

B. CONVENE JOINT MEETING: BOARD OF REGENTS AND UTIMCO BOARD OF DIRECTORS

9. **U. T. System: UTIMCO Organization**

REPORT

UTIMCO Chairman Hunt and Mr. Boldt will outline the organizational structure of UTIMCO using a PowerPoint on Pages 9.1 – 9.7.



THE UNIVERSITY OF TEXAS  
INVESTMENT MANAGEMENT COMPANY

## Joint Meeting of UT System Board of Regents UTIMCO Board of Directors

### UTIMCO Organization

Bob L. Boldt

July, 2005



## UTIMCO Board Members

|  |                          |
|--|--------------------------|
| <b>Woody L. Hunt</b><br>Regent, UT System              | Chairman                 |
| <b>H. Scott Caven</b><br>Regent, UT System             | Vice Chairman            |
| <b>Mark G. Yudof</b><br>Chancellor                     | Vice Chairman for Policy |
| <b>Clint D. Carlson</b><br>Outside Director            |                          |
| <b>J. Philip Ferguson</b><br>Outside Director          |                          |
| <b>Erle Nye</b><br>Regent, Texas A&M University System |                          |
| <b>Robert B. Rowling</b><br>Regent, UT System          |                          |
| <b>Charles W. Tate</b><br>Outside Director             |                          |
| <b>R.D. Burck</b><br>Advisory Director                 |                          |

July, 2005

2



## UTIMCO Board Committees

### Audit & Ethics Committee

Erle Nye, Chairman

Robert Rowling  
Woody Hunt

### Compensation Committee

J. Philip Ferguson, Chairman

Clint Carlson  
Robert Rowling

### Risk Committee

H. Scott Caven, Chairman

Woody Hunt  
Charles Tate

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3



## UTIMCO Consultants and Service Providers

**Investment Consultant:** Cambridge Associates LLC

**Consultant to Chairman of UTIMCO Board:** Dr. Keith Brown

**Legal Counsel:** Vinson & Elkins LLP

**External Auditor:** Ernst & Young LLP

**Master Custodian:** Mellon Trust

**External Managers and Partners:**

**Public Markets:** 21 Managers

**Marketable Alternatives:** 23 Managers for 26 Funds

**Private Capital:** 82 Partners for 142 Partnerships

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4



## UTIMCO Mission Statement

*For our clients:*

UTIMCO will provide competitive, innovative and effective asset management and financial advisory services to our clients within the University of Texas and Texas A&M Systems.

*For the community:*

UTIMCO accepts its responsibilities as the manager for the largest public endowment fund in the United States and will act as a leader to advance endowment fund management practices at both public and private endowments.

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5



## Our Strategic Objectives

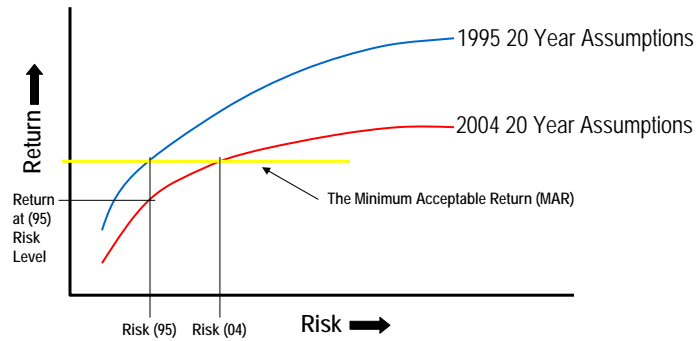
- ◆ Earn \$200 million in Value-Added Per Year,
- ◆ Be Recognized as One of the Five Best Managed Endowments in the United States,
- ◆ Earn High Satisfaction Ratings From Our Clients for:
  - Investment Skill
  - Innovation
  - Communication

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6



## The New Low Returns World



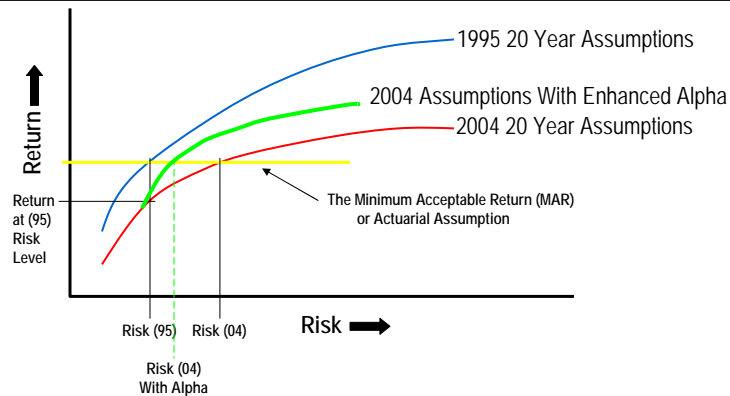
- The Only Choices are to: Increase Risk or Learn to Live With Below Minimum Returns ?

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7



## The Value-Added Alternative



- A Successful Focus on Alpha Could Allow Minimum Return Assumptions to be Retained at Only Slight Risk Increase
- This Process has Been Underway at Endowments for More Than 10 Years

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8



## How Will UTIMCO Cope With This New Tough Environment?

- ◆ The most appropriate approach for UTIMCO is to:
  - Focus on those asset classes and markets where we can add value,
  - Find and retain the best external managers to invest the bulk of UTIMCO assets,
  - Supplement external managers with internal management in specific niches with specific objectives,
  - Create a very solid risk management and risk budgeting platform as the backbone for the entire investment process,
  - Use creative strategies to overcome the disadvantages of size, and take advantage of our size wherever possible,
  - Create a specialist organizational structure to implement the strategy.
  
- ◆ The foundation of the approach is value-added, what we term PVA ....

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9



## Focus on High PVA Opportunities

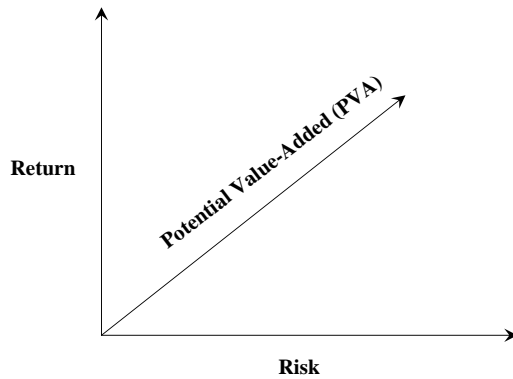
- ◆ Potential Value-Added (PVA) is the opportunity to increase returns beyond those generally available in an asset class through active management.
  
- ◆ PVA takes two forms:
  - PVA by an active manager is the result of effective security selection usually based on extensive research and analysis skills,
  - PVA by staff can result from a wide range of sources including skill in manager selection, term negotiations, manager monitoring, responses to periodic special opportunities in the markets, and risk control.
  
- ◆ Our objective at UTIMCO is to focus on high PVA opportunities, developing or purchasing the skills necessary to earn attractive returns.
  
- ◆ PVA is the most fundamental building block of our investment approach at UTIMCO.

July, 2005

10



## A Third Dimension of Asset Class Analysis



### High PVA Asset Categories Include:

- ✓ Venture Capital
- ✓ Private Equity
- ✓ Hedge Funds
- ✓ Emerging Markets
- ✓ Small Capitalization Domestic and International Equity

### Low PVA Asset Categories Include:

- ✓ Domestic Fixed Income
- ✓ Large Capitalization Domestic and International Equity
- ✓ Passive Management of Public Securities

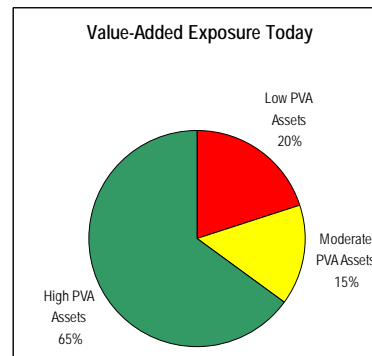
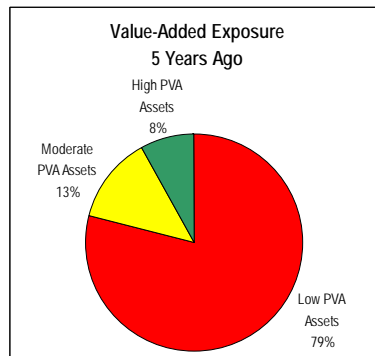
This is an important enhancement to traditional asset class analysis because asset categories vary widely in PVA ....

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11



## PVA Has Changed Dramatically at UTIMCO



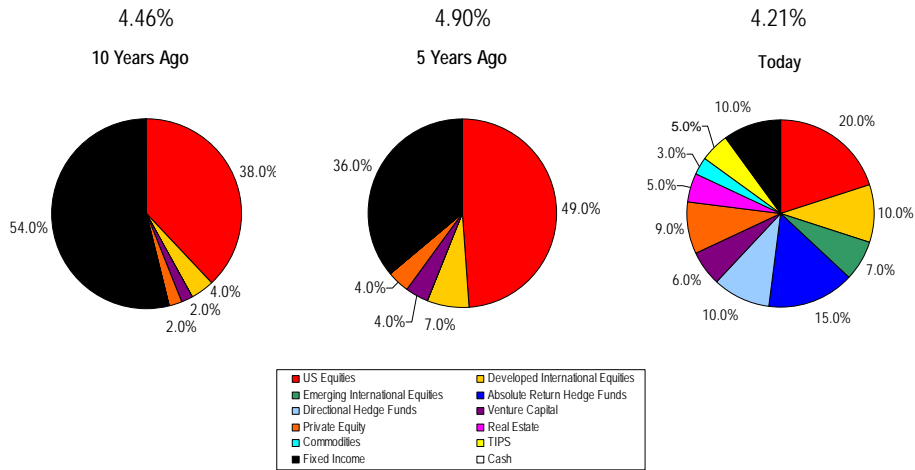
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12



# Asset Allocation Policy Has Changed Substantially Over the Past 10 Years

Downside Risk at 8.1% Target

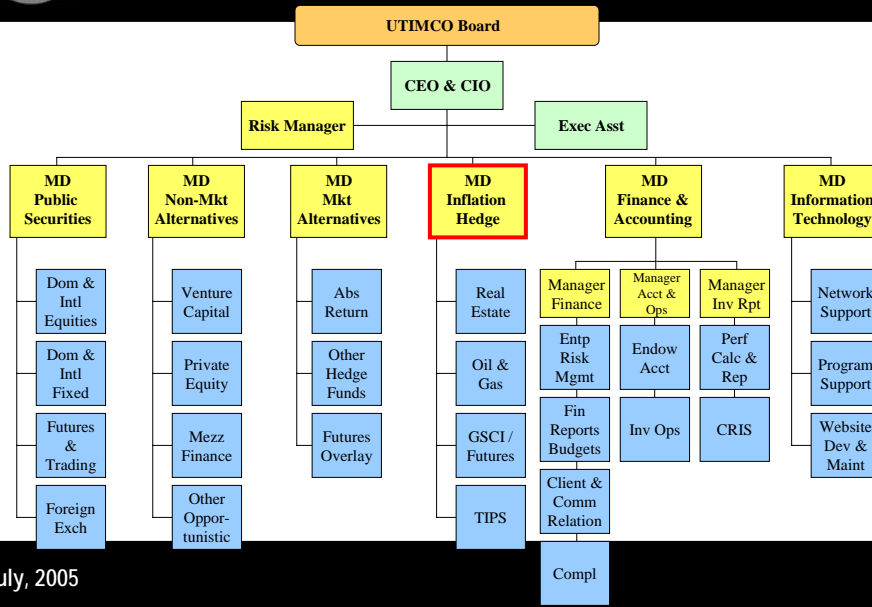


July, 2005

13



# UTIMCO's Specialist Structure



July, 2005

14



10. **U. T. System: Observations by investment consultants on asset allocation for U. T. System endowment funds**

REPORT

Mr. Steve Voss, Ennis Knupp + Associates, and Mr. Bruce Myers, Cambridge Associates, will lead a discussion of asset allocation for U. T. System endowment funds, using PowerPoints attached on Pages 10.1 – 10.3 and 10.4 – 10.12, respectively.

## Discussion on Asset Allocation



Mr. Steve Voss

July 8, 2005

ENNISKNUPP

## Overview of Process

UTIMCO employed a methodical and innovative process

- Approach similar to that used in 2003
- Logical steps (assumptions, constraints, decision factors)
- Innovative multi-step modeling process

### **EnnisKnupp Assessment**

In aggregate, we believe that UTIMCO's process is sound and reasonable

### **Future Considerations**

Start with a joint meeting so Board of Regents can set objectives

ENNISKNUPP

## Asset Class Assumptions

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- Assumptions are similar to those used in 2003 study
- Process was somewhat opaque to us in some areas
- Assumptions are reasonable and similar to EnnisKnupp's

ENNISKNUPP

## Translating Process Into Policy

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A number of "decision factors" were used to guide the policy-setting process

- Maintain real value of endowments and distributions
- Outperform policy and peers
- Minimize risk and illiquidity

UTIMCO Board chose among candidate portfolios based on their rankings according to these decision factors, as weighted by the UTIMCO Board

### **EnnisKnupp Assessment**

Proposed decision factors were reasonable, but ideally decision factors would mirror investment objectives defined by Board of Regents

ENNISKNUPP

## Asset Allocation Policy

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- Proposed policy target allocations are contemporary and similar to those of other institutions with similar financial objectives
- Allowable ranges are wide
- Benchmarks are generally reasonable, but could be streamlined

ENNISKNUPP



CAMBRIDGE ASSOCIATES LLC

## The University of Texas Board of Regents

### Asset Allocation Review

Mr. Bruce Myers

July 8, 2005

1



CAMBRIDGE ASSOCIATES LLC

## The University of Texas System Board of Regents Asset Allocation Review

- Review of the Building Blocks of Asset Allocation
- Putting it all Together
- Reflections on Practices of Peer Institutions

2



CAMBRIDGE ASSOCIATES LLC

The University of Texas System Board of Regents  
Asset Allocation Review

**BUILDING BLOCKS OF ASSET ALLOCATION**

3



CAMBRIDGE ASSOCIATES LLC

Building Blocks of Asset Allocation

- *Maintain high allocation to equities (broadly defined)*
- Hedge against disasters
- Diversify equity allocation to add return and reduce volatility

4

## Building Blocks of Asset Allocation

### Maintain High Equity Ownership

- In the long run, equities are the dominant asset class: real rate of return on U.S. equities since 1900 has been 6.6%, the real return on bonds for the same period was 2.4% and for cash 1.1%.
- You make more money as an owner than you do as a lender.
- A dollar invested in equities in 1900 would be worth \$829 today (inflation adjusted). Same dollar invested in bonds would be worth \$12.52 (also adjusted for inflation).

## Building Blocks of Asset Allocation

### Maintain High Equity Ownership

- So why not hold 100% in Equities?
  - In all the 5-year periods since 1900, equities have outperformed bonds 74% of the time.
  - Put another way: there is a 1 in 4 chance of encountering a 5-year period when bonds outperform equities

## Building Blocks of Asset Allocation

- Maintain high allocation to equities (broadly defined)
- ***Hedge against disasters***
- Diversify equity allocation to add return and reduce volatility

## Building Blocks of Asset Allocation

### Hedge Against Disasters

- Two disaster scenarios threaten institutions with high equity allocations:
  - Periods of prolonged economic contraction (deflation)
  - Periods of *unexpected* jumps in the rate of inflation



## Building Blocks of Asset Allocation

### Hedge Against Disasters

A baker's dozen of painful periods for U.S. Equity:

|     | Real 3-Year |       |           |
|-----|-------------|-------|-----------|
|     | Period      | AACR  | "Cause"   |
| 1.  | 1929-31     | -22.9 | Deflation |
| 2.  | 1930-32     | -19.8 | Deflation |
| 3.  | 2000-02     | -16.6 | ?         |
| 4.  | 1972-74     | -16.1 | Inflation |
| 5.  | 1916-18     | -13.3 | Inflation |
| 6.  | 1973-75     | -13.0 | Inflation |
| 7.  | 1917-19     | -11.4 | Inflation |
| 8.  | 1939-41     | -10.8 | Deflation |
| 9.  | 1946-48     | -8.5  | Inflation |
| 10. | 1940-42     | -7.3  | Inflation |
| 11. | 1915-17     | -5.9  | Inflation |
| 12. | 1937-39     | -5.0  | Deflation |
| 13. | 1918-20     | -4.9  | Inflation |

9

## Building Blocks of Asset Allocation

- Maintain high allocation to equities (broadly defined)
- Hedge against disasters
- *Diversify equity allocation to add return and reduce volatility*

10

## Building Blocks of Asset Allocation

Diversify equity allocation to add return and reduce volatility

- Market leadership rotates
  - Different classes of equity or manager strategies provide different patterns of returns
  - Cycles are certain but difficult to predict
- Less efficient markets create opportunity for skillful managers to add value

## The University of Texas System Board of Regents Asset Allocation Review

### **PUTTING IT ALL TOGETHER**

### Putting it all together

- Since there is likely to be an opportunity cost to holding assets that hedge against either deflation or inflation...
  - Carve out a bond allocation sufficient to provide needed protection, but not any larger than is needed.
    - Bonds will provide liquidity for funding programs and payout during deflationary period so that equities will not have to be sold at fire sale prices.
    - Degree of protection needed will vary from institution to institution
  - Carve out allocation required for inflation protection.
    - Use basket of asset classes
    - Seek value added strategies/managers to limit opportunity costs

### Putting it all together

- Diversify equity asset classes to add return and limit volatility
  - A rich asset mix is needed to provide opportunity for generating required return
  - Quantitative modeling can be helpful in guiding allocations.
    - Quantitative modeling most helpful in assessing the relative merits of differing portfolios
    - Asset Allocation should be informed by quantitative modeling, but never determined by it.
    - Fundamental assessment of long-term intrinsic sources of return for each asset class must be considered.



CAMBRIDGE ASSOCIATES LLC

The University of Texas System Board of Regents  
Asset Allocation Review

**REFLECTIONS ON THE PRACTICES OF PEER  
INSTITUTIONS**

15



CAMBRIDGE ASSOCIATES LLC

Reflections on the Practices of Peer Institutions

- Allocation to U.S. Equity have been driven down as portfolios become more broadly diversified
  - Average (median) allocation was 24%, with outliers as high as 60% and as low as 9%
  - 24 of the 34 institutions had allocations between 15 and 35%.
- Allocations to U.S. Fixed Income reduced sharply over last ten years:
  - Of the 34 educational institutions we track with endowments greater than \$1 billion:
    - Average (median) fixed income allocation was 13.4%
    - Range was from a high of 26% to a low of 5%
    - Eight institutions held less than 10% in fixed income

16

## Reflections on the Practices of Peer Institutions

- Allocations to Marketable Alternative strategies (a/k/a hedge funds) have grown sharply (especially since 2000).
  - Average (median) allocation about 20%, targets likely higher.
  - Range of observations: from 62% on the high side to a low of 6%
    - Reported allocations may understate presence of these strategies in some portfolios where hedge funds are being used as fixed income or equity substitutes.
    - 16 of the 34 institutions reported current allocations of 20% or more.

## Reflections on the Practices of Peer Institutions

- General belief that earning 5%+ after inflation is likely to be very difficult in a period of muted investment returns with moderately higher levels of inflation.
  - Rich asset mix and broad opportunity set critical.
  - Tilt toward asset classes where manager skill can add value (alpha), and reduction in asset classes where alpha is hard to come by.
  - Increased desire to have the flexibility to be opportunistic or tactical.

11. **U. T. System: UTIMCO review and discussion of asset allocation for U. T. System endowment funds**

REPORT

UTIMCO Chairman Hunt and Mr. Boldt will lead a discussion of asset allocation for U. T. System endowment funds, using a PowerPoint attached on Pages 11.1 – 11.21.



THE UNIVERSITY OF TEXAS  
INVESTMENT MANAGEMENT COMPANY

Joint Meeting of  
UT System Board of Regents  
UTIMCO Board of Directors

Asset Allocation Policy Review Process

Bob L. Boldt

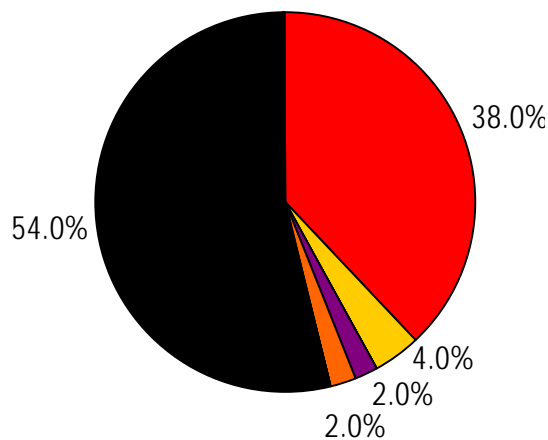
July, 2005



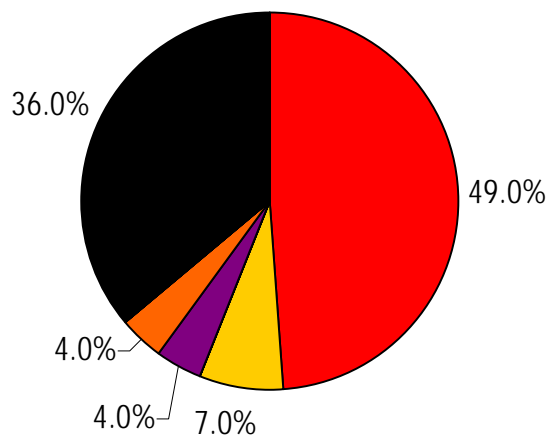
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Downside Risk at 8.1% Target

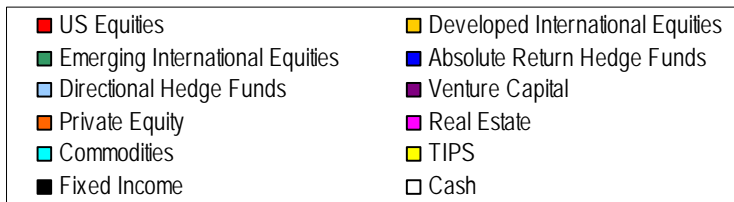
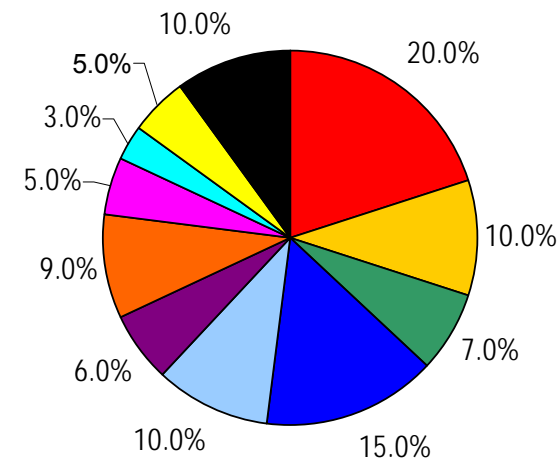
4.46%  
10 Years Ago



4.90%  
5 Years Ago



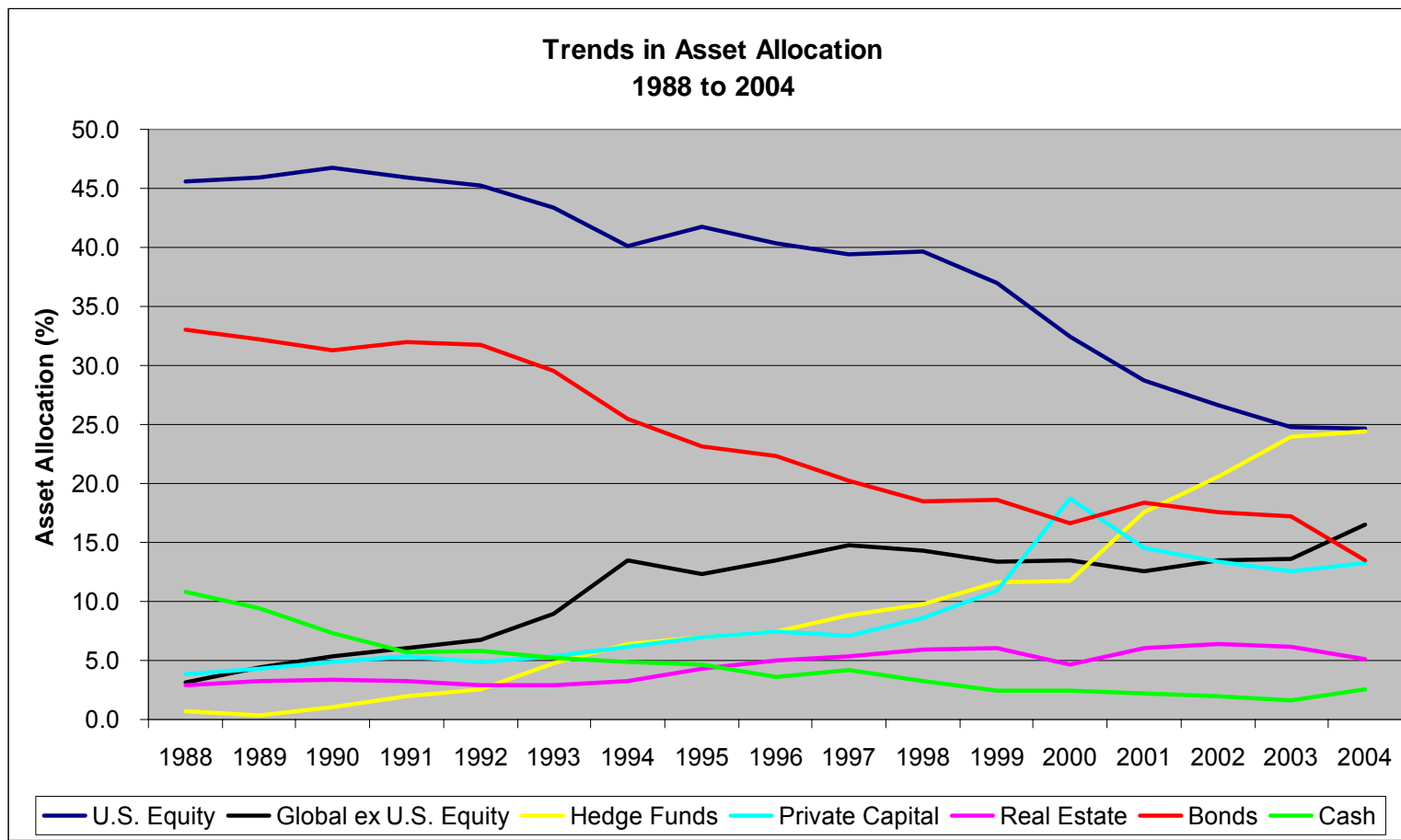
4.21%  
Today







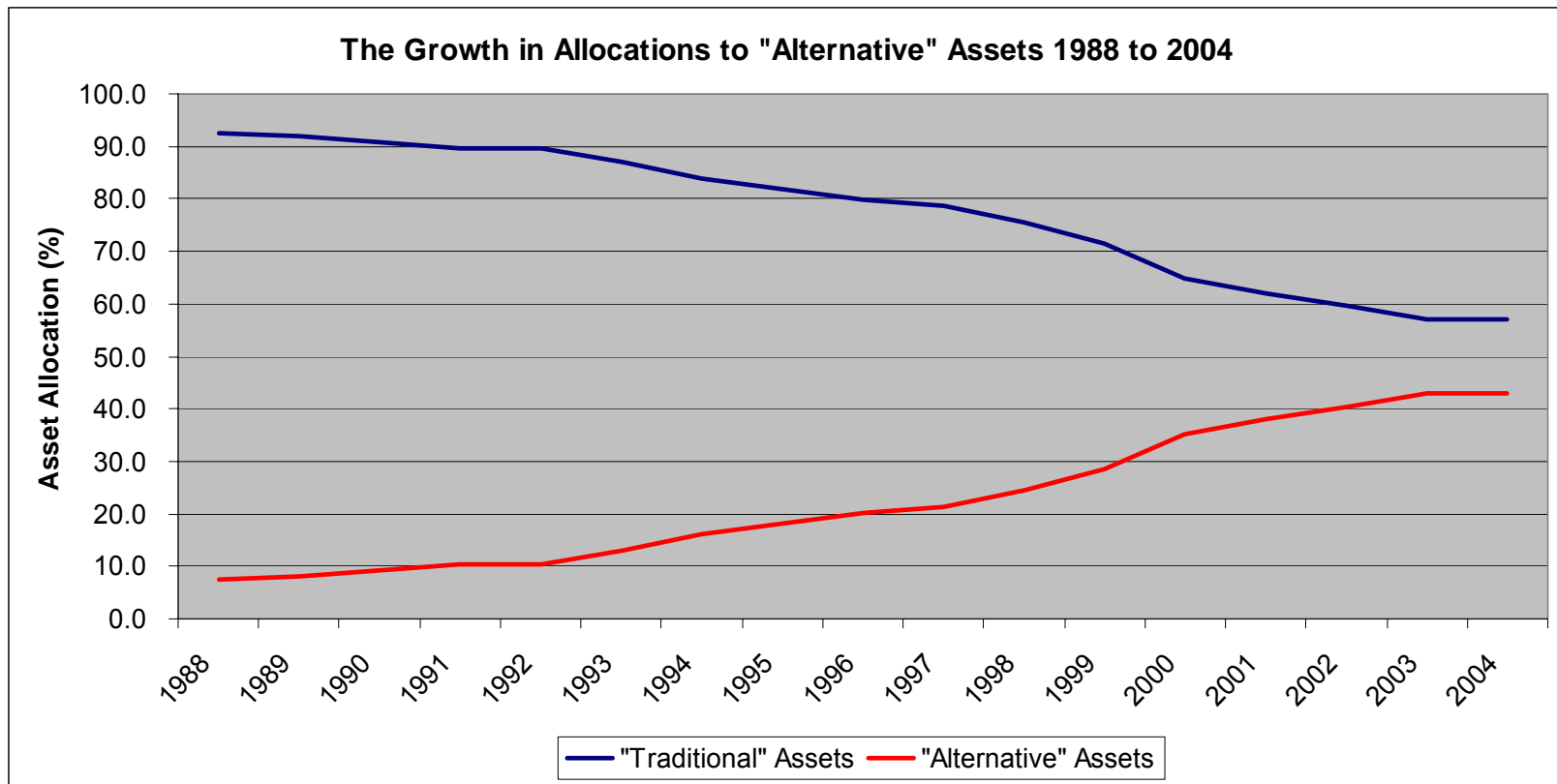
# Asset Allocation Changes at Largest and Most Sophisticated Endowments



Source: Cambridge Associates



# Focus is on Adding Value Through Alternative Investments

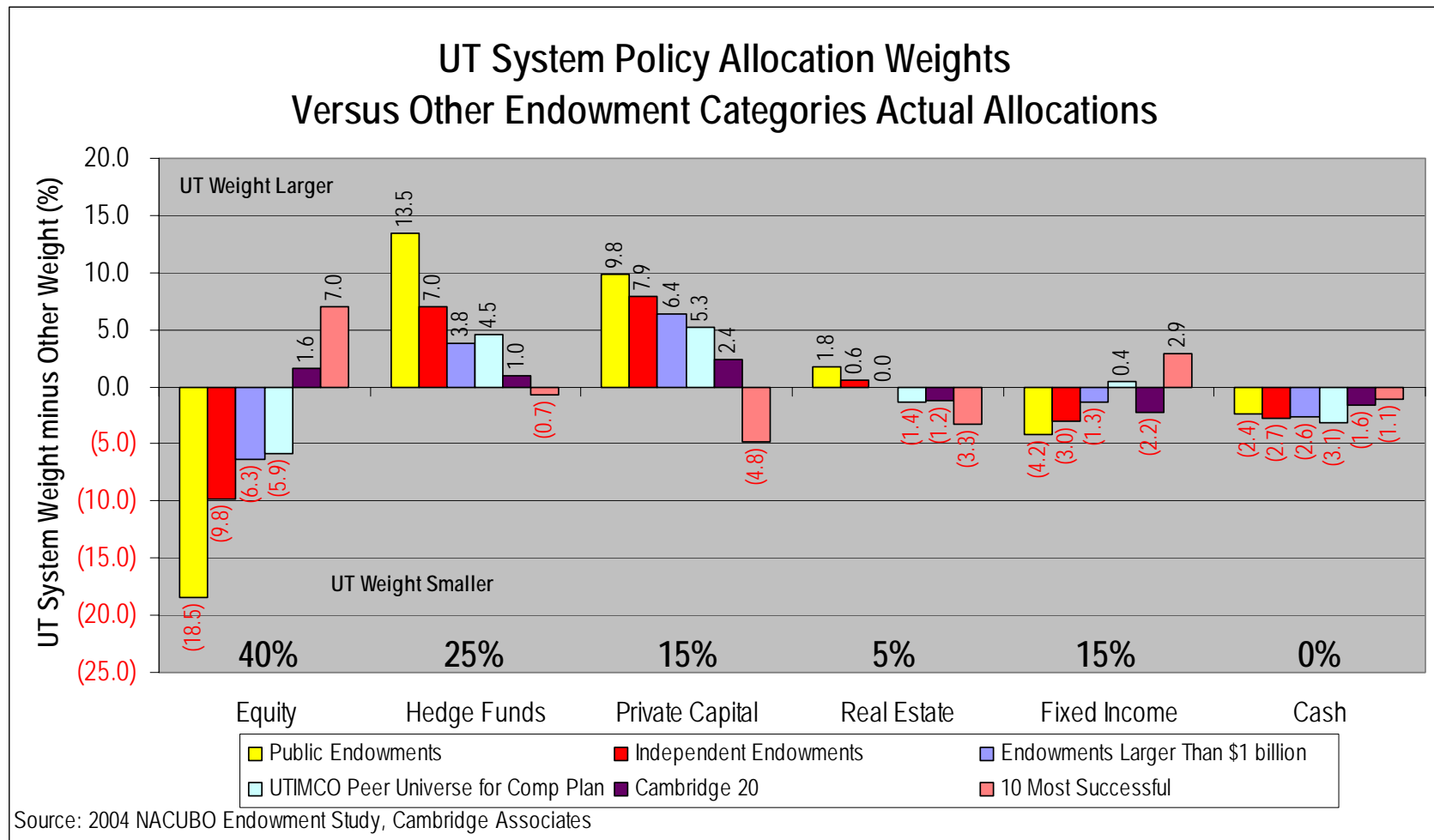


Source: Cambridge Associates

"Alternative" Assets include: venture capital, private equity, hedge funds, real estate, oil & gas, timber, and other opportunistic asset categories.



# UT System Allocation Weights Compared to Other Endowments



11.5

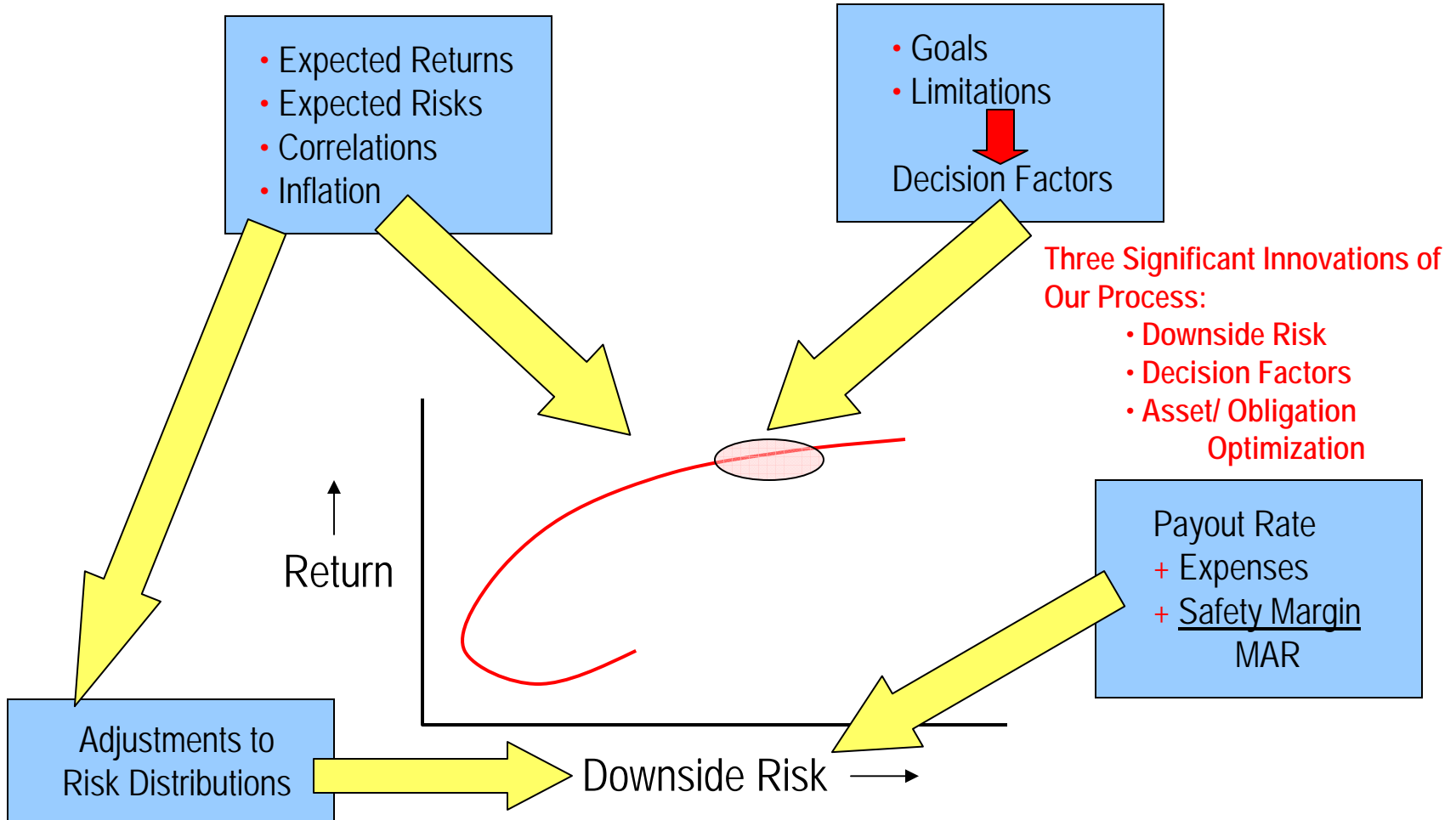


# Objectives of Asset Allocation Review Process

- Select the appropriate risk level for the endowment funds
- Select the most effective strategic asset allocation targets at the selected risk level
- Establish tactical allocation ranges around the strategic allocation targets to allow staff to respond to market conditions
- Establish appropriate benchmarks to measure performance relative to expectations



# Overview of Asset Allocation Process



11.7



# Capital Market Assumptions and Constraints

## Risk & Return Assumptions Summary:

## PVA Assumptions:

## Constraints:

| Data Item                          | Consultant Average | Historical | UTIMCO 2003 | UTIMCO 2005 | 75th Pct PVA<br>25th Pct PVA<br>V/A Spread | Capture Ratio | Exp PVA<br>Std Dev | UTIMCO 2003 with PVA | UTIMCO 2005 with PVA | 2003 Minimum % | 2003 Maximum % | 2005 Minimum % | 2005 Maximum % |
|------------------------------------|--------------------|------------|-------------|-------------|--|---------------|--------------------|----------------------|----------------------|----------------|----------------|----------------|----------------|
| <b>US Equity</b>                   |                    |            |             |             |  |               |                    |                      |                      |                |                |                |                |
| Nominal Returns                    | 8.85%              | 11.53%     | 8.50%       | 8.50%       | 2.50%                                      | 35%           | 0.88%              | 9.13%                | 9.38%                | 20%            | 100%           | 20%            | 100%           |
| Real Returns                       | 6.37%              | 6.86%      | 5.50%       | 5.50%       | -2.50%                                     |               |                    | 6.13%                | 6.38%                |                |                |                |                |
| Std Deviation                      | 16.44%             | 15.82%     | 17.00%      | 17.00%      | 5.00%                                      |               | 3.71%              | 17.40%               | 17.40%               |                |                |                |                |
| <b>Non-US Developed Equity</b>     |                    |            |             |             |  |               |                    |                      |                      |                |                |                |                |
| Nominal Returns                    | 8.85%              | 11.86%     | 8.50%       | 8.50%       | 3.00%                                      | 35%           | 1.05%              | 9.25%                | 9.55%                | 10%            | 100%           | 10%            | 100%           |
| Real Returns                       | 6.38%              | 7.19%      | 5.50%       | 5.50%       | -3.00%                                     |               |                    | 6.25%                | 6.55%                |                |                |                |                |
| Std Deviation                      | 17.48%             | 16.77%     | 19.00%      | 19.00%      | 6.00%                                      |               | 4.45%              | 19.51%               | 19.51%               |                |                |                |                |
| <b>Emerging Markets Equity</b>     |                    |            |             |             |  |               |                    |                      |                      |                |                |                |                |
| Nominal Returns                    | 10.34%             | 15.04%     | 11.00%      | 10.50%      | 10.00%                                     | 25%           | 2.50%              | 12.50%               | 13.00%               | 0%             | 10%            | 0%             | 15%            |
| Real Returns                       | 7.86%              | 10.36%     | 8.00%       | 7.00%       | -10.00%                                    |               |                    | 9.50%                | 10.00%               |                |                |                |                |
| Std Deviation                      | 24.80%             | 23.25%     | 26.00%      | 26.00%      | 20.00%                                     |               | 14.83%             | 29.93%               | 29.93%               |                |                |                |                |
| <b>Absolute Return Hedge Funds</b> |                    |            |             |             |  |               |                    |                      |                      |                |                |                |                |
| Nominal Returns                    | 6.91%              | 10.79%     | 7.00%       | 7.00%       | 4.00%                                      | 25%           | 1.00%              | 8.00%                | 8.00%                | 0%             | 20%            | 0%             | 15%            |
| Real Returns                       | 4.42%              | 6.12%      | 4.00%       | 4.00%       | -4.00%                                     |               |                    | 5.00%                | 5.00%                |                |                |                |                |
| Std Deviation                      | 6.49%              | 6.15%      | 7.50%       | 7.50%       | 8.00%                                      |               | 5.93%              | 9.56%                | 9.56%                |                |                |                |                |
| <b>Equity Hedge Funds</b>          |                    |            |             |             |  |               |                    |                      |                      |                |                |                |                |
| Nominal Returns                    | 8.46%              | 10.48%     | 8.00%       | 8.00%       | 5.00%                                      | 25%           | 1.25%              | 9.25%                | 9.25%                | 0%             | 20%            | 0%             | 15%            |
| Real Returns                       | 5.97%              | 5.81%      | 5.00%       | 5.00%       | -5.00%                                     |               |                    | 6.25%                | 6.25%                |                |                |                |                |
| Std Deviation                      | 8.37%              | 8.16%      | 11.00%      | 10.00%      | 10.00%                                     |               | 7.41%              | 13.26%               | 12.45%               |                |                |                |                |
| <b>Venture Capital</b>             |                    |            |             |             |  |               |                    |                      |                      |                |                |                |                |
| Nominal Returns                    | 14.24%             | 15.16%     | 14.00%      | 14.00%      | 15.00%                                     | 15%           | 2.25%              | 16.25%               | 16.25%               | 0%             | 10%            | 0%             | 10%            |
| Real Returns                       | 11.57%             | 10.49%     | 11.00%      | 11.00%      | -15.00%                                    |               |                    | 13.25%               | 13.25%               |                |                |                |                |
| Std Deviation                      | 31.63%             | 18.78%     | 30.00%      | 30.00%      | 30.00%                                     |               | 22.24%             | 37.34%               | 37.34%               |                |                |                |                |
| <b>Private Equity</b>              |                    |            |             |             |  |               |                    |                      |                      |                |                |                |                |
| Nominal Returns                    | 11.85%             | 11.32%     | 11.50%      | 11.50%      | 10.00%                                     | 20%           | 2.00%              | 13.50%               | 13.50%               | 0%             | 10%            | 0%             | 15%            |
| Real Returns                       | 9.38%              | 6.65%      | 8.50%       | 8.50%       | -10.00%                                    |               |                    | 10.50%               | 10.50%               |                |                |                |                |
| Std Deviation                      | 28.25%             | 9.04%      | 20.00%      | 24.00%      | 20.00%                                     |               | 14.83%             | 24.90%               | 28.21%               |                |                |                |                |

11.8



# Capital Market Assumptions and Constraints

## Risk & Return Assumptions Summary:

## PVA Assumptions:

## Constraints:

| Data Item                      | Consultant Average | Historical | UTIMCO 2003 | UTIMCO 2005 | 75th Pct PVA<br>25th Pct PVA<br>V/A Spread | Capture Ratio | Exp PVA<br>Std Dev | UTIMCO 2003 with PVA | UTIMCO 2005 with PVA | 2003 Minimum % | 2003 Maximum % | 2005 Minimum % | 2005 Maximum % |
|--------------------------------|--------------------|------------|-------------|-------------|--|---------------|--------------------|----------------------|----------------------|----------------|----------------|----------------|----------------|
| <b>REITS</b>                   |                    |            |             |             |  |               |                    |                      |                      |                |                |                |                |
| Nominal Returns                | 7.89%              | 14.54%     | 7.50%       | 7.50%       | 3.00%                                      | 25%           | 0.75%              | 8.25%                | 8.25%                | 0%             | 10%            | 0%             | 10%            |
| Real Returns                   | 5.41%              | 9.87%      | 4.50%       | 4.50%       | -3.00%                                     |               |                    | 5.25%                | 5.25%                |                |                |                |                |
| Std Deviation                  | 13.64%             | 14.74%     | 15.00%      | 15.00%      | 6.00%                                      |               | 4.45%              | 15.65%               | 15.65%               |                |                |                |                |
| <b>Commodities (Financial)</b> |                    |            |             |             |  |               |                    |                      |                      |                |                |                |                |
| Nominal Returns                | 6.40%              | 13.37%     | 5.00%       | 6.00%       | 3.00%                                      | 25%           | 0.75%              | 5.00%                | 6.75%                | 0%             | 10%            | 0%             | 10%            |
| Real Returns                   | 3.70%              | 8.70%      | 2.00%       | 3.00%       | -3.00%                                     |               |                    | 2.00%                | 3.75%                |                |                |                |                |
| Std Deviation                  | 18.47%             | 18.43%     | 18.00%      | 18.00%      | 6.00%                                      |               | 4.45%              | 18.00%               | 18.54%               |                |                |                |                |
| <b>TIPS</b>                    |                    |            |             |             |  |               |                    |                      |                      |                |                |                |                |
| Nominal Returns                | 4.94%              | 9.07%      | 5.50%       | 5.50%       | 1.00%                                      | 25%           | 0.25%              | 5.50%                | 5.75%                | 0%             | 10%            | 0%             | 15%            |
| Real Returns                   | 2.40%              | 4.39%      | 2.50%       | 2.50%       | -1.00%                                     |               |                    | 2.50%                | 2.75%                |                |                |                |                |
| Std Deviation                  | 6.00%              | 3.69%      | 6.00%       | 6.00%       | 0.00%                                      |               | 1.48%              | 6.00%                | 6.18%                |                |                |                |                |
| <b>US Fixed Income</b>         |                    |            |             |             |  |               |                    |                      |                      |                |                |                |                |
| Nominal Returns                | 5.18%              | 8.80%      | 5.00%       | 5.75%       | 1.00%                                      | 25%           | 0.25%              | 5.25%                | 6.00%                | 10%            | 100%           | 10%            | 100%           |
| Real Returns                   | 2.70%              | 4.13%      | 2.00%       | 2.75%       | -1.00%                                     |               |                    | 2.25%                | 3.00%                |                |                |                |                |
| Std Deviation                  | 5.34%              | 6.02%      | 6.00%       | 7.00%       | 2.00%                                      |               | 1.48%              | 6.18%                | 7.16%                |                |                |                |                |
| <b>Cash</b>                    |                    |            |             |             |  |               |                    |                      |                      |                |                |                |                |
| Nominal Returns                | 3.33%              | 6.43%      | 4.00%       | 4.00%       | 0.00%                                      | 0%            | 0.00%              | 4.00%                | 4.00%                | 0%             | 0%             | 0%             | 0%             |
| Real Returns                   | 0.86%              | 1.75%      | 1.00%       | 1.00%       | 0.00%                                      |               |                    | 1.00%                | 1.00%                |                |                |                |                |
| Std Deviation                  | 0.88%              | 0.91%      | 1.00%       | 1.00%       | 0.00%                                      |               | 0.00%              | 1.00%                | 1.00%                |                |                |                |                |
| <b>Inflation</b>               |                    |            |             |             |  |               |                    |                      |                      |                |                |                |                |
| Returns                        | 2.48%              | 4.67%      | 3.00%       | 3.00%       |  |               |                    | 3.00%                | 3.00%                |                |                |                |                |
| Std Deviation                  | 1.25%              | 1.17%      | 2.00%       | 1.50%       |  |               |                    |                      |                      |                |                |                |                |



# 2005 Candidate Policy Portfolios

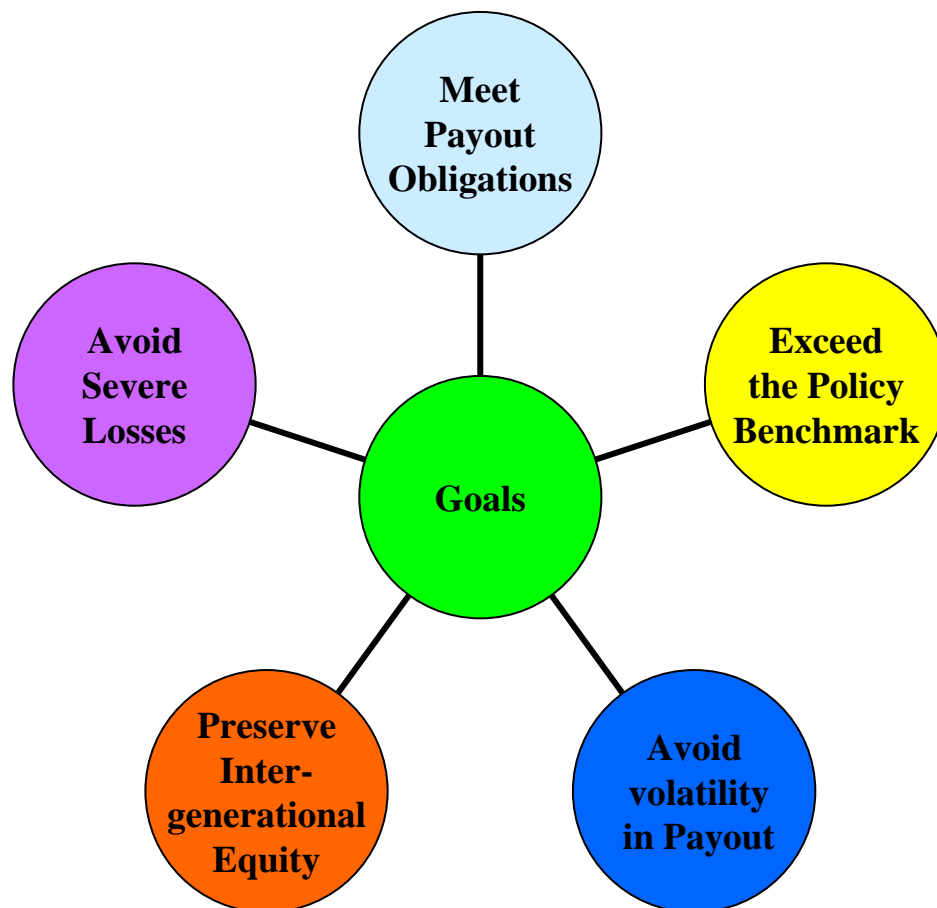
|             | 2005 Candidate Policy Portfolios |         |         |         |         |         |         |         |             |
|-------------|----------------------------------|---------|---------|---------|---------|---------|---------|---------|-------------|
|             | 1                                | 3       | 5       | 7       | 9       | 11      | 13      | 14      | 2003 Policy |
| USE         | 20.0%                            | 20.0%   | 20.0%   | 20.0%   | 20.0%   | 20.0%   | 30.0%   | 45.0%   | 20.0%       |
| GE          | 10.0%                            | 10.0%   | 10.0%   | 10.0%   | 10.0%   | 10.0%   | 10.0%   | 10.0%   | 10.0%       |
| EM          | 0.0%                             | 0.0%    | 0.2%    | 4.3%    | 8.3%    | 13.9%   | 15.0%   | 15.0%   | 7.0%        |
| AR          | 15.0%                            | 15.0%   | 15.0%   | 15.0%   | 15.0%   | 13.1%   | 0.0%    | 0.0%    | 15.0%       |
| EHF         | 8.3%                             | 10.4%   | 15.0%   | 15.0%   | 15.0%   | 15.0%   | 15.0%   | 5.0%    | 10.0%       |
| VC          | 5.0%                             | 5.0%    | 5.0%    | 5.0%    | 5.0%    | 5.0%    | 5.0%    | 5.0%    | 6.0%        |
| PE          | 7.4%                             | 9.7%    | 10.0%   | 10.0%   | 10.0%   | 10.0%   | 10.0%   | 10.0%   | 9.0%        |
| REITS       | 1.4%                             | 2.2%    | 5.0%    | 5.0%    | 5.0%    | 3.0%    | 5.0%    | 0.0%    | 5.0%        |
| COM         | 3.9%                             | 3.2%    | 3.3%    | 2.4%    | 1.7%    | 0.0%    | 0.0%    | 0.0%    | 3.0%        |
| O&G         | 0.0%                             | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%        |
| TIPS        | 4.0%                             | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 5.0%        |
| BND         | 25.0%                            | 24.5%   | 16.5%   | 13.3%   | 10.0%   | 10.0%   | 10.0%   | 10.0%   | 10.0%       |
| CA          | 0.0%                             | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%        |
|             | 100.0%                           | 100.0%  | 100.0%  | 100.0%  | 100.0%  | 100.0%  | 100.0%  | 100.0%  | 100.0%      |
| Exp Ret     | 7.75%                            | 7.95%   | 8.15%   | 8.35%   | 8.55%   | 8.75%   | 8.95%   | 9.05%   | 8.39%       |
| Vol         | 8.7%                             | 9.2%    | 9.8%    | 10.6%   | 11.4%   | 12.3%   | 13.7%   | 15.0%   | 10.8%       |
| 1 Yr VaR    | -10.6%                           | -11.4%  | -11.8%  | -12.9%  | -14.4%  | -16.3%  | -18.1%  | -21.1%  | -13.6%      |
| 1 yr DR     | 6.5%                             | 6.7%    | 7.0%    | 7.4%    | 7.9%    | 8.5%    | 9.4%    | 10.3%   | 7.6%        |
| 3 yr DR     | 3.8%                             | 3.9%    | 4.0%    | 4.2%    | 4.5%    | 4.8%    | 5.2%    | 5.7%    | 4.3%        |
| Avg PO      | \$254.9                          | \$257.8 | \$260.8 | \$264.3 | \$268.1 | \$272.2 | \$277.0 | \$280.0 | \$265.2     |
| Illiquidity | 29.1%                            | 32.6%   | 35.3%   | 35.4%   | 35.4%   | 34.6%   | 27.3%   | 22.0%   | 32.4%       |
| PVA         | \$42.3                           | \$45.1  | \$48.4  | \$52.4  | \$56.5  | \$60.8  | \$60.8  | \$59.4  | \$53.2      |

11.10





# Goals Are Multidimensional



- Typically, an investor wants to achieve several goals at the same time
- Decision Factors can help decision makers sort through those goals



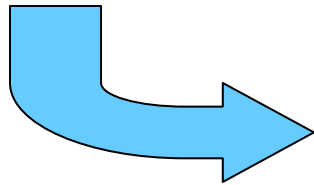
# Decision Factors

A Decision Factor is a measure or characteristic which may be used to relate specific goals to a particular decision ....

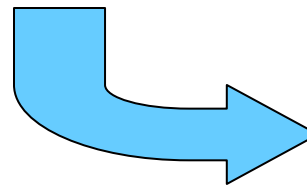


# Using Decision Factors as a Link

Endowment Fund  
Investment Policies and  
Objectives



Decision Factors



Best Strategic  
Asset Allocation Strategy  
For Fund

11.13



# 2005 Decision Factors

## Permanent University Fund 2005 Decision Factors

| Decision Factor |  | Relative Importance Score |
|-----------------|--|---------------------------|
| P1a             | Maximize the possibility that distributions made at the current policy rate of 4.75% of average assets would match or exceed the prior year's inflation adjusted distribution in any future 1 year period. |                           |
| P2              | Maximize the possibility that future rolling 10 year compound annual real returns in the PUF will exceed 5.1%  |                           |
| P3              | Minimize the possibility that the real value of the PUF, after distributions at the current 4.75% distribution policy rate, will decline over future 10 year periods.                                      |                           |
| P4              | Maximize the possibility that actual PUF returns will exceed the PUF Policy Portfolio returns in future one year periods.  |                           |
| P5a             | Maximize the possibility that the PUF will have returns in the top half of the UTIMCO performance compensation peer universe over future 3 year periods.   |                           |
| P6a             | Maximize the possibility that future real returns over rolling 10 year time periods will exceed the 5.1% MAR by 1%, the margin necessary to maintain HEPI purchasing power by historical standards.        |                           |
| P7              | Minimize the possibility that the PUF will have a return of minus 20% or less over any future 3 year time period.  |                           |
| P8              | Minimize the exposure of PUF assets to "illiquid" investment options as defined in the PUF Liquidity Policy Statement.   |                           |

## General Endowment Fund 2005 Decision Factors

| Decision Factor |   | Relative Importance Score |
|-----------------|---|---------------------------|
| G1              | Minimize the possibility that distributions made under the current distribution policy will be "frozen" at the upper bound payout rate of 5.5% in any year within the next 15 years.                |                           |
| G2              | Maximize the possibility of rolling 10 year compound annual GEF real returns exceeding 5.1%.  |                           |
| G3              | Minimize the possibility that the real value of the GEF, after distributions, will decline over future 10 year periods.   |                           |
| G4              | Maximize the possibility that future actual annual GEF returns will exceed the GEF Policy Portfolio return.   |                           |
| G5a             | Maximize the possibility that the GEF will have returns in the top half of the UTIMCO performance compensation peer universe over future 3 year periods.  |                           |
| G6a             | Maximize the possibility that future real returns over rolling 10 year time periods will exceed the 5.1% MAR by 1%, the margin necessary to maintain HEPI purchasing power by historical standards. |                           |
| G7              | Minimize the possibility that the GEF will have a return of minus 20% or less over any future 3 year time period.   |                           |
| G8              | Minimize the exposure of GEF assets to "illiquid" investment options as defined in the GEF Liquidity Policy Statement.  |                           |

11.14



# Actual Decision Factor Votes

|            | General Endowment Fund |     |     |     |     |     |     |     |
|------------|------------------------|-----|-----|-----|-----|-----|-----|-----|
| UTIMCO BOD | G1                     | G2  | G3  | G4  | G5  | G6a | G7  | G8  |
| Carlson    | 3%                     | 31% | 16% | 8%  | 16% | 8%  | 16% | 3%  |
| Caven      | 18%                    | 18% | 24% | 12% | 18% | 6%  | 6%  | 0%  |
| Ferguson   | 4%                     | 9%  | 19% | 19% | 21% | 11% | 13% | 4%  |
| Hunt       | 0%                     | 0%  | 0%  | 16% | 74% | 0%  | 11% | 0%  |
| Rowling    | 5%                     | 14% | 14% | 14% | 29% | 14% | 10% | 0%  |
| Tate       | 9%                     | 14% | 14% | 18% | 14% | 9%  | 18% | 5%  |
| Yudof      | 10%                    | 0%  | 20% | 10% | 10% | 10% | 20% | 20% |

|                   |     |     |     |     |     |     |     |     |
|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Mean              | 7%  | 12% | 15% | 14% | 26% | 8%  | 13% | 5%  |
| Dispersion Factor | 0.8 | 0.9 | 0.5 | 0.3 | 0.9 | 0.5 | 0.4 | 1.6 |



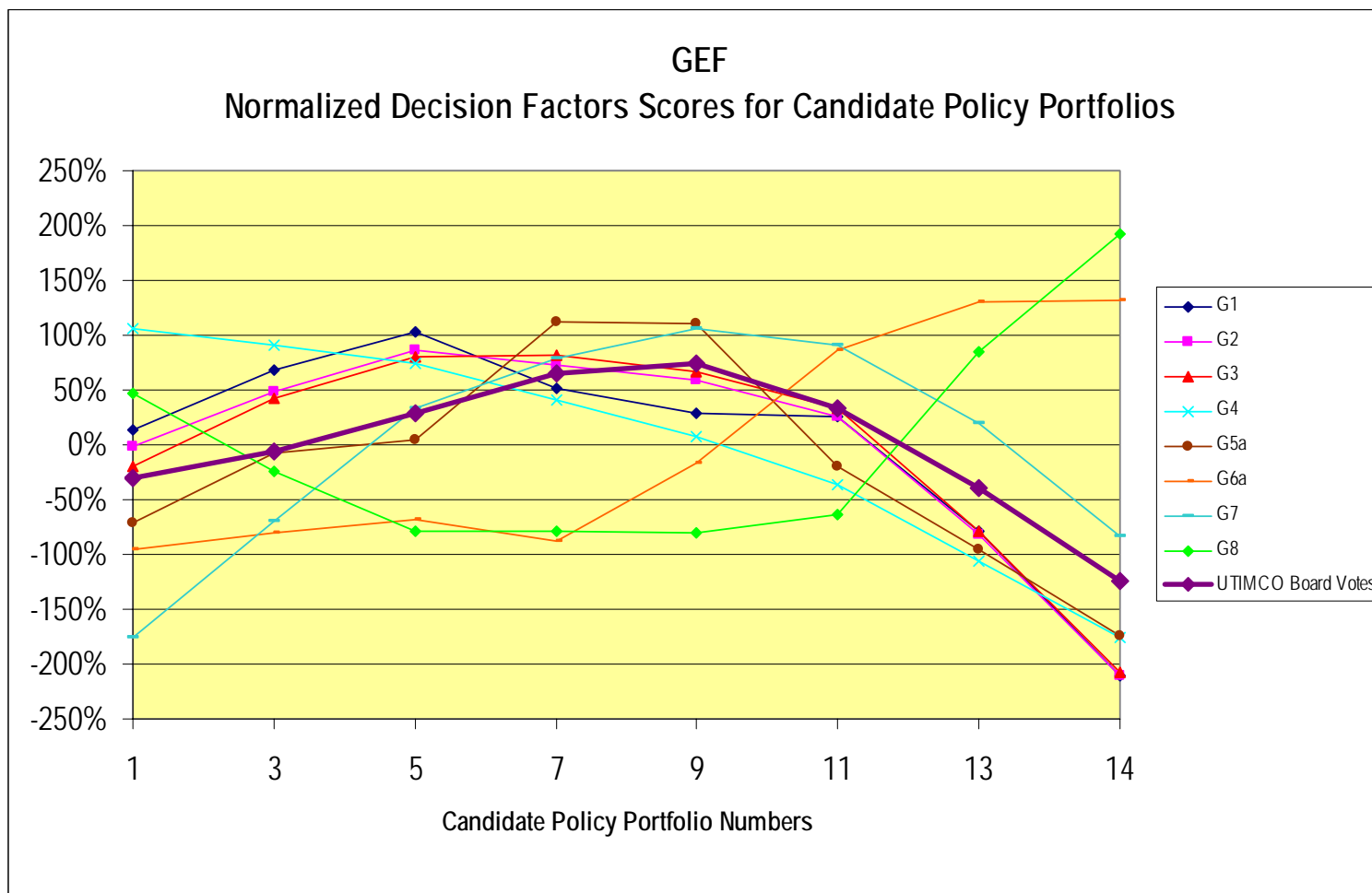
# Actual Decision Factor Votes

|            | Permanent University Fund |     |     |     |     |     |     |     |
|------------|---------------------------|-----|-----|-----|-----|-----|-----|-----|
| UTIMCO BOD | P1a                       | P2  | P3  | P4  | P5  | P6a | P7  | P8  |
| Carlson    | 3%                        | 31% | 16% | 8%  | 16% | 8%  | 16% | 3%  |
| Caven      | 18%                       | 18% | 24% | 12% | 18% | 6%  | 6%  | 0%  |
| Ferguson   | 4%                        | 9%  | 19% | 19% | 21% | 11% | 13% | 4%  |
| Hunt       | 0%                        | 0%  | 0%  | 16% | 74% | 0%  | 11% | 0%  |
| Rowling    | 5%                        | 14% | 14% | 14% | 29% | 14% | 10% | 0%  |
| Tate       | 5%                        | 14% | 14% | 19% | 14% | 10% | 19% | 5%  |
| Yudof      | 0%                        | 10% | 20% | 10% | 10% | 10% | 20% | 20% |

|                   |     |     |     |     |     |     |     |     |
|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Mean              | 5%  | 14% | 15% | 14% | 26% | 8%  | 13% | 5%  |
| Dispersion Factor | 1.2 | 0.7 | 0.5 | 0.3 | 0.8 | 0.5 | 0.4 | 1.5 |



# Decision Factor Votes Highlight Most Appropriate Policy Portfolios



11.17



# Most Appropriate Policy Portfolios

2005 Candidate Policy Portfolios

|             | 1       | 3       | 5       | 7       | 9       | 11      | 13      | 14      | 2003 Policy |
|-------------|---------|---------|---------|---------|---------|---------|---------|---------|-------------|
| USE         | 20.0%   | 20.0%   | 20.0%   | 20.0%   | 20.0%   | 20.0%   | 30.0%   | 45.0%   | 20.0%       |
| GE          | 10.0%   | 10.0%   | 10.0%   | 10.0%   | 10.0%   | 10.0%   | 10.0%   | 10.0%   | 10.0%       |
| EM          | 0.0%    | 0.0%    | 0.2%    | 4.3%    | 8.3%    | 13.9%   | 15.0%   | 15.0%   | 7.0%        |
| AR          | 15.0%   | 15.0%   | 15.0%   | 15.0%   | 15.0%   | 13.1%   | 0.0%    | 0.0%    | 15.0%       |
| EHF         | 8.3%    | 10.4%   | 15.0%   | 15.0%   | 15.0%   | 15.0%   | 15.0%   | 5.0%    | 10.0%       |
| VC          | 5.0%    | 5.0%    | 5.0%    | 5.0%    | 5.0%    | 5.0%    | 5.0%    | 5.0%    | 6.0%        |
| PE          | 7.4%    | 9.7%    | 10.0%   | 10.0%   | 10.0%   | 10.0%   | 10.0%   | 10.0%   | 9.0%        |
| REITS       | 1.4%    | 2.2%    | 5.0%    | 5.0%    | 5.0%    | 3.0%    | 5.0%    | 0.0%    | 5.0%        |
| COM         | 3.9%    | 3.2%    | 3.3%    | 2.4%    | 1.7%    | 0.0%    | 0.0%    | 0.0%    | 3.0%        |
| O&G         | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%        |
| TIPS        | 4.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 5.0%        |
| BND         | 25.0%   | 24.5%   | 16.5%   | 13.3%   | 10.0%   | 10.0%   | 10.0%   | 10.0%   | 10.0%       |
| CA          | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%    | 0.0%        |
|             | 100.0%  | 100.0%  | 100.0%  | 100.0%  | 100.0%  | 100.0%  | 100.0%  | 100.0%  | 100.0%      |
| Exp Ret     | 7.75%   | 7.95%   | 8.15%   | 8.35%   | 8.55%   | 8.75%   | 8.95%   | 9.05%   | 8.39%       |
| Vol         | 8.7%    | 9.2%    | 9.8%    | 10.6%   | 11.4%   | 12.3%   | 13.7%   | 15.0%   | 10.8%       |
| 1 Yr VaR    | -10.6%  | -11.4%  | -11.8%  | -12.9%  | -14.4%  | -16.3%  | -18.1%  | -21.1%  | -13.6%      |
| 1 yr DR     | 6.5%    | 6.7%    | 7.0%    | 7.4%    | 7.9%    | 8.5%    | 9.4%    | 10.3%   | 7.6%        |
| 3 yr DR     | 3.8%    | 3.9%    | 4.0%    | 4.2%    | 4.5%    | 4.8%    | 5.2%    | 5.7%    | 4.3%        |
| Avg PO      | \$254.9 | \$257.8 | \$260.8 | \$264.3 | \$268.1 | \$272.2 | \$277.0 | \$280.0 | \$265.2     |
| Illiquidity | 29.1%   | 32.6%   | 35.3%   | 35.4%   | 35.4%   | 34.6%   | 27.3%   | 22.0%   | 32.4%       |
| PVA         | \$42.3  | \$45.1  | \$48.4  | \$52.4  | \$56.5  | \$60.8  | \$60.8  | \$59.4  | \$53.2      |

11.18





# Slight Practical Revisions to the Candidate Portfolios Result in Recommended Policy

| Asset Category              | Percent of Portfolio  |                              |                              |                                 |                                     |
|-----------------------------|-----------------------|------------------------------|------------------------------|---------------------------------|-------------------------------------|
|                             | 2003 Policy Portfolio | Candidate Policy Portfolio 7 | Candidate Policy Portfolio 9 | 2005 Policy Portfolio Version 1 | 2005 Policy Portfolio Final Version |
| US Equities                 | 20.0                  | 20.0                         | 20.0                         | 20.0                            | 20.0                                |
| Global Equities ex US       | 10.0                  | 10.0                         | 10.0                         | 12.0                            | 10.0                                |
| Emerging Markets Equities   | 7.0                   | 4.3                          | 7.0                          | 7.0                             | 7.0                                 |
| Absolute Return Hedge Funds | 15.0                  | 15.0                         | 15.0                         | 15.0                            | 15.0                                |
| Equity Hedge Funds          | 10.0                  | 15.0                         | 10.0                         | 10.0                            | 10.0                                |
| Venture Capital             | 6.0                   | 5.0                          | 6.0                          | 3.0                             | 4.0                                 |
| Private Equity              | 9.0                   | 10.0                         | 9.0                          | 12.0                            | 11.0                                |
| REITs                       | 5.0                   | 5.0                          | 5.0                          | 5.0                             | 5.0                                 |
| Commodities                 | 3.0                   | 2.4                          | 3.0                          | 3.0                             | 3.0                                 |
| TIPs                        | 5.0                   | 0.0                          | 5.0                          | 3.0                             | 5.0                                 |
| Fixed Income                | 10.0                  | 13.3                         | 10.0                         | 10.0                            | 10.0                                |
| Cash                        | 0.0                   | 0.0                          | 0.0                          | 0.0                             | 0.0                                 |

|                       |        |        |        |        |        |
|-----------------------|--------|--------|--------|--------|--------|
| Expected Return>      | 8.39%  | 8.35%  | 8.55%  | 8.38%  | 8.34%  |
| 1 Year Downside Risk> | 7.6%   | 7.4%   | 7.9%   | 7.8%   | 7.6%   |
| Standard Deviation>   | 10.8%  | 10.6%  | 11.4%  | 11.1%  | 10.8%  |
| 95% 1 Year VaR>       | -13.6% | -12.9% | -14.4% | -14.2% | -13.8% |
| Illiquidity>          | 32.4%  | 35.4%  | 35.4%  | 32.5%  | 32.4%  |

11.19



# Recommended 2005 Asset Allocation Policy Targets, Ranges, and Benchmarks

| Recommended<br>2005 Asset Allocation Policy | Percent of Portfolio (%) |               | Benchmark   |
|---|--------------------------|---------------|---|
|   | Policy Targets           | Policy Ranges |   |
| <b>US Equities</b>                          | 20.0                     | 10 to 30      | Russell 3000 Index  |
| <b>Global ex US Equities</b>                | 17.0                     | 10 to 30      |   |
| Non-US Developed Equity                     | 10.0                     | 0 to 30       | MSCI EAFE Index with net dividends  |
| Emerging Markets Equity                     | 7.0                      | 0 to 10       | MSCI Emerging Markets Index with net dividends  |
| <b>Hedge Funds</b>                          | 25.0                     | 15 to 30      |   |
| Directional Hedge Funds                     | 10.0                     | 5 to 15       | Combination index: 50% S&P Event-Driven Hedge Fund Index plus 50% S&P Directional/Tactical Hedge Fund Index |
| Absolute Return Hedge Funds                 | 15.0                     | 10 to 20      | Combination index: 66.7% S&P Event-Driven Hedge Fund Index plus 33.3% S&P Arbitrage Hedge Fund Index        |
| <b>Private Capital</b>                      | 15.0                     | 5 to 20       | Venture Economics' Periodic IRR Index   |
| Venture Capital                             | 4.0                      | 0 to 8        |   |
| Private Equity                              | 11.0                     | 5 to 15       |   |
| <b>Inflation Linked</b>                     | 13.0                     | 5 to 20       |   |
| REITS                                       | 5.0                      | 0 to 10       | Wilshire Associates Real Estate Securities Index  |
| Commodities                                 | 3.0                      | 0 to 6        | GSCI Index minus 1%   |
| TIPS  | 5.0                      | 0 to 10       | Lehman Brothers US TIPS Index   |
| <b>Fixed Income</b>                         | 10.0                     | 5 to 15       | Lehman Brothers Aggregate Index   |
| <b>Cash</b>                                 | 0.0                      | 0 to 10       | 91 Day T-Bills  |

|                       |        |
|-----------------------|--------|
| Expected Return>      | 8.34%  |
| 1 Year Downside Risk> | 7.6%   |
| Standard Deviation>   | 10.8%  |
| 95% 1 Year VaR>       | -13.8% |
| Illiquidity>          | 32.4%  |

Benchmarks subject to additional review by Cambridge



# Comparison of 2003 Policy and Recommended 2005 Policy

| 2003 Asset Allocation Policy | Percent of Portfolio (%) |                 |
|------------------------------|--------------------------|-----------------|
| Asset Category               | Policy Targets           | Policy Ranges   |
| US Equities                  | 25.0                     | 15 to 45        |
| Traditional US Equities      | 20.0                     | 15 to 45        |
| REITS                        | 5.0                      | 0 to 10         |
| Global ex US Equities        |                          |                 |
| Non-US Developed Equity      | 10.0                     | 5 to 15         |
| Emerging Markets Equity      | 7.0                      | 0 to 10         |
| <b>Total Equity</b>          | <b>42.0</b>              | <b>20 to 60</b> |
| Equity Hedge Funds           | 10.0                     | 5 to 15         |
| Absolute Return Hedge Funds  | 15.0                     | 10 to 20        |
| <b>Total Hedge Funds</b>     | <b>25.0</b>              | <b>15 to 25</b> |
| Venture Capital              | 6.0                      | 0 to 10         |
| Private Equity               | 9.0                      | 5 to 15         |
| <b>Total Private Capital</b> | <b>15.0</b>              | <b>5 to 15</b>  |
| Commodities                  | 3.0                      | 0 to 5          |
| Fixed Income                 | 15.0                     | 10 to 30        |
| Traditional Fixed Income     | 10.0                     | 10 to 30        |
| TIPS                         | 5.0                      | 0 to 10         |
| Cash                         | 0.0                      | 0 to 5          |

| Recommended 2005 Asset Allocation Policy | Percent of Portfolio (%) |                 |
|--|--------------------------|-----------------|
| Asset Category                           | Policy Targets           | Policy Ranges   |
| US Equities                              | 20.0                     | 10 to 30        |
| Global ex US Equities                    | 17.0                     | 10 to 30        |
| Non-US Developed Equity                  | 10.0                     | 0 to 30         |
| Emerging Markets Equity                  | 7.0                      | 0 to 10         |
| <b>Hedge Funds</b>                       | <b>25.0</b>              | <b>15 to 30</b> |
| Directional Hedge Funds                  | 10.0                     | 5 to 15         |
| Absolute Return Hedge Funds              | 15.0                     | 10 to 20        |
| <b>Private Capital</b>                   | <b>15.0</b>              | <b>5 to 20</b>  |
| Venture Capital                          | 4.0                      | 0 to 8          |
| Private Equity                           | 11.0                     | 5 to 15         |
| <b>Inflation Linked</b>                  | <b>13.0</b>              | <b>5 to 20</b>  |
| REITS                                    | 5.0                      | 0 to 10         |
| Commodities                              | 3.0                      | 0 to 6          |
| TIPS                                     | 5.0                      | 0 to 10         |
| <b>Fixed Income</b>                      | <b>10.0</b>              | <b>5 to 15</b>  |
| Cash                                     | 0.0                      | 0 to 10         |

11.21