

AOA Conference
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Endowment Management Panel Discussion
Key Issues & Solutions

Todd Au, CIMA[®]

Second Vice President
Senior Investment
Management Consultant

Graystone Consulting

3562 Round Barn Circle, 1st Floor
Santa Rosa, CA 95403

Phones:

| | |
|-----------|--------------|
| Main Line | 707-571-5704 |
| Toll-Free | 888-267-5868 |
| Fax | 707-571-5775 |

E-Mail:

todd.au@morganstanleygraystone.com

Key Issues

» Volatility

- Flatter Distributions & Fatter tails

» Investor Sentiment following what just occurred (Rearview mirror)

- Negative Outlook on
 - » Equities
 - Emerging markets
- Bullish
 - » US Dollar
 - » Bearish view on US Treasuries abates

» Asset Allocation vs. Asset Management

- MVO/Strategic Allocation vs. Tactical
- Alternative Investments

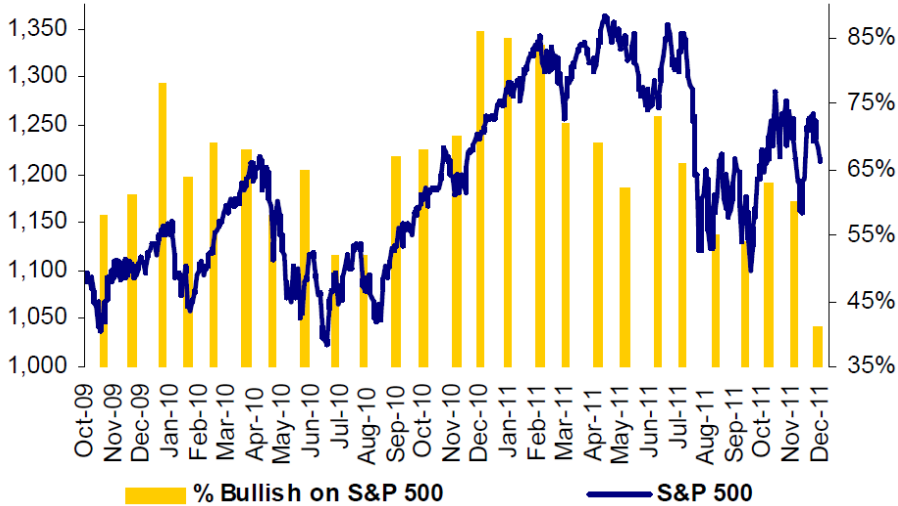
» Spending

» Politics

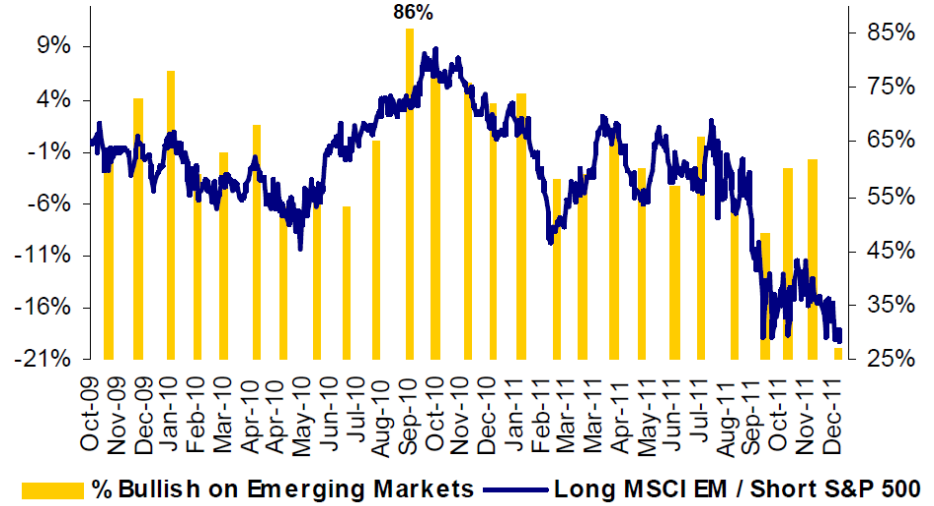
- Relationship between donor, volunteer investment committee & Investment Office
- Are politics dictating asset allocation?

Sentiment: MS Institutional Survey

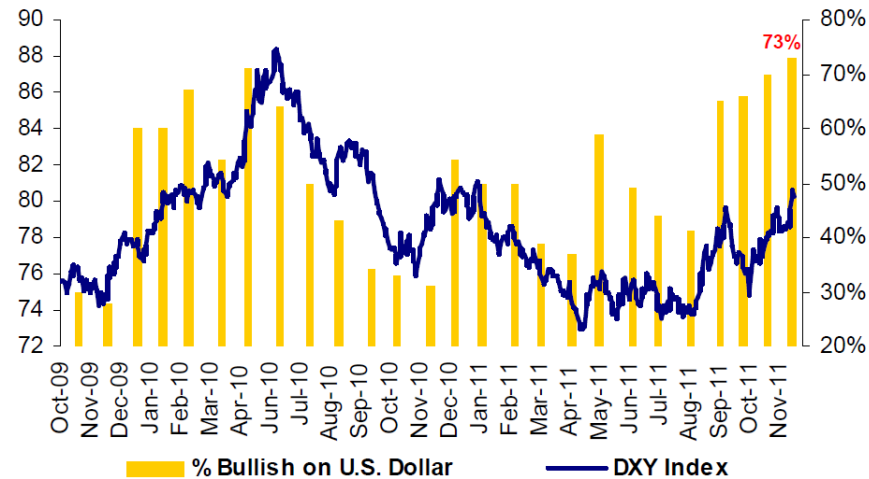
S&P 500 Sentiment Collapses to 41% Bulls



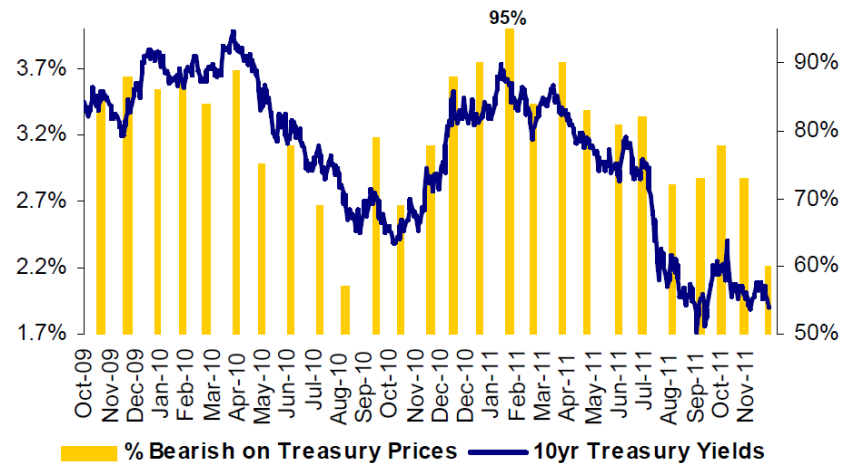
Emerging Market Bullishness Plummet to 27%



U.S. Dollar Bullishness Reaches New Survey High



Bearishness on US Treasuries Abates



Our Strategic Thinking...

» Back to Fundamentals

- Macro events are currently driving returns
- We believe fundamentals will regain leadership – but it may take awhile...

» Assess the “Gaps in your Investment Office”

- Embrace the new UPMIFA guidelines

» Focus should be on what you can control

- Cash Flow
 - » Payout
 - » Fundraising
- Asset Allocation & Risk Management

Delegation of Authority & UPMIFA

» UPMIFA

- Expanded the flexibility of investment management
 - » Ability to delegate investment authority to investment experts

» Fiduciary Responsibility

- Board of trustees – difficulty in delegating authority
- Investment committee – Volunteers
- Investment consultants – being delegated more responsibility

Investment Office Overview

» What is an Investment Office?

- An office of dedicated investment professionals with the skills and resources to exclusively devote to the investments of a single or multiple entities (institution).

» Infrastructure

• Human Resources

- » CEO
 - » CFO
 - » CIO
- } With smaller funds these roles can be combined

- » Research Analysts
- » Administration
- » Reporting

• Technology

- » Hardware & Software
- » Performance Monitoring
 - Returns based and Holdings based
- » Risk metrics/analytics
 - Scenario Stress Testing
- » Research Management Tool

Graystone's Investment Office Infrastructure

Human Resources

- Investment Consultants (17)
- Research and Client Portfolio Analysts (14)
- Operations and Client Service Professionals (11)
- 247 Professionals (Research and Management) at the home office. (128 Research Focused)

Technology

- Asset Allocation
- Research
- Research Aggregation
- Monitoring
- Risk Management

Risk Management

» Comprehensive Risk Management is Paramount

- Client specific risk is measured relative to a normal policy benchmark.
- **Unintended Risk:** Rigorously follow portfolio at the aggregate level and sub-manager/strategy level for measured risks and seek out sources of unintended risk.
- Risk management process should consider a combination of:
 - » Value at Risk
 - » Historical stress tests
 - » Scenario Analysis
 - » Market and sector exposures
 - » Factor models
- Employ overlays to reduce exposures if the total fund aggregate exposure rises to a point that it causes our risk models to indicate that monthly volatility or drawdown potential was too high.

What Data Do We Need to Effectively Manage Risk?

» **Factor/Security Level**

» **Liquidity**

» **VAR**

» **Stress Tests**

» **Scenario Analysis**

» **Marginal Risk Analysis**

» **Fixed Income Analysis**

- Interest Rate Sensitivity
- Spread sensitivity

» **Aggregate Exposures**

- Gross Long
- Gross Short
- Net

» **Leverage**

» **Country Allocation**

» **Sector Allocation**

» **Industry**

» **Holdings level detail**

» **What else?**

Current Risk Management Tools

» Asset Allocation

- Asset Allocation Center – Proprietary
- Zephyr – MVO

» Research

- PSN Informa
- Zephyr – Style Advisor
- Attribution – Vestek/Factset
- Alternatives – Comprehensive 3rd Party Due Diligence (*Non disclosure agreement*)
- Economic – Crandall, Pierce & Co.
- Morningstar
- Pertrac Analytics

» Research Aggregation

- Pertrac Research management system (RMS)

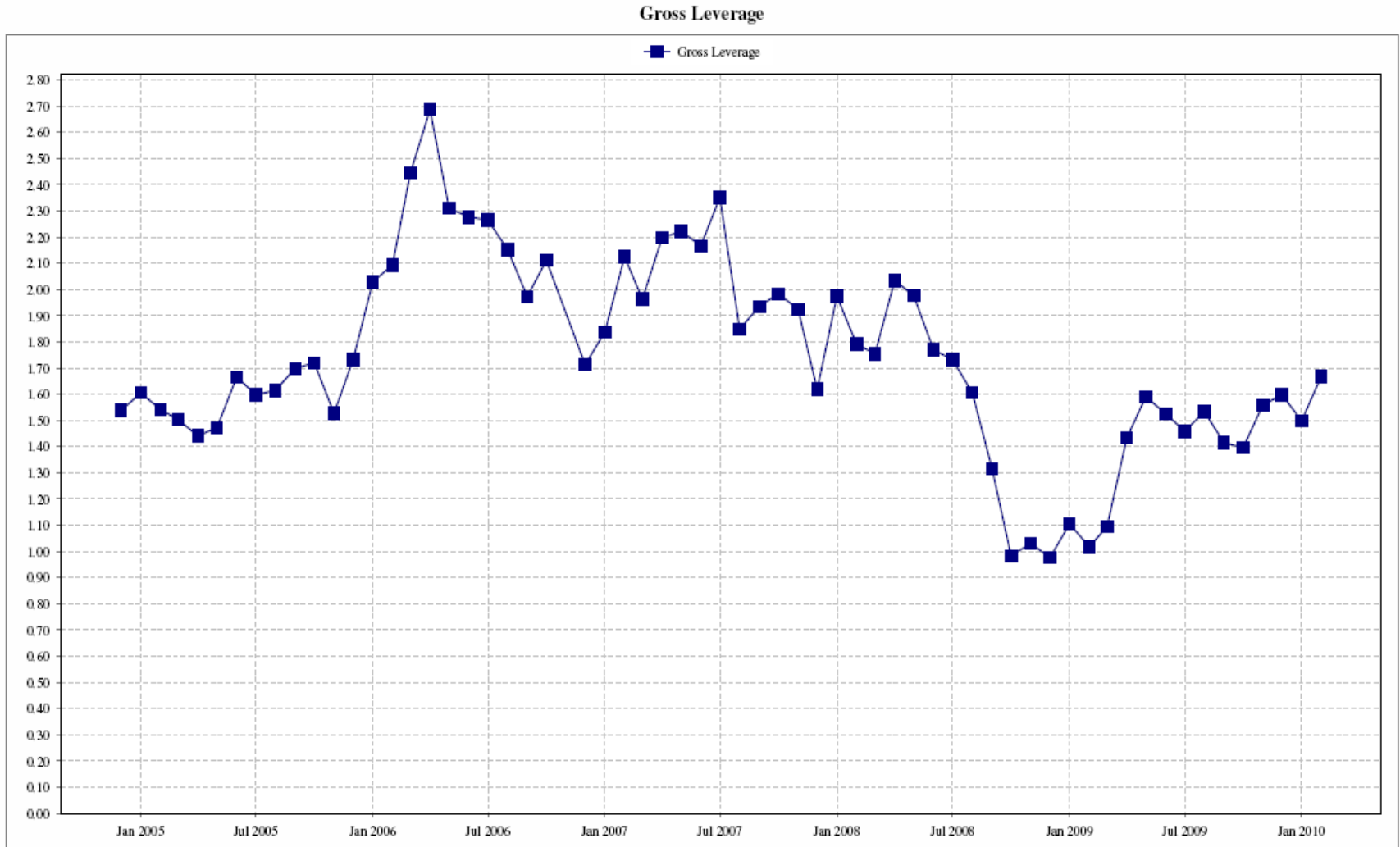
» Monitoring

- Rogers Casey – PARis
- Attribution – Vestek
- Custody Aggregation Statement – Clearwater
- Policy Monitoring – Charles River

» Risk Management

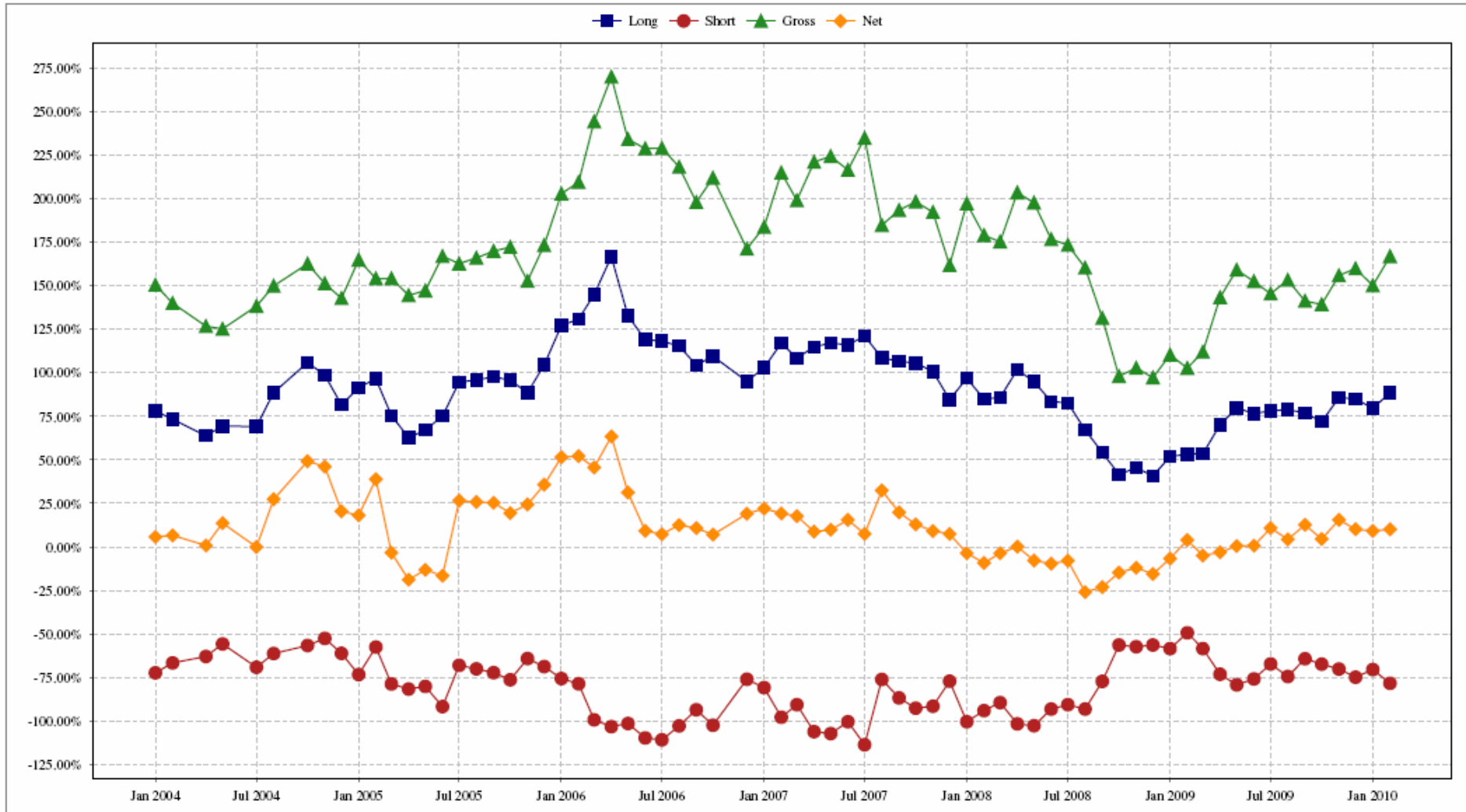
- Factset (SPAR)
 - » Northfield, Bara, Risk Metrics
- Pertrac – Portfolio Manager

Risk – Gross Leverage



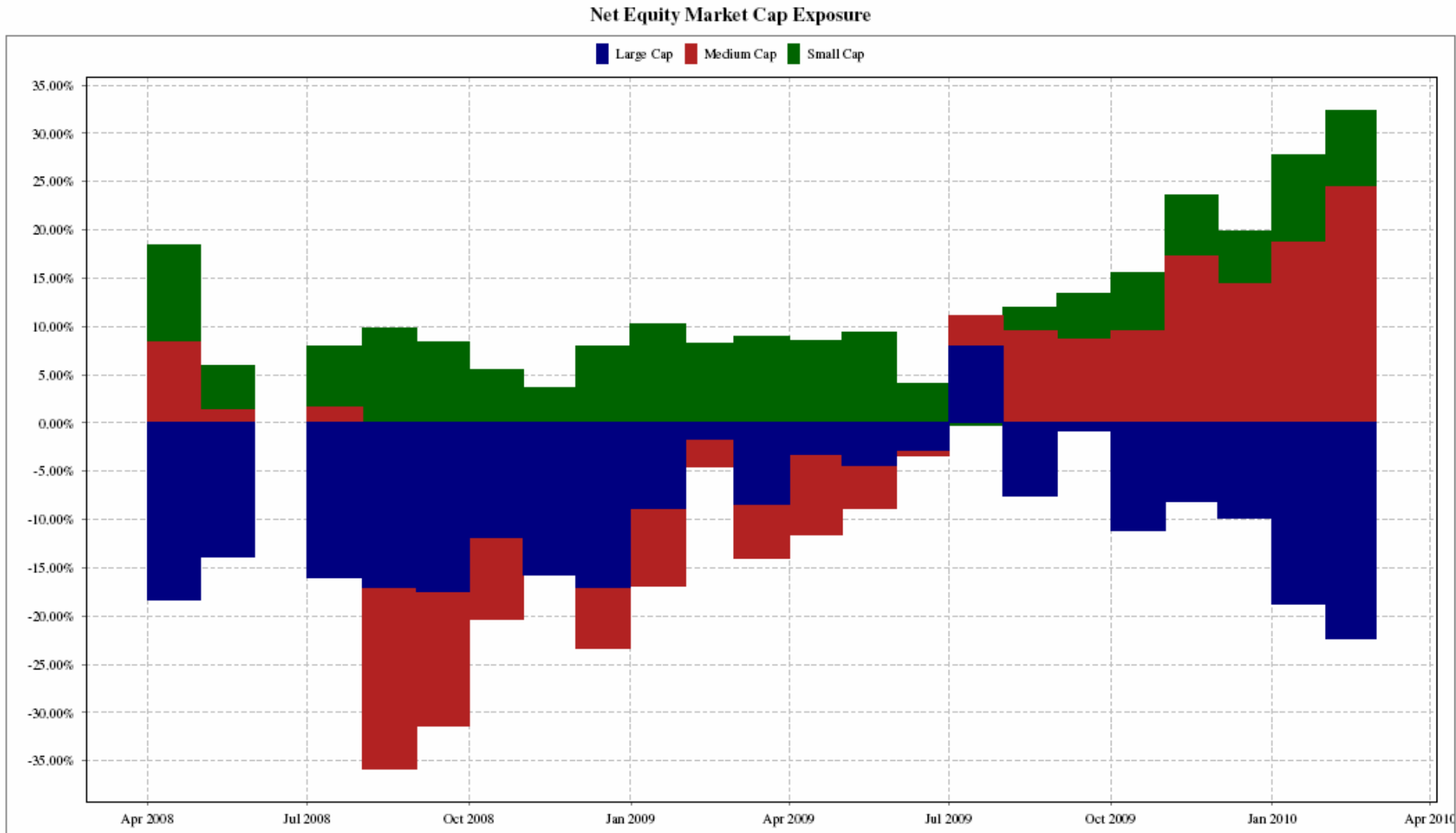
Source: Excel based Hypothetical Example

Risk – Total Equity Exposure



Source: Excel based Hypothetical Example

Risk – Net Equity Market Cap Exposure



Source: Excel based Hypothetical Example

Risk – What do you do with all the data?

» **Additional transparency presents the question of what to do with that information in a systematic, robust, and actionable manner that is of benefit to the investor**

- **Risk aware**
- **Analyze & fill diversification gaps**
- **Hedge out or reduce unintended risk**

Old World

- **Increase Fixed Income Allocation**
- **Increase Allocation to Cash**

New World

- **Increase Allocation to Hedge Funds and/or Tactical Managers**

New New World

- **Risk overlay**
- **Tail Hedging**

Attributes of Effective Institutional Investors

» CFO

- Main point of contact
- Handle Cash Flow
- Audit
- Liability management
- Empowered to make certain investment decisions

» Investment Committee

- Focused on:
 - » Investment Policy
 - » Investment Philosophy
 - » Budgeting Cash Flow



Moderated by Consultant

» Consultant





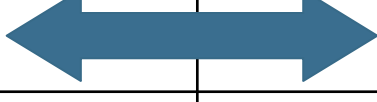
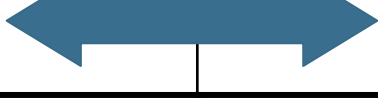
- Focused on
 - » Portfolio Construction
 - Asset Allocation
 - Investment Manager Selection

» Investment Decisions

- Portfolio construction managed by consultant (vs. committee) and shared with investment committee by either approval or discussion of rationale/thesis.

Management of Investment Decisions

Investment Office's relationship to the Investment Committee/Board

| | Investment Committee <i><u>Co-Development</u></i> | Investment Committee <i><u>Approval</u></i> | Investment Committee <i><u>Delegation</u></i> |
|----------------------------|---|---|--|
| Investment Policy | X  | | |
| Strategic Asset Allocation | X  | | |
| Tactical Asset Allocation | X |  | |
| Opportunistic Allocation | X |  | |
| Manager Search & Selection | X |  | |
| Manager Termination | X |  | |

Traditional client decision model is in the areas checked by red X's. Our most effective clients' decision model are in areas designated by the blue arrows.

The Spectrum of Investment Office Services

In-Sourced Investment Office

- » **Consultant Provides Fiduciaries information to make informed investment decisions**
 - Search
 - Special Studies
- » **Consultant Helps trustees fulfill their fiduciary obligations**
- » **Consultant Provides Monitoring Services**
- » **Fiduciaries (investment committee) make all investment decisions**

Out-sourced Investment Office

- | | |
|---|---|
| <ul style="list-style-type: none">» Co-Develop Investment Policy Guidelines» Portfolio Construction Centric» Semi-Discretionary Portfolio Management<ul style="list-style-type: none">• Consultant Recommends – Committee Approves» Ultimate investment approval is made by committees | <ul style="list-style-type: none">» Co-Develop Investment Objectives and Guidelines» Portfolio Construction Centric» Discretionary Portfolio Management» Investment decisions are made on behalf of the institution in regards to manager selection and tactical asset allocation advice and managed within policy guidelines.» Ultimate investment decision is made by consultant and reported to committee post-decision |
|---|---|

Discretionary Fund of Funds

- » **Model Portfolios**
- » **Fund of funds or Separately managed**
- » **Access**
- » **Best Ideas**
- » **Speed of implementation**

Disclosures

Important Disclosures

To the extent the investments depicted herein represent international securities, you should be aware that there may be additional risks associated with international investing, including foreign economic, political, monetary and/or legal factors, changing currency exchange rates, foreign taxes, and differences in financial and accounting standards. These risks may be magnified in emerging markets. International investing may not be for everyone. Small capitalization companies may lack the financial resources, product diversification and competitive strengths of larger companies. In addition, the securities of small capitalization companies may not trade as readily as, and be subject to higher volatility than, those of larger, more established companies.

Bonds are subject to interest rate risk. When interest rates rise bond prices fall; generally the longer a bond's maturity, the more sensitive it is to this risk. Bonds may also be subject to call risk, which allows the issuer to retain the right to redeem the debt, fully or partially, before the scheduled maturity date. Proceeds from sales prior to maturity may be more or less than originally invested due to changes in market conditions or changes in the credit quality of the issuer.

Investing in alternative investments is speculative, not suitable for all clients, and intended for experienced and sophisticated investors who are willing to bear the high economic risks of the investment, which can include:

- loss of all or a substantial portion of the investment due to leveraging, short-selling or other speculative investment practices;
- lack of liquidity in that there may be no secondary market for the fund and none expected to develop;
- volatility of returns;
- restrictions on transferring interests in the fund;
- potential lack of diversification and resulting higher risk due to concentration of trading authority with a single advisor;
- absence of information regarding valuations and pricing;
- delays in tax reporting;
- less regulation and higher fees than mutual funds; and
- advisor risk.

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Actual returns would be reduced by expenses that may include management fees and costs of transactions. Expected return and risk (standard deviation) calculations are based on historical data for periods indicated.

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Analysis Disclosure

The analysis is based on published investment manager rate of return data, capital market indices, custom (benchmarks, indices and universes), as well as software developed by Zephyr Associates. Investment manager rate of return data includes: Efron Plan Sponsor Network Database. Capital markets index data includes: Capital market indices (supplied by Zephyr), Canadian indices (supplied by Zephyr), Salomon Brothers Fixed Income indices, Morgan Stanley Capital International indices, and Dow Jones Global indices.

Zephyr StyleADVISOR uses principles of William Sharpe's theory of returns-based style analysis. Returns-based style analysis assists in identifying investment style without examining the individual security holdings of a portfolio. StyleADVISOR regresses the historical returns of the individual manager(s) against different style indices to identify the pattern of returns that the fund is most closely correlated to. SSB does not recommend the use of returns-based style analysis without the supporting fundamental research of the fund (research attribution reports).

The underlying data is believed to be reliable but accuracy and completeness cannot be assured. While the historical rates of return described in this report are believed to accurately reflect the overall nature of the portfolio, the constituent securities have not been reviewed. This evaluation is for informational purposes only and is not intended to be an offer, solicitation or recommendation with respect to the purchase or sale of any security or a recommendation of the services provided by any money management organization. Past results are not necessarily indicative of future performance.

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