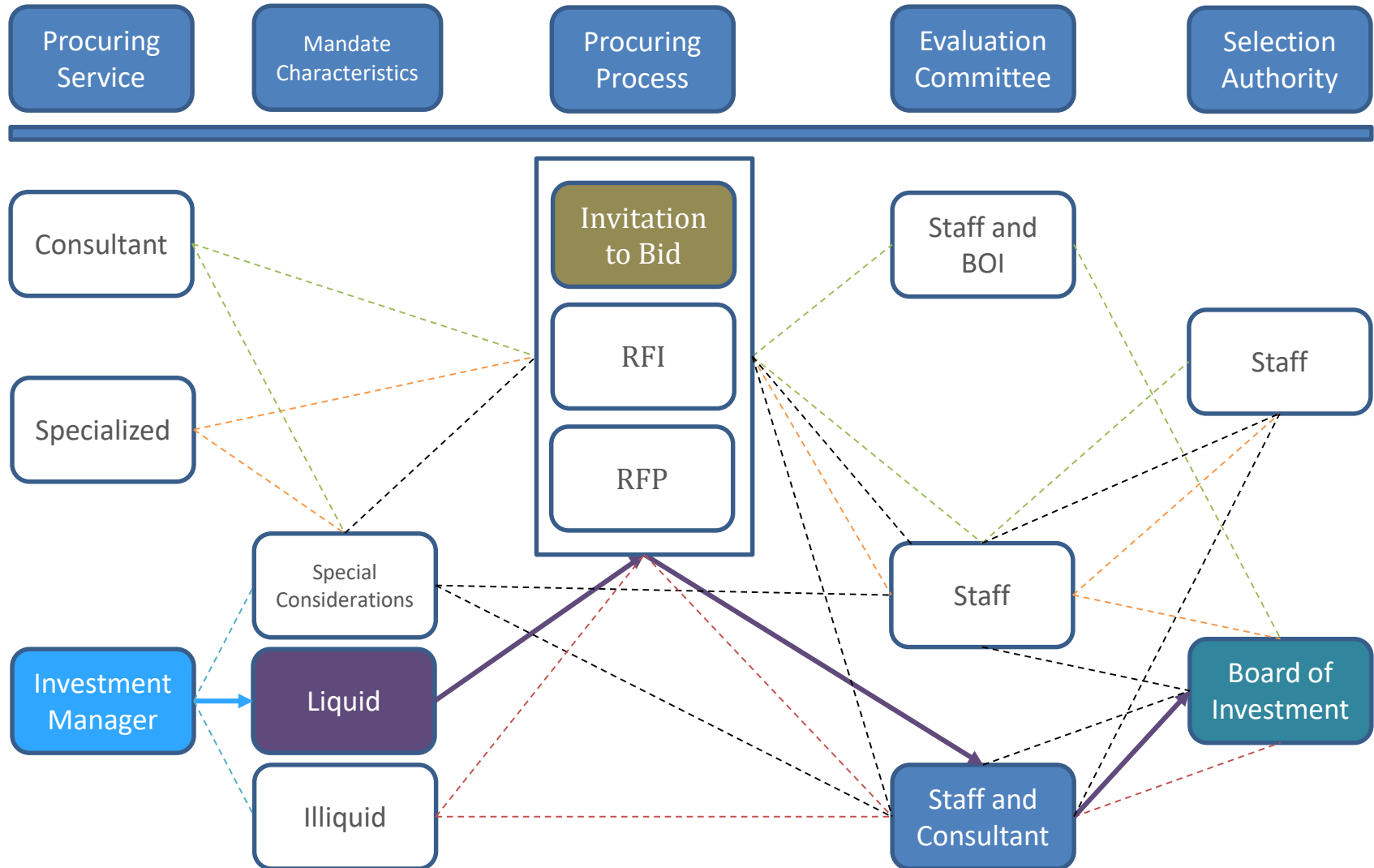


Potential example, subject to BOI approval



EXAMPLE: Treasury Inflation Protected Securities

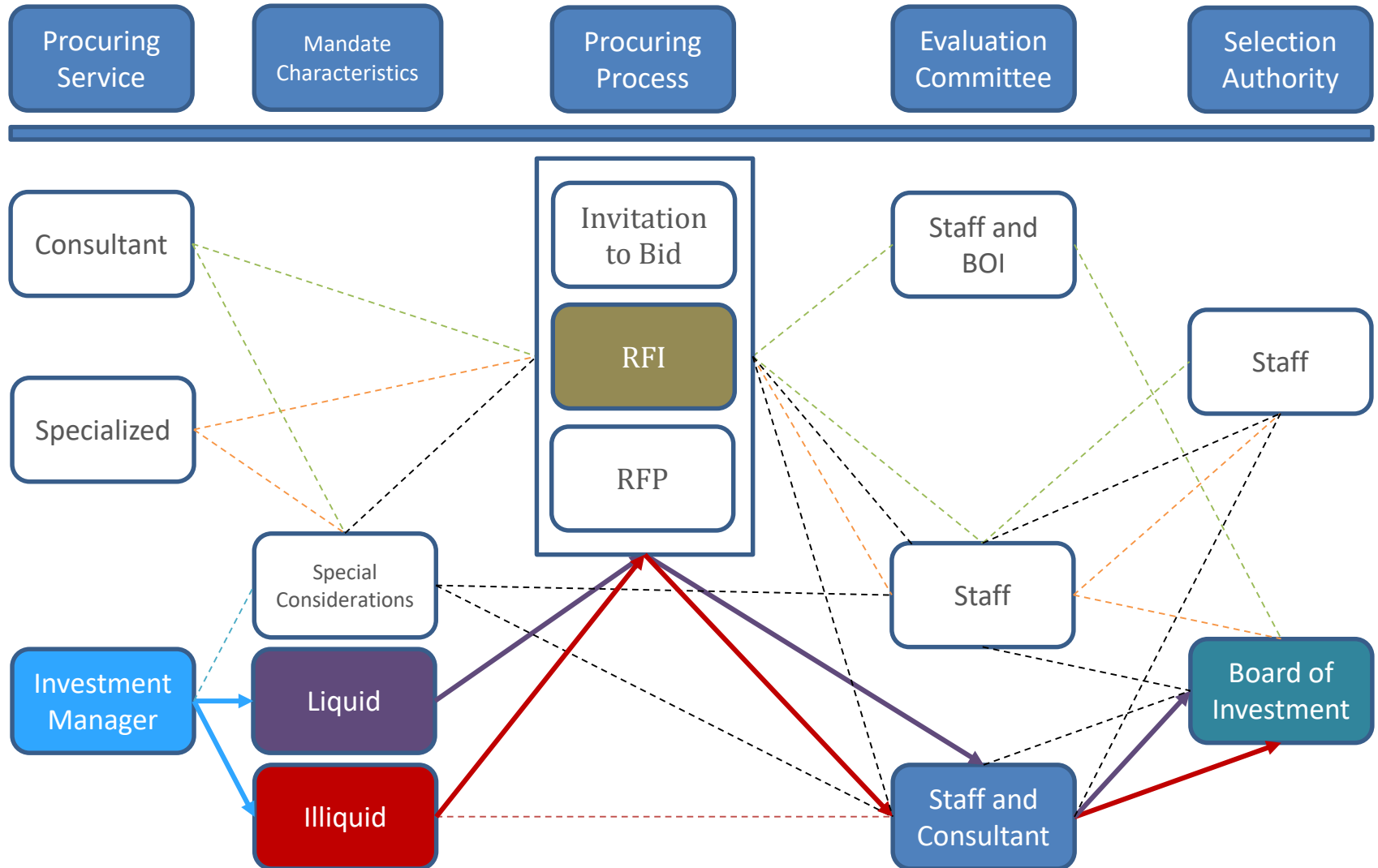
(TIPS)



Potential example, subject to BOI approval



EXAMPLE: Real Assets Completion Portfolio



Potential example, subject to BOI approval

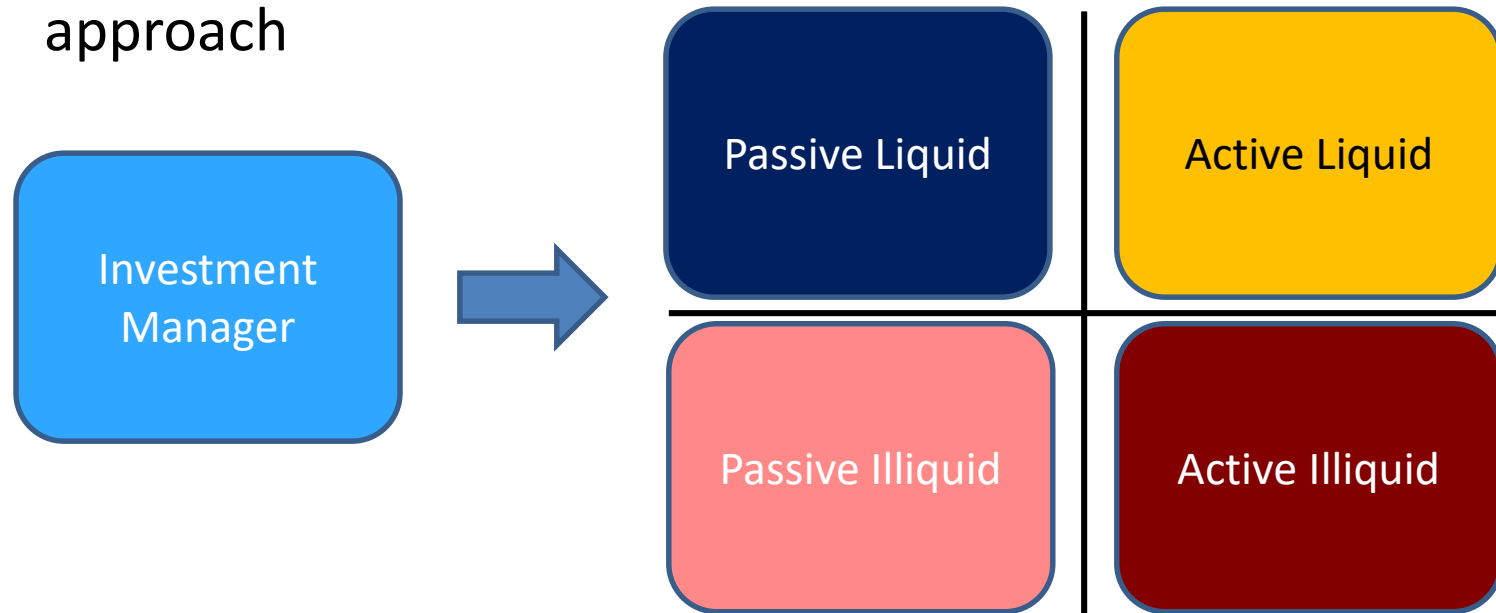


Proposed Four Quadrants Approach for Investment Managers

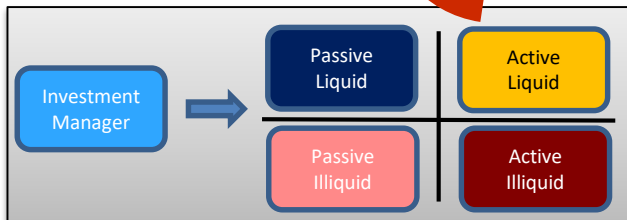
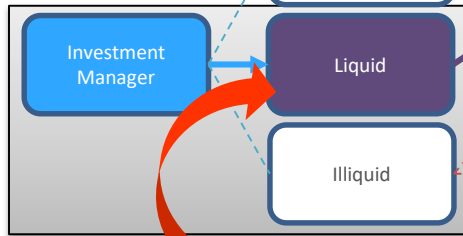
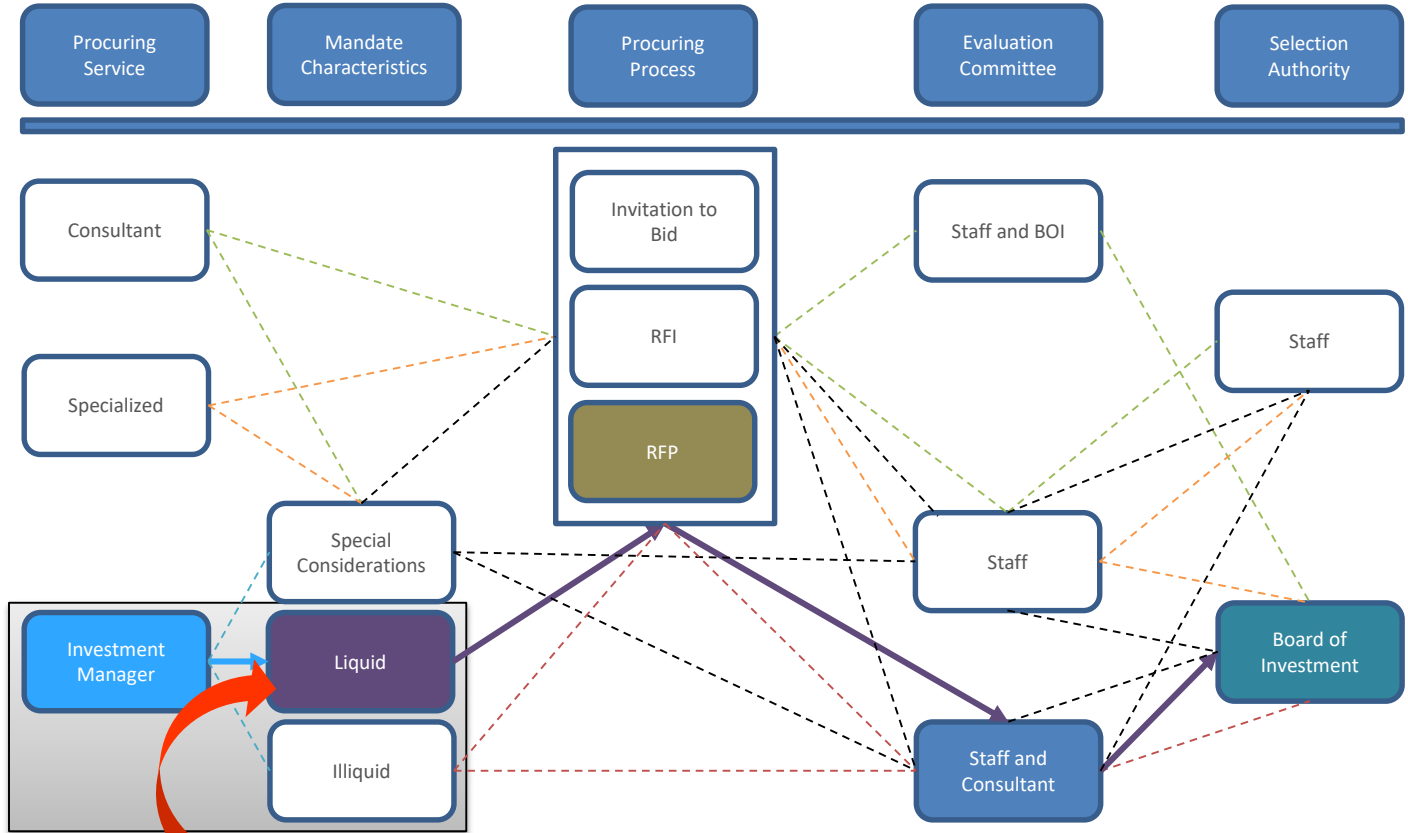
Procuring Service

Mandate Characteristics

- Consideration for a broad framework utilizing a rule-based approach



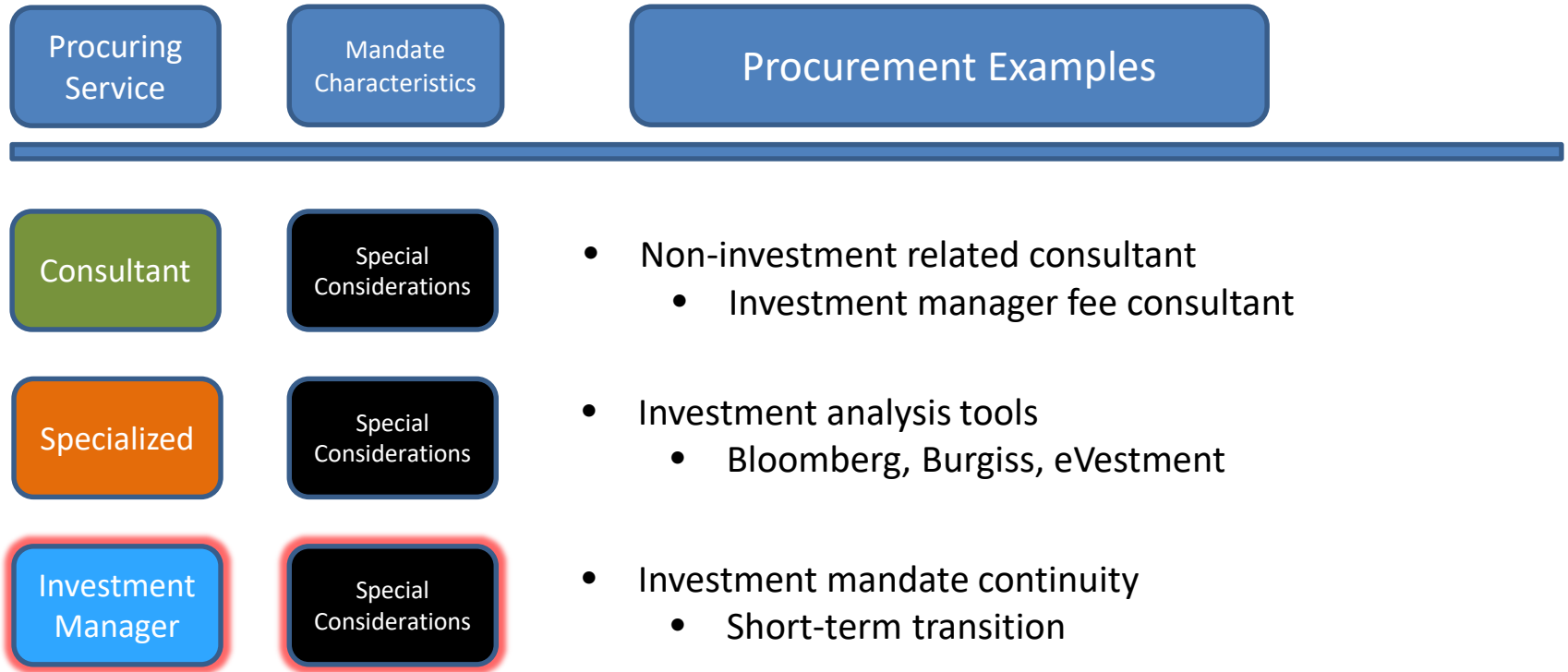
EXAMPLE: Investment Manager Active Liquid



Potential example, subject to BOI approval



Special Considerations Procurement Examples



- Time critical/circumstantial and/or small value (<\$75K)

Proposed work flow



Procurement Flow Diagram Key Terms

Procuring Service

Consultant	Consulting services to assist with the administration and management of the Program
Investment Manager	Investment and asset managers
Specialized	Other service providers, excluding Consultant and Investment Manager

Mandate Characteristics

Liquid	Investments that can be redeemed in short notice and invested in traditional asset categories such as public equity and fixed income
Illiquid	Illiquid alternative investment vehicles such as limited partnership, limited liability company, or similar legal structures through which Program invests in an alternative investment in a private equity fund, hedge fund, real estate fund, or public market funds
Special Considerations	Any procurement services that CIO considers time critical/circumstantial and/or small value (<\$75K) may be brought to the evaluation committee upon BOI concurrence of the need to expedite a decision

Procuring Process

Invitation to Bid	An invitation to submit an offer on a specific project, product, or service
Request for Information ("RFI")	Process to collect information about the capabilities of the providers
Request for Proposal ("RFP")	Solicit proposal for specific project, product, or service based on requirements

Evaluation Committee

Staff	Evaluation committee composed of LACERA staff
Staff and BOI	Evaluation committee composed of LACERA staff and BOI members
Staff and Consultant	Evaluation committee composed of LACERA staff and consultants

Selection Authority

Staff	Final selection of the procurement service is conducted by LACERA staff
Board of Investment	Final selection of the procurement service is conducted by BOI Members

