

# Panel Discussion: *Risk Management*

National Pension & Institutional Investor Summit | December  
2008

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# Risk Management for the Next Generation

## *Becoming “Crisis-Preventive” rather than “Crisis-Reactive”*

- Understand the shortfalls of current approaches to risk management
- Tools already exist to manage more optimal pension investment programs
- Migrate from use of blunt risk management tools to those with precision

# Shortfalls of the Current Approach to Pension Investing

- 1 Belief in the elusive risk reduction benefits of beta diversification
- 2 Incrementalist shift towards adopting integrated ALM framework
- 3 Risk budgeting and portfolio structuring done in asset-only space
- 4 Lack of plan-level risk mitigation and hedging strategies
- 5 Asset allocation policy assumes normally distributed returns
- 6 Plan oversight and asset allocation management out-of-synch

# New Investment Principles are Needed

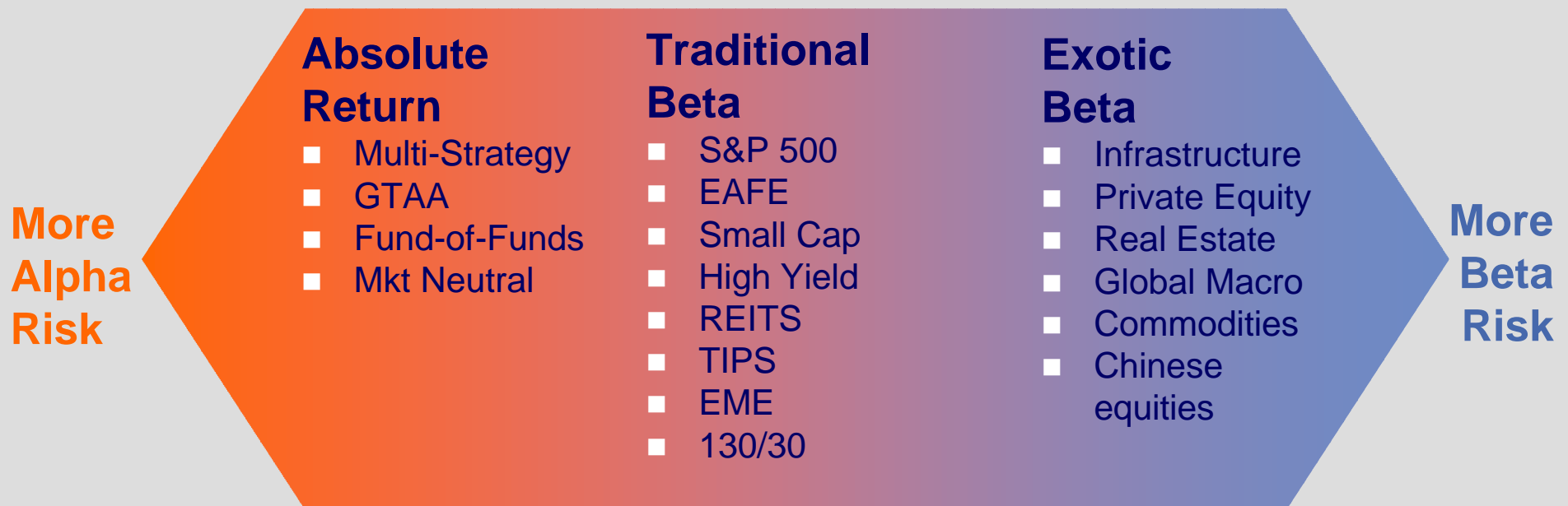
- Investment risk should be defined as funded status volatility or probability of funding shortfall
- Tracking error to market benchmarks is far too blunt a risk measure
- Develop return expectations and risk budget in explicit context of liabilities
  - Each asset class and product's return = Expected excess return above liability growth rate
  - Each asset class and product's risk = Expected tracking error to liability
  - Risk budgeting based on marginal contributions to tracking error of liability
- Take no more beta risk than is absolutely necessary to achieve objectives
- Make full use of risk management tools
  - Self-insurance: LDI + portable alpha
  - Buying surplus protection: Puts and collars on funded status
  - Buying asset-only downside protection: Tail risk hedges

# Risk budgeting across liability hedging, alpha return generating and beta return generating assets

## Liability Matching Assets

- Zero coupon swaps
- Cash bonds
- TIPS

## Return Generating Assets



# Employing Tail Risk Hedging Strategies

***Greater than 75% of strategies are correlated in times of market crisis and 95% are correlated when liquidity dries up***

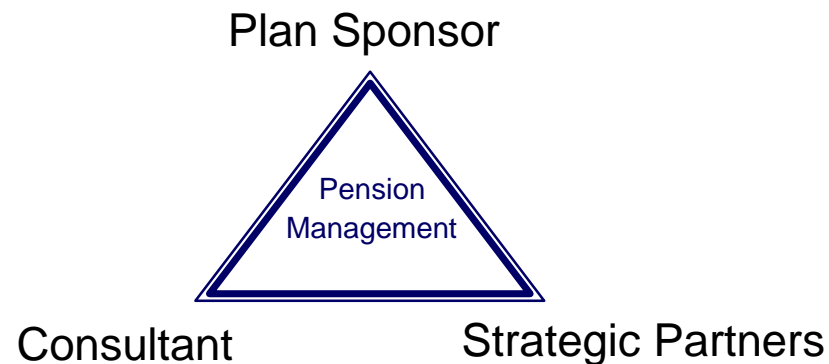
- Each manager's endogenous risk management techniques are blunt in protecting funded status or providing downside protection
- Tail risk hedging instruments are needed that are truly uncorrelated or offer high payoffs in times of market crisis
- Four potential tail risk hedges to consider:
  - Cash allocation to Treasury bonds
  - Rolling long Treasury futures positions
  - Deep OTM calls on Treasury bonds or T-Bond futures
  - Options on correlation baskets

# Next Generation Optimization and Risk Techniques

- Optimization to be performed in asset/liability space
- Perform both stochastic as well as deterministic scenario analysis to stress-test results coming from various portfolio alternatives
- Statistical adjustments to volatility can be made for assets with either smoothed return profiles or non-normal distributions (i.e. fat tails)
  - Use stochastic volatility shocks to “unsmooth” returns of private market assets
  - Use Cornish Fisher VaR in place of normal VaR/standard deviation to adjust for skewness and kurtosis in estimating asset class’s risk profile
- Further precision can be achieved by optimizing in Conditional VaR space
  - Finds portfolios that deliver a given level of target surplus while minimizing the average of the 500 worst scenarios out of the 10,000 scenarios generated

# Creating a More Responsive Oversight Framework for Asset Liability Management

- Meeting plan objectives requires far more vigilant and active oversight
- Three-way partnership should be formed to manage the program



- Each strategic partner manages a portion of pension assets in an integrated asset liability management program
- Consultant oversees the implementation and results of each manager using plan-level metrics to define success
- Pension Glidepath can be used for on-going asset allocation adjustments

# Utilizing a Pension Glidepath for On-going Management

***Asset Allocation, total risk and composition of risk should be managed “actively” and changed in accordance with changes in the plan’s funded status over time.***

