

CIEBA 9/04 Telediscussion: SAA vs TAA

Panel Discussion:

***Portfolio Asset Allocation – Strategic vs
Tactical***

Moderated by: Marie Pillai, Siemens Corp., USA

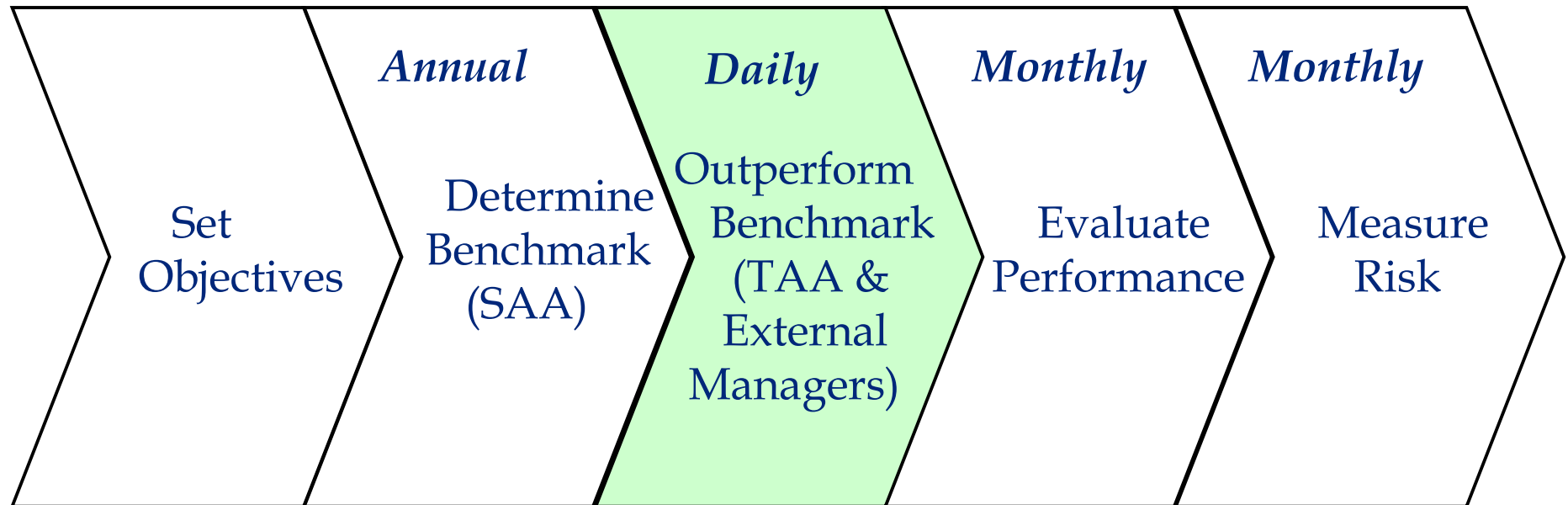
SAA vs. TAA – Key Issues

- ◆ **SAA and TAA complement each other**
- ◆ **Active management can lower risk/enhance returns**
 - How to develop rules to manage drifts from benchmark?
- ◆ **Typical comments:**
 - “do not actively manage assets” – **already are (implicitly) active**
 - “not as smart as asset managers” – **neither are they!**
 - “do not have resources” – **easily overcome; leverage existing resources**
- ◆ **AlphaEngine™: empower clients to make better decisions**

All Pension Portfolios Are Active

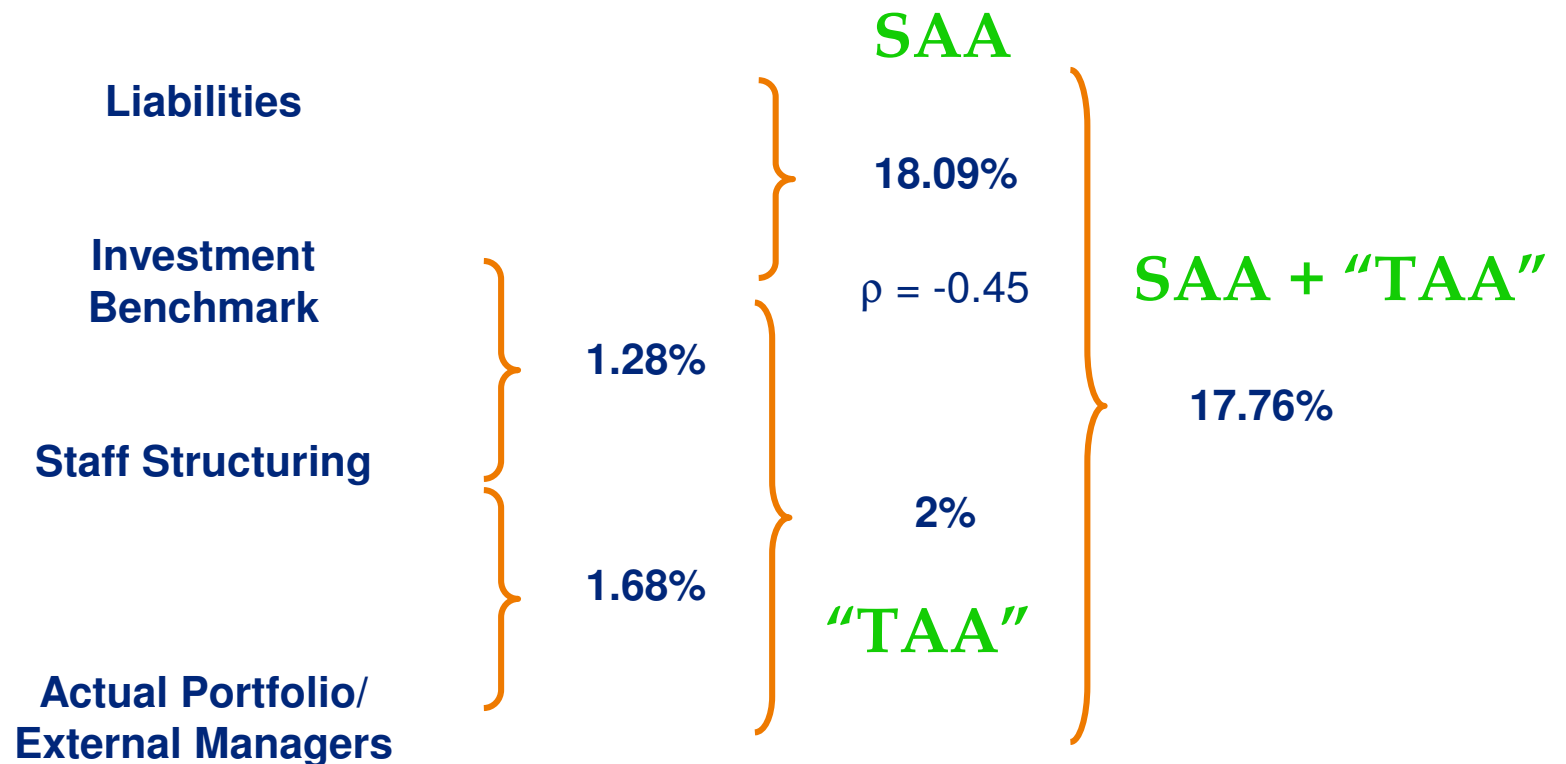
- ◆ **Portfolio is active soon after investments are made (more so with external managers and “misfit risk”)**
- ◆ **All portfolio decisions (explicit or implicit) impact returns; Must make decisions in an informed manner**
- ◆ **Implement state-of-the-art framework for all decisions**
 - Identify decisions/responsibility at every level of fund
 - Develop rules to guide each decision
 - Set a consistent evaluation process for all decisions
 - Evaluate aggregate impact of decisions on risk/return
- ◆ **Easy to do – leverage staff and available resources**
 - External managers, published research, investment banks etc.

Key to Success – Effective Decisions



- Traditional Approach – Alpha from external managers
- New Approach – Add alpha from informed decisions
- Transparency and governance are critical

Risk: SAA is Critical; TAA can Lower



Staff can lower asset-liability risks; What about returns?

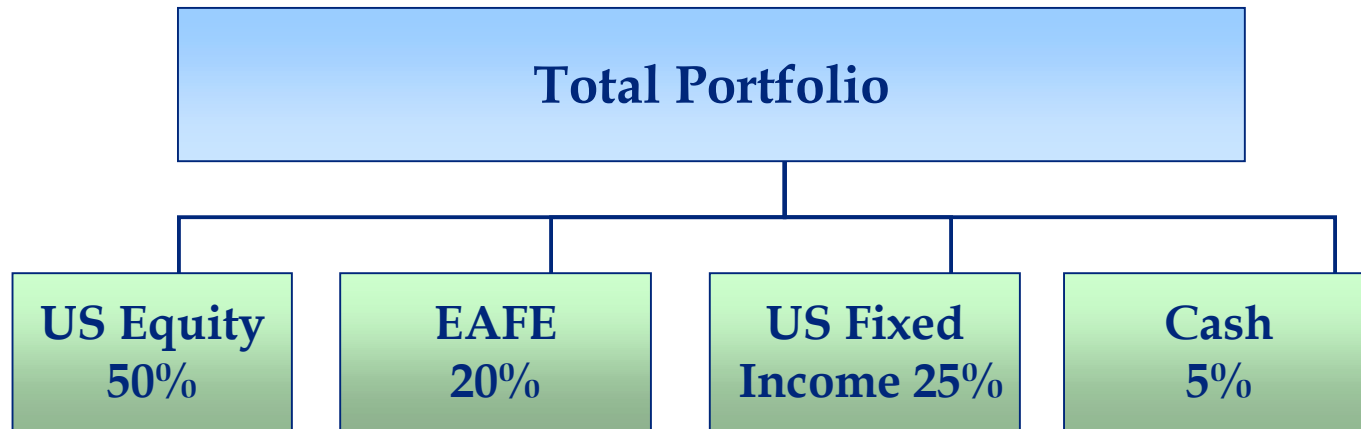
Frequent Pension Plan Decisions

1. Manage ongoing cash flows
2. Evaluate and implement rebalancing strategies
3. Manager selection and allocations
4. Asset, country, style, or currency allocation

Each is “active” and can be a source of return.

On \$1bn, 10 bps/yr value-added = \$1 mn/yr

Case Study - Client Portfolio Structure



Decisions to be made on allocation between asset classes:

- Domestic vs International Equities (Stock-Stock)
- Domestic Equities vs Domestic Bonds (Stock-Bonds)
- Domestic Bonds vs Cash (Bonds-Cash)

Assume asset limits of +/- 5% from benchmark weight

Effective Decision Making Steps

- ◆ Low asset correlations allow “informed decision making”
- ◆ Identify rule ideas to allocate across asset classes
- ◆ Select criteria for rule/strategy evaluation (excess return, information ratio, skill, success rate, drawdown)
- ◆ Analyze rule performance, test different strategies (rule combinations) - diversification benefits not obvious
- ◆ Test alternative policies to see cost of constraints

Assumed monthly decisions (1998-2004); No transaction costs

Simple/Intuitive Rules Tested

Rule	Rule Description
<i>Cash vs. Bonds, based on Gold</i>	Duration choice based on price of gold. If the spot price of gold is higher than it was a year ago, overweight cash, otherwise overweight bonds
<i>Stocks vs Bonds: Halloween Effect</i>	Stocks tend to underperform bonds between June and Sept - apparently works in 16 out of 18 stock markets, so underweight stocks during this period
<i>Stocks vs Bonds: Inflation/Growth</i>	Equities undervalued when inflation rises (Modigliani-Cohn insight); equities favored when industrial production is increasing
<i>Market Volatility</i>	Low equity volatility in a rising stock environment is bullish for equities.
<i>Oil and Economy</i>	Rising oil prices affect the economy and tend to depress equities.
<i>P/E Ratio Rule</i>	Value rule for equity (vs FI) using the S&P 500 P/E
<i>Fed Model</i>	When equity yield is higher than treasury yield then buy equity, else sell equity
<i>Unemployment Rate</i>	Buy stocks when the unemployment rate is falling (good for economy)
<i>US/EAFE: LIBOR Rates</i>	Overweight equity market with the stronger currency (higher interest rate)
<i>US/EAFE: Favor Underperformer</i>	Overweight equity market which has underperformed over past year (i.e., buy the laggard)

Rule Performance (1998-2004)

Rule	Excess Annualized Return	Information Ratio	Confidence in Skill	Success Ratio	Ratio Good /Bad Risk	Max Drawdown
Cash vs. Bonds, based on Gold	0.04%	0.20	68.8%	56.4%	1.30	-0.44%
Halloween Effect	0.98%	0.88	98.0%	63.8%	1.42	-1.58%
Inflation/Growth	0.50%	0.57	93.1%	79.7%	1.07	-1.31%
Market Volatility	0.12%	0.11	67.8%	56.4%	1.41	-2.74%
Oil and Economy	0.45%	0.57	91.6%	70.5%	1.16	-0.84%
P/E Ratio Rule	0.17%	0.39	87.1%	50.0%	2.12	-0.80%
Fed Model	0.47%	0.50	91.8%	61.5%	1.43	-2.17%
Unemployment Rate	0.51%	0.61	94.1%	59.0%	0.99	-1.11%
US/EAFE: LIBOR Rates	0.17%	0.43	84.7%	55.1%	1.07	-0.71%
US/EAFE: Favor Underperformer	0.53%	0.95	99.3%	64.1%	1.33	-1.07%

Strategies (Mix of Rules) Tested

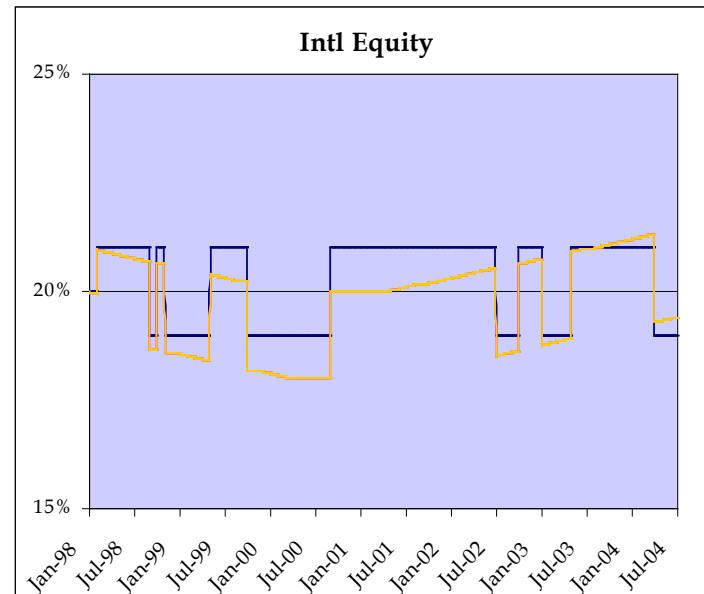
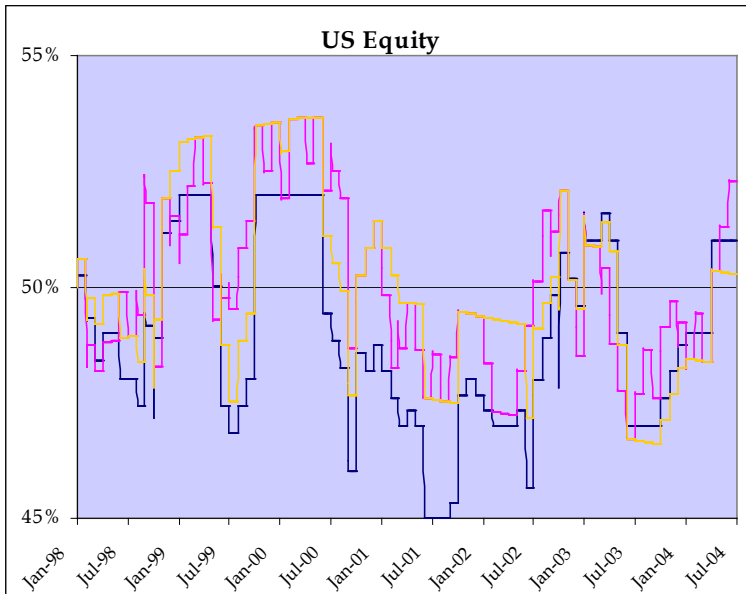
Strategy Name	Strategy Description
<i>Rebalancing I</i>	Quarterly Rebalancing to Benchmark Weights
<i>Rebalancing II</i>	Rebalance to Benchmark Weights when Range of +/-5% Breached
<i>Combination of Rules: Strategy 1</i>	<u>6 Best Excess Annualized Returns (α) and Information Ratios – Cash vs Bonds, Halloween Effect, Inflation/Growth, Fed Model, Unemployment Rate, US/EAFE: Favor Underperformer (all equally weighted)</u>
<i>Combination of Rules: Strategy 2</i>	<u>6 Lowest Annualized Standard Deviation (Risk) - Cash vs Bonds, Oil and Economy, P/E Ratio, Unemployment Rate, US/EAFE: LIBOR Rates, US/EAFE: Favor Underperformer (all equally weighted)</u>
<i>Combination of Rules: Strategy 3</i>	<u>3 Highest α and 3 Lowest Risk - Cash vs Bonds, Halloween Effect, P/E Ratio, Unemployment Rate, US/EAFE: LIBOR Rates, US/EAFE: Favor Underperformer (all equally weighted)</u>

Strategy Performance (1998-2004)

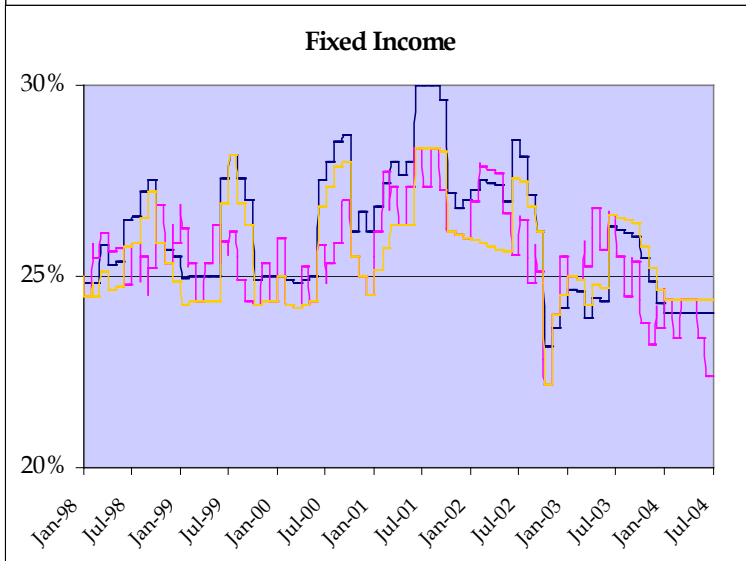
Strategy	Excess Annualized Return	Information Ratio	Confidence in Skill	Success Ratio	Ratio Good /Bad Risk	Max Drawdown
Rebalancing I - Quarterly	-0.22%	-0.87	NM	29.5%	1.26	-1.50%
Rebalancing II - Range of 5%	-0.42%	-1.11	NM	33.3%	0.96	-2.74%
Strategy 1 (highest 6 Excess Returns/IR)	0.44%	1.29	99.97%	64.1%	2.11	-0.21%
Strategy 2 (lowest 6 risk)	0.32%	1.20	99.90%	61.5%	1.54	-0.28%
Strategy 3 (Highest 3 Excess, lowest 3 Risk)	0.36%	1.42	99.99%	57.7%	2.09	-0.20%

**Informed decisions significantly outperform rebalancing.
Rule diversification enhances information ratios**

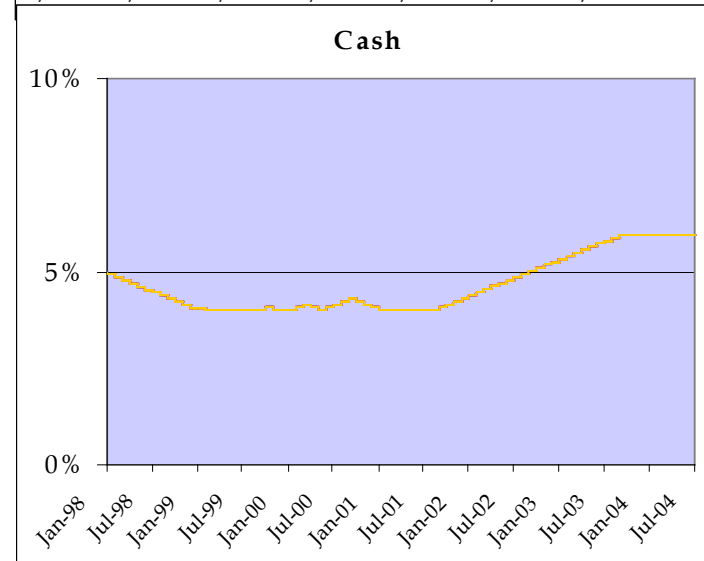
Small Allocation Deviations



Strategies 2 & 3 have same rules/allocation



Strategy 1
Strategy 2
Strategy 3



All strategies have same rule/allocation

Relaxing Asset Limits to +/- 10%

Strategy	Excess Annualized Return	Information Ratio	Confidence in Skill	Success Ratio	Ratio Good /Bad Risk	Max Drawdown
Rebalancing II - 5% Range	-0.42%	-1.11	NM	33.3%	0.96	-2.74%
Rebalancing II - 10% Range	-0.11%	-0.16	31.95%	46.2%	1.60	-2.48%
Strategy I - 5% limit	0.44%	1.29	99.97%	64.1%	2.11	-0.21%
Strategy I - 10% limit	0.93%	1.29	99.97%	68.0%	1.91	-0.50%
Strategy II - 5% limit	0.32%	1.20	99.90%	61.5%	1.54	-0.28%
Strategy II - 10% limit	0.51%	1.16	99.85%	62.8%	1.91	-0.26%
Strategy III - 5% limit	0.36%	1.42	99.99%	57.7%	2.09	-0.20%
Strategy III - 10% limit	0.75%	1.50	99.99%	66.7%	1.90	-0.44%

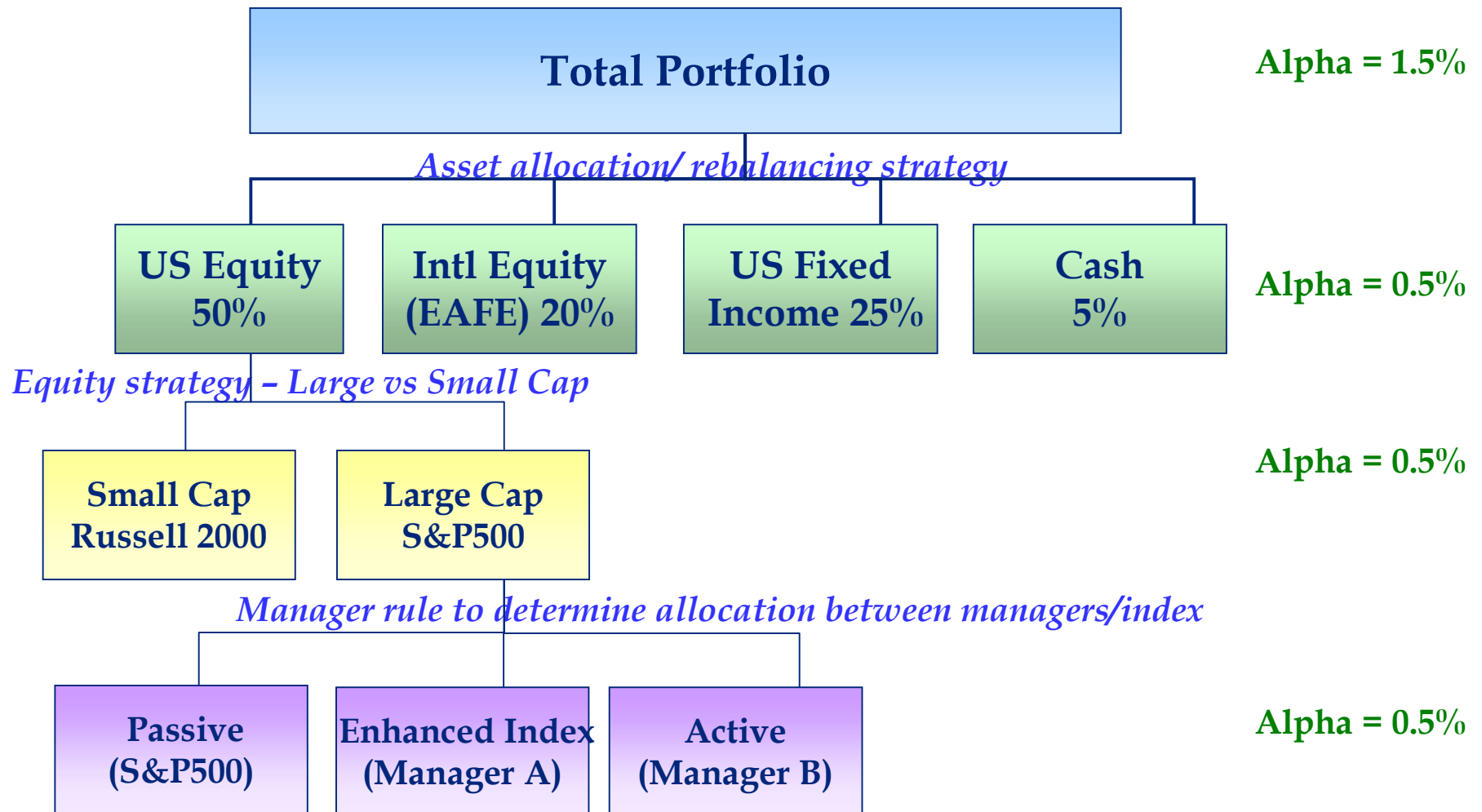
Change in asset range produces higher return; other measures improve or stay within acceptable range

Case Study is Tip of Iceberg

- ◆ **Each decision is an opportunity for more returns/risk management**
- ◆ **More tiers = greater diversification, efficacy = more returns**
 - Within asset classes (Fixed Income, Equities, Currencies)
 - Managers: Active versus passive and across managers
- ◆ **Leverage asset managers to generate research ideas for decisions**
- ◆ **Rule were equally weighted; opportunity to further improve**
- ◆ **Evaluate ideas in isolation as well as part of a total portfolio (aggregation produces results that are not obvious)**

Improve fund governance, and in turn, returns and risk

Multi-Tiered Alpha Aggregation



AlphaEngine™: Empower Clients

- ◆ Brings state-of-the-art management to pension funds - Client can make all decisions better
- ◆ Easy to use: Clients generate ideas - software does the work
- ◆ Immediate: Ideas can be tested in a few minutes; error free!
- ◆ Client can customize to their structure and objectives
- ◆ Transparent: See impact of all decisions on individual asset class or entire fund (easy to read)
- ◆ Improve governance through better process

Summary

- ◆ Many (explicit and implicit) decisions in a portfolio
- ◆ Each is an opportunity for alpha/risk management
- ◆ On \$1bn, 10 bps/yr of added value = \$1mn/yr
- ◆ Risk management = more effective decisions
- ◆ Rules are easy to develop and evaluate
- ◆ Easy to implement: leverage staff and resources
- ◆ AlphaEngine™: adopt best practices quickly and easily

Appendix

Pension Fund Risks: Measure & Manage

	Asset- Liability Risk	Tactical & Benchmark Risk	Manager/ Active Risk
Responsibility	Oversight Committee	Internal Staff	Managers
Decision Frequency	Annually	Daily/Monthly	Monthly
How to Manage the Risk	Strategic Allocations & Funding Policy	Asset, Sector, Style and Currency Allocations	Manager Selection and Allocation

Staff are making many decisions periodically

Decision Process and Framework

- ◆ **State-of-the-art framework for all decisions**
 - Identify decisions/responsibility at every level
 - Develop rules to guide each decision
 - Set up consistent evaluation process for all decisions
 - Evaluate portfolio impact of decisions on risk/return

**Make all decisions explicit – use
managers/research/market information**

Stocks vs. Bonds: Halloween Effect

- Benchmark: 60% S&P500; 40% Citi BIG
- If Jun 1 in Any Year, Allocate 55% to S&P,
Else if Oct 1, in Any Year, Allocate 65%
- Annualized Excess of 0.7%; Risk 1%
- Period Tested Over: 1995-2003
- Confidence in Skill: 98%
- Hit Rate: 55% (positive excess 55% of time)

Investment Grade vs. HY: Equities

- Benchmark: 60% Citi BIG; 40% ML HY
- If the % change in the S&P500 > 0 and % change in the VIX (volatility of S&P500) < 0 , Shift +7.5% to HY; Else -7.5% to HY
- Annualized Excess of 1.5%; Risk 1%
- Period Tested Over: 1999-2003
- Confidence in Skill: 99%
- Hit Rate: 63%

Appendix: Correlations (1998-2004)

	Standard & Poors 500 (Total Return)	Lehman Brothers, Composite Bond Index	MSCI EAFE	1-Yr Treas. Constant Maturity
Standard & Poors 500 Index (Total Return)	1.000			
Lehman Brothers, Composite Bond Index	-0.132	1.000		
MSCI EAFE	0.027	0.014	1.000	
1-Yr Treas. Constant Maturity	0.003	0.007	-0.015	1.000