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California Association of Public Retirement Systems

TRUSTEES' ROUNDTABLE

Friday, February 8, 2013
Doubletree Hotel San Jose
2050 Gateway Place, San Jose, CA
408-453-4000

AGENDA

8:30 am	Continental Breakfast
9:00 am	Welcome *Marty Dirks, San José Federated City Retirement System*
9:10 am	Introduction *Systems in Attendance*
9:15 am	Alternative Approaches to Equity Market Beta *Jeremy Baskin, CEO, & Lawrence Remstedt, Portfolio Manager* *AXA Rosenberg Investment Management*
10:15 am	Break
10:30 am	Applying Endowment Strategies to Pension Plan Investing *Anne Casscells, Managing Director, Aetos Capital*
11:30 am	Lunch with discussion of current issues at member plans
12:15 pm	Advances in Public Plan Portfolio Management for a Post Crisis World *Michael Robbins, ECR Capital Management*
1:15 pm	Break
1:30 pm	Low Volatility Hedging Strategies using ETFs *Kim Arthur, CEO and Portfolio manager, Main Management*
2:30 pm	Break
2:45 pm	Selection of coordinator for the June 2013 CALAPRS Roundtable
2:50 pm	SACRS Update, open discussion
3:30 pm	Adjournment

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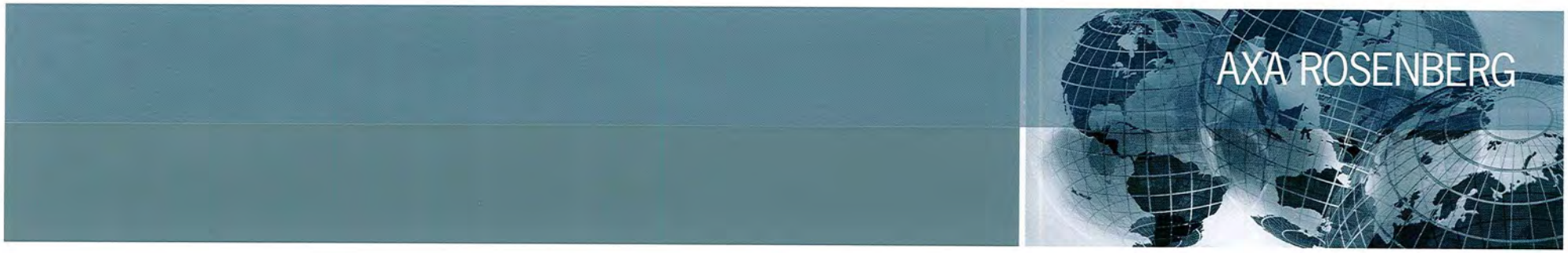

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AXA INVESTMENT MANAGERS
redefining / investment solutions

Trustee Roundtable, February 2013

Alternative Approaches to Equity Market Beta

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Jeremy Baskin
AXA Rosenberg Global CEO & CIO

Lawrence Remstedt
Investment Strategist

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Agenda

- Defining Beta
  - The Role of Beta in the Asset Allocation Framework
  - The Beta Paradox
  - Capitalization Weighted Indices
  - Alternative Indices
  - Finding a Better Way
- Mapping a Smarter Beta
  - Specification Framework
  - Defining Objectives
  - Guiding Principles
- Profile of a Smarter Beta
- Appendix

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Defining Beta

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The Role of Beta in the Asset Allocation Framework

β Beta is the return that can be systematically captured from an asset class

Policy is only as good as the assumptions and the implementation of those assumptions

- Asset class assumptions have fallen 2 – 3% for equities and 3-4% for fixed income over the past 5 years.
- What is the appropriate time horizon?

Example: Asset Allocation Assumptions

	Expected Return (Inflation)	Expected Return (Beta)	Expected Return (Alpha)	Total Expected Return	Expected Risk	Real Return /Risk
U.S. Stocks	1.70	5.95	—	7.65	18.0	0.33
Fixed Income	1.70	0.65	—	2.35	4.0	0.16
TIPS (10 yr)	1.70	0.22	—	1.92	6.0	0.04
High Yield	1.70	5.30	—	7.00	10.0	0.53
REITS	1.70	5.15	—	6.85	23.0	0.22
Real Estate (UL)	1.70	6.50	—	8.20	8.0	0.72
Private Equity	1.70	5.95	3.00	10.65	21.0	0.42
Hedge Funds	1.70	2.05	3.80	7.55	8.0	0.73
Commodities	1.70	0.00	—	1.70	17.0	0.00

(Reputable consulting firm inputs presented in 2011)

Traditional Investment Model

- Broadly static based on "risk premium" and the use of volatility as the standard for measuring risk
- Equity dominated – "stocks for the long run"
- Faith in liquid publicly traded markets
- Thought driven by financial academicians relying upon historical return databases
- "Cost effectiveness" culture that cuts fees but severely curtails market adaption

Source: AXA Rosenberg

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Capturing the Equity Risk Premium

- An index is a method to measure Beta
  - Indices are third party and systematic
    - But subject to structural biases based on construction rules

The Equity Risk Premium
Rolling 5 Year Cumulative Returns %
Stocks vs Bonds

Average 5 Yr Return (Annualized)	Since 1931	Since 1950
S&P500 Index:	7.76%	8.75%
U.S. Intermediate Treasury Bonds:	4.86%	5.34%
*Implicit Premium for Downside Protection:	2.91%	3.42%

Source: AXA Rosenberg, S&P; Index returns gross of fees. It is not possible to invest directly in an index.

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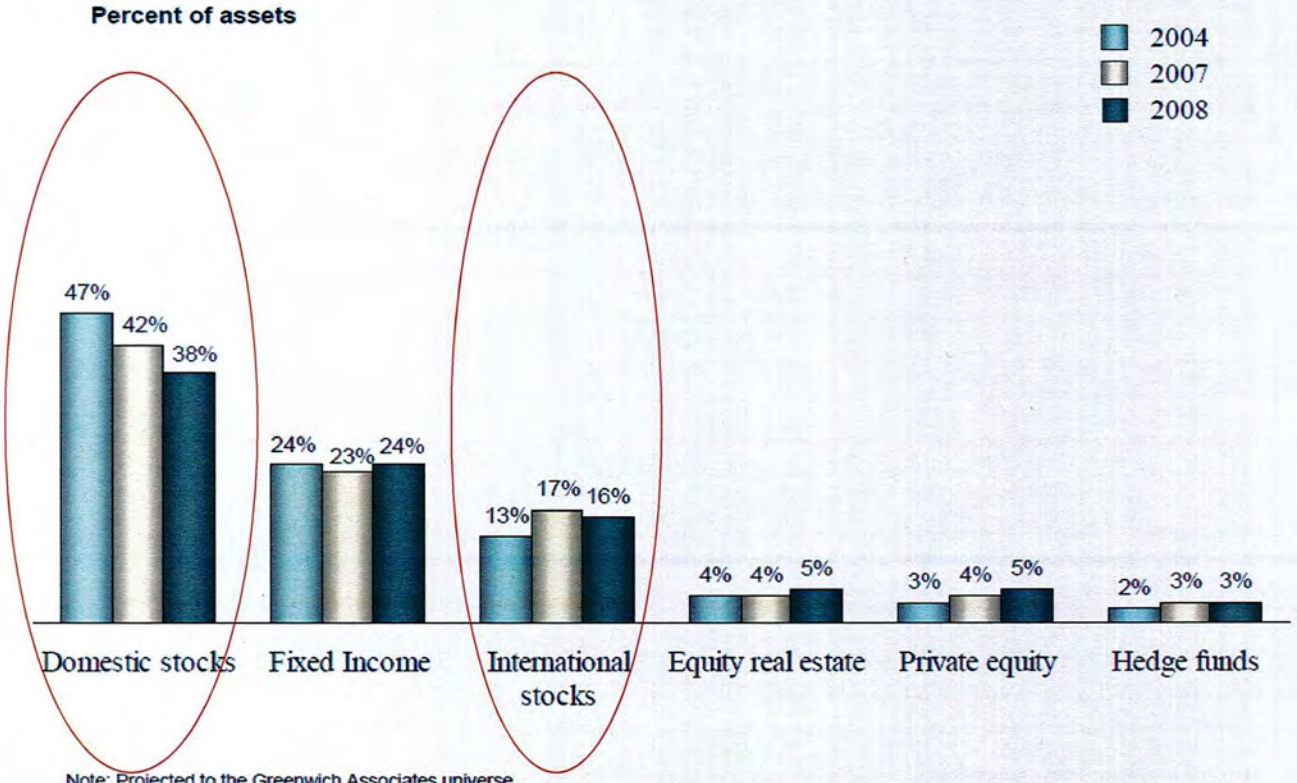
How are Pension Assets Structured?

Funds' asset allocations continue to shift away from domestic stocks, while investment in bonds, real estate and private equity inched up.



Note: Projected to the Greenwich Associates universe.

GREENWICH ASSOCIATES

 Source: Greenwich Associates

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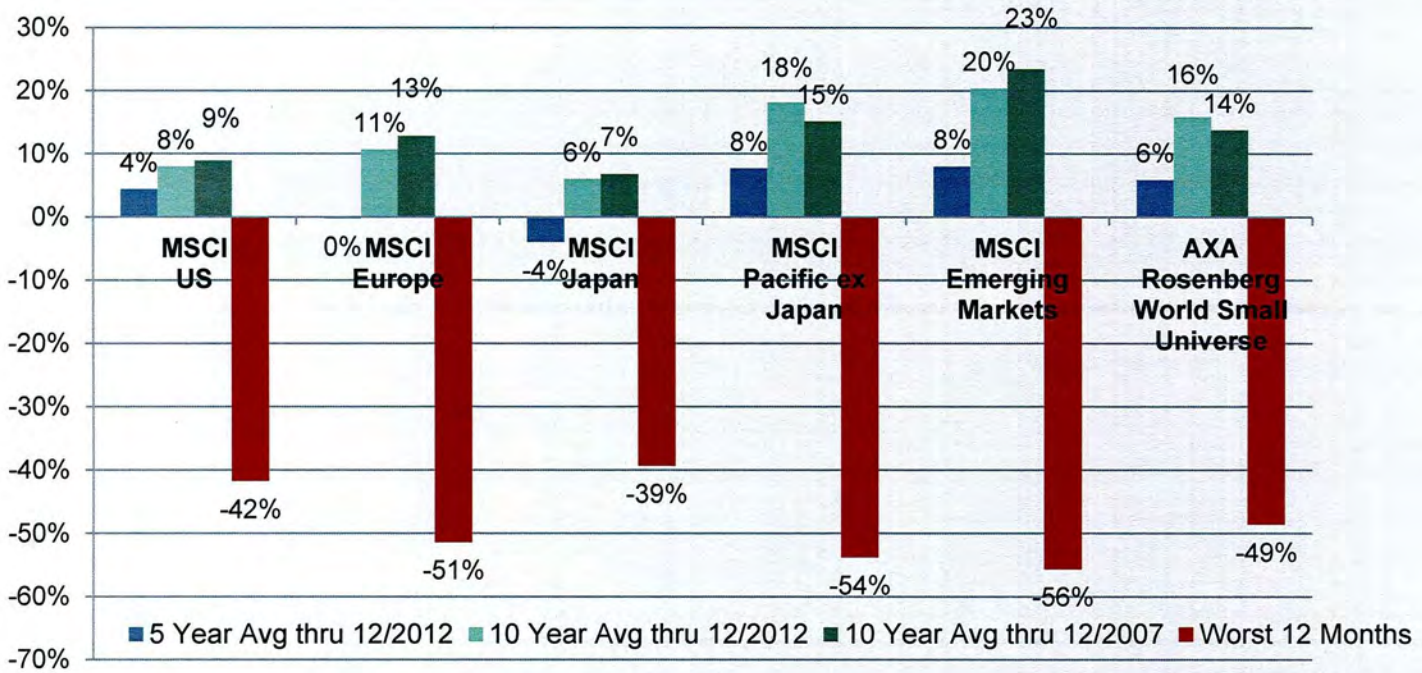
Downside Risk

- Equity markets have generally been highly correlated in times of crisis.
- All regions were torpedoed by the Credit Crisis

12 Month Rolling Return Averages

% Return (gross)



Source: AXA Rosenberg, Index returns gross of fees. It is not possible to invest directly in an index.

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The Beta Paradox

β

- The Asset Allocation Dilemma:
  - In the traditional framework, Equity Market Beta is the largest contributor to long-term returns, and it is also the largest contributor to risk.

- The Trustee Dilemma:
  - Long-term return projections for Beta are being cut while liabilities are climbing. At the same time, volatility and the risk of not capturing the return projections is raising. Trustees need to identify systematic methods for reducing risk and increasing returns.

  - While the Endowment Model provides compelling implementation insights to improve the return/risk profile, it does not fully address the Beta Paradox nor does it eliminate it from the equation.

Source: AXA Rosenberg

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The Theory

Status Quo

- Markets are (generally) efficient
- Cap-weighted indices are optimal

The Challenge

- "*I'd be a bum on the street with a tin cup if the markets were efficient*", Warren Buffett
- *Market indifferent indices significantly outperform cap weighted*, Arnott, Hsu & Moore (2005)
- *Adaptive market hypothesis fits market behaviour better*, Andrew W. Lo (2004)
- *Cap-weighted portfolios sub-optimal in efficient markets*, Hsu (2006)

Source: AXA IM as at 30/11/2012.

Index Shortfalls in Harvesting Beta

How tracking market capitalisation indices erodes value

Equity

- Allocations influenced by fashion
- *Popularity vs Substance: "In the short run, the market is a voting machine but in the long run it is a weighing machine"*, Benjamin Graham
- Naïve rules disconnected from investors' objectives
- No quality control on fundamentals
- Exposes investors to:
  - -Speculation
  - -Past success
  - -Size/concentration
  - -Momentum bias

Is there a better way?

Source: AXA Rosenberg

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Version 1.0 – The Initial Market Response Equities

- Emergence of numerous alternative passive strategies
  - Fundamental Index
  - Minimum variance
  - Maximum diversification
  - Etc.
    - Though patchy since the financial crisis, the performance record has generally been reasonable and in some cases quite strong on a risk adjusted basis since 2008.

- Limitations as an investment strategy

  Alternative Indices
  - One dimensional in objective
  - Carries investment risks depending on approach (concentration, liquidity, turnover)
  - Unpredictable and inflexible investment outcomes
  - Not linked to fundamentals or underlying economics

Source: AXA IM

Version 1.0 – Passive Investing Can Be Dangerous

Passive Investor

Smart Investor

Source: AXA IM as at 30/11/2012.

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A Better Way

What is a "Smarter Beta" Equity Strategy ?

- A long-term investment strategy that aims to capture equity beta more efficiently, while avoiding the limitations of cap weighting indices and alternative weighting approaches

Why is a smarter Beta possible ?

- Equity markets exhibit persistent long-run risk/return anomalies
- Earnings quality, volatility, speculation and distress are fundamental drivers of risk

How capture a more efficient equity Beta ?

- Aim to reduce exposure to sources of uncompensated risk
- Intelligent diversification and implementation

Investment objectives

- Equity returns (or greater) over a cycle with lower risk (i.e. an improved Sharpe ratio)
- Exhibit less extreme drawdowns during markets shock
- Avoid speculative bubbles

Source: AXA Rosenberg; Investment objectives are targets only. No representation is made that the investment objectives set forth above will be met.

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Mapping a Smarter Beta

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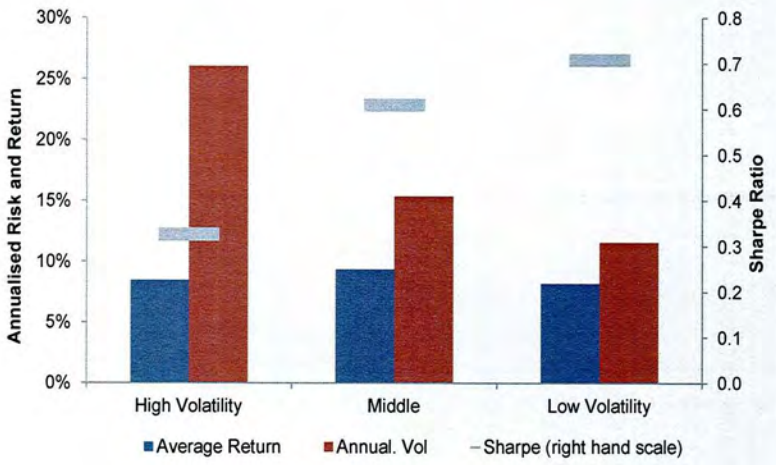
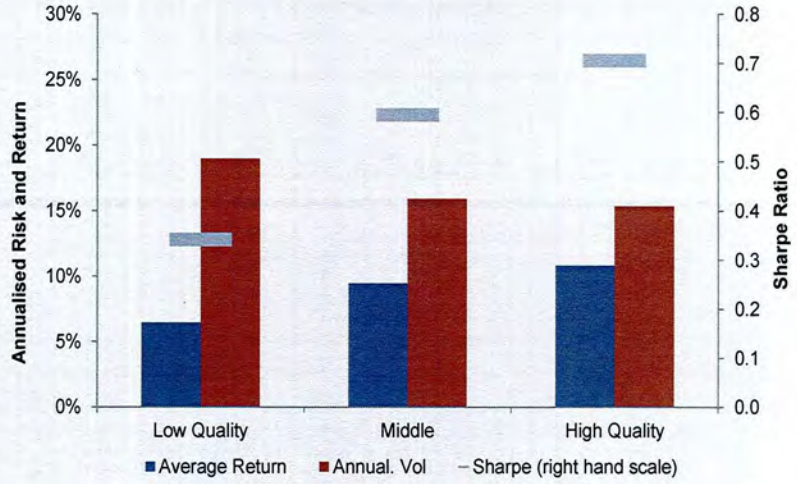
Why is SmartBeta™ Possible?
Equity Markets Exhibit Persistent Long-Run Risk and Return Anomalies

- Differentiating on Earnings Quality and Volatility improves insight into equities risk/reward trade off

Price Volatility*



Earnings Quality**



- Other important fundamental drivers of risk include speculation and distress
- Combining key risk drivers further improves insight into which equities are the most and least efficient

Source: AXA Rosenberg, MSCI
* Volatility is based on AXA Rosenberg measure combines beta and stock specific risk **Earnings Quality is based on AXA Rosenberg measure of earnings sustainability: Low = bottom 30%,
Middle = next 40%, High = top 30%. of US MSCI names each month. Buckets formed with square-root of market cap weights – not controlled for small cap bias nor investability. Average annualised log returns and volatility from Jan 89 to Dec 2011. Returns do not include transactions costs and are gross of fees. (Exhibit created October 2012)

Source: AXA Rosenberg, MSCI as at 31/10/12

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Specifications Framework Objective for a Smarter Beta Strategy

1. Prevent the investor from behavioural biases and fashion
2. Does not blindly follow an index
3. Does not expose the investor to systemic or event risk – diversify intelligently
4. Costs erode return – minimize all costs including our fees
5. Be transparent, the investor needs to know and understand what is being done
6. This is a practical investment strategy – it must have structure but that structure must be capable of responding to changing conditions

Source: AXA IM as at 30/11/2012.

Defining Objectives

Objective: an investment strategy which aims to harvest the maximum amount of market beta while minimizing the risk of loss.

- It is a practical investment strategy rather than an index
- Risk minimisation is focused primarily on the avoidance of loss; the focus is on downside volatility
- It values preservation of wealth above slavish rule following
- It is disciplined, robust and addresses behavioural flaws explicitly

Source: AXA IM

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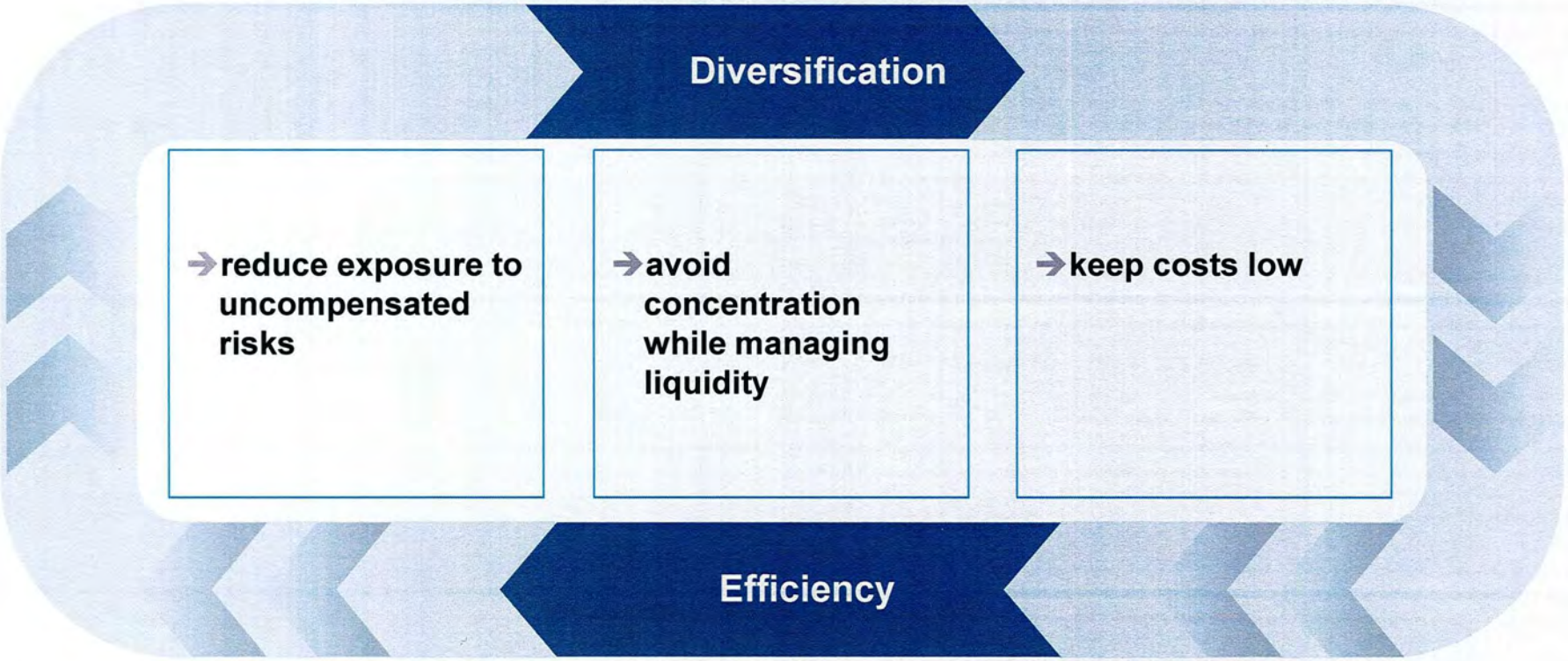
Guiding Principles

Thesis: A Smarter Beta, focused on the balance between efficiency and diversification, may be captured using these guiding principles which are designed to



Source: AXA IM

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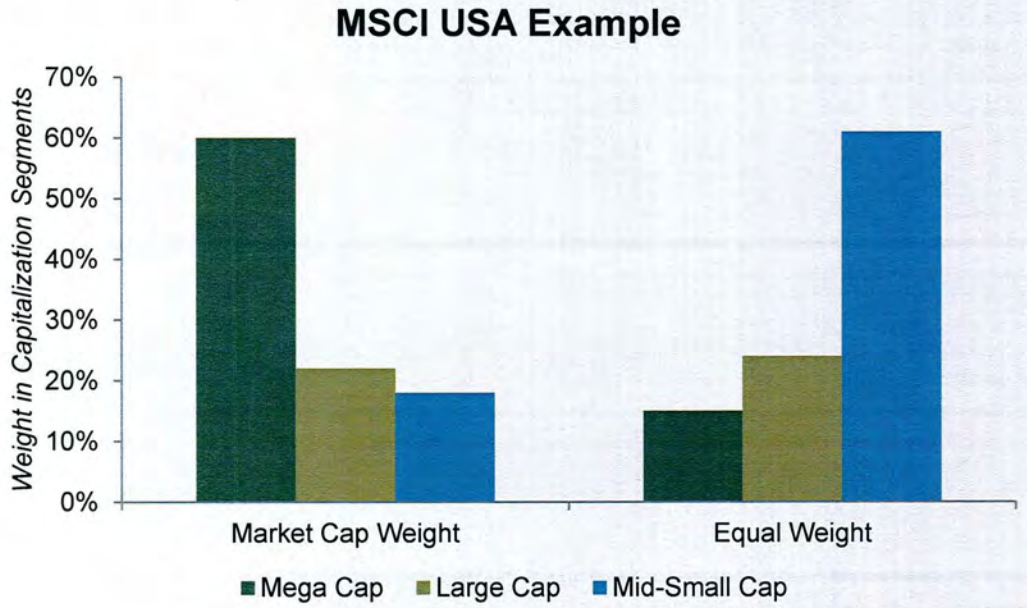
Intelligent Diversification | Reduce Concentration Risk

- Portfolio diversification may be obtained using alternative systematic processes
  - Example: a power function can be applied to each stock; with a stronger power function applied to the largest stocks and less strong power function to the smallest stocks
  - Applies a greater level of diversification to the largest stocks (by market cap) and progressively less as stocks get smaller



Desired Result: a weighting scheme that reduces concentration risk while managing liquidity

Capitalisation segments: Mega Cap represents top 15% of number of stocks ranked by market cap of MSCI World stocks, Large Cap the next 25% and Mid-Small the bottom 60% of Market Cap. Data as of end 2011. Source: AXA Rosenberg , MSCI (Exhibit created November 2012)

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Profile of a Smarter Beta

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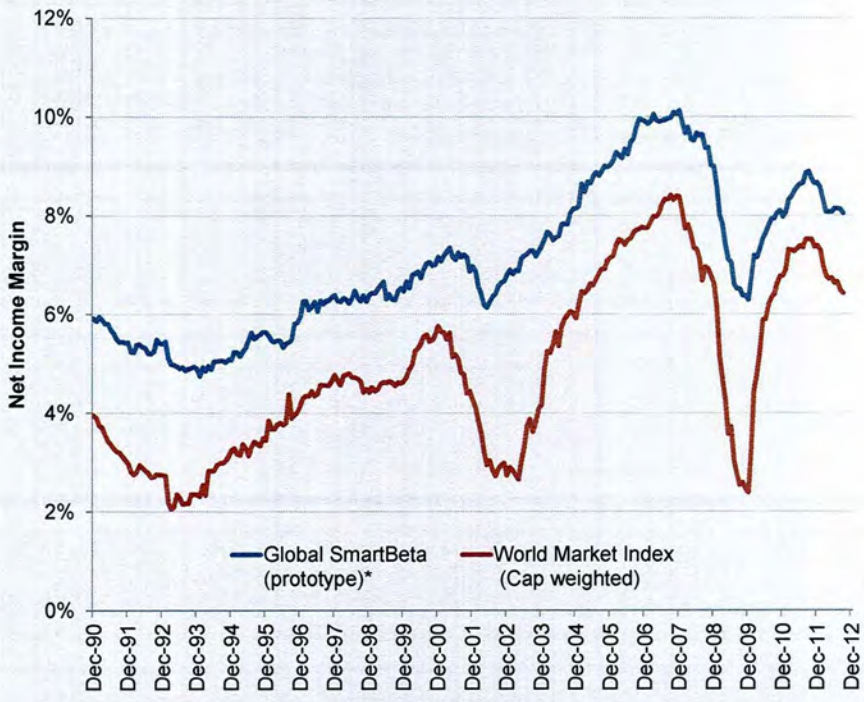
A Smarter Beta| Prototype Portfolio Characteristics

- Low volatility; 20% lower than the market (larger discount when market volatility is high)
- High earnings quality (stable profitability profile)

Volatility (5-year rolling)

Net Income Margin



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Smarter Beta Prototype | Portfolio Characteristics

- Beta of 0.8 relative to a cap weighted index
- Price-to-Book: Premium
- Price-to-Earnings: Typically neutral, at a discount in periods of earnings distress
- Well diversified

Smarter Beta (Global Prototype)

31st December 2012

	Portfolio	World Market Index (Cap weighted)	Relative	Relative historical average*
Price / Earnings	15.4	16.4	94%	81%
Price / Earnings (Forecast)	13.4	12.7	105%	96%
Price / Book	2.4	1.7	139%	117%
Price / Cashflow	8.9	8.3	107%	99%
ROE (%)	15.5	10.5	148%	149%
Net Income Margin	8.1	6.4	128%	157%
Yield (%)	2.9	2.7	107%	111%
Beta	0.83	1.00	83%	80%
Total Number of Stocks	625	1,579	40%	37%

*based on global prototype back test (Dec 1989- Dec 2012). The information set forth above is based on hypothetical backtesting and is not an actual portfolio reflecting actual past performance and does not represent actual, current recommendations. You are strongly urged to review the disclaimers presented in the Appendix. Information presented is only for the use of Institutional Investors. Please note that the information provided herein relates to a timeframe when the strategy was not available for investment. Source AXA Rosenberg (Exhibit created October 2012)

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Profile of A Smarter Beta: Achievable Results

- Features
  - Low cost and transparent process
  - Smart Filters:
  - Intelligent diversification: balancing turnover, liquidity and diversification objectives
  - Smart Implementation:
    - *Oversight that aims to ensure implementation is targeted towards meeting investment objectives*
    - *Flexibility to be tailored to specific investment goals*

	Market Cap Weighted Index	Alternative Index	Prototype Smarter Beta
Low Cost and Transparent	YES	Some	YES
Diversify away from Market Cap	No	YES	YES
Fundamental Focus AND Intelligent Diversification	No	No	YES
Smart Implementation	No	No	YES

Source AXA Rosenberg (October 2012). The information set forth above represents investment and risk objectives only. No representation is made that such objectives will be achieved. Past performance does not equal future performance.

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It's Not That Index Tracking Is Wrong

But perhaps we can transform information and insight to find better solutions

Source: AXA Rosenberg; photo credit : Charles Rotkin/Corbis

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Appendix

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Presenters

Jeremy Baskin, Global Chief Executive Officer, Global Chief Investment Officer

Jeremy is global chief executive officer, global chief investment officer and member of the board of the AXA Rosenberg Group. He is also a member of the AXA Investment Managers management board and executive committee. Prior to joining AXA Rosenberg, Jeremy was senior vice president and head of active equity management for The Northern Trust Company. During his 22-year tenure at Northern Trust, Jeremy was responsible for the global passive business as well as building the research and investment infrastructure for risk-taking value-added quantitative equity strategies. Jeremy left Northern Trust for a brief period to help develop the Equity Derivatives Group at First Union Securities. In 2000, Jeremy re-joined Northern Trust as director of structured equity, quantitative management.

Jeremy obtained an MBA in finance and marketing from the J.L. Kellogg Graduate School of Management at Northwestern University and a BA degree from Wesleyan University. He is a CFA charter holder and a member of the Investment Analysts Society of San Francisco, Chicago Quantitative Alliance and the CFA Institute.

Lawrence Remstedt, Investment Specialist

Lawrence joined the firm in 2008 as a portfolio manager within the North American client service team. Prior to joining AXA Rosenberg, Lawrence served as a director of institutional sales and client service at American Century Investments. From 1993-2003, he held various positions with Citigroup Asset Management, which included four years based in London. Lawrence entered the industry in 1988 with Wilshire Associates.

Lawrence obtained his BA in math and economics from the University of California, Santa Barbara, and his MBA from the Rotterdam School of Management, Erasmus University, in The Netherlands, with an emphasis in global finance and cross-cultural management.

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Important Backtest Disclosures

This performance information was derived from a hypothetical backtesting of AXA Investment Management's Equity Smart Beta strategy for the period December 31, 1989 through December 31, 2011. Backtesting is conducted by computer program that starts on the first day of the backtest period and estimates the return that the strategy would have achieved if it the output from the SmartBeta screening and portfolio process has been fully implemented. Strategy recommendations are estimated at the end of each month during the backtest period. The investment strategy was not available to clients during the performance period referenced herein. The performance data was not verified by an independent calculation agent. The actual strategy that will be made available to investors going forward may use different trading frequencies than was used in the backtest, and the universe of securities that will be used in an actual portfolio may not reflect the universe of securities used in this backtest.

The selection universe used during the strategy backtests was the MSCI World Standard Index. As of December 31, 2011, the MSCI World Standard Index consisted of 1,581 securities and 26 developed market countries. Regional backtests were conducted for the US, Japan, Europe, Canada, and Asia ex Japan components of the MSCI World Index.

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The historical dataset used in the simulation is based upon sources believed to be correct, but no warranty is given as to its accuracy or completeness. In addition, the historical dataset used in the simulation contains data (due to various reasons) for which AXA Rosenberg may not have had the benefit of if it were managing an actual portfolio in real time during the simulation period, such as data errors that have been discovered and corrected.

As with any investment strategy, there is the potential for profit as well as the possibility of loss. Past performance does not guarantee future results. No representation is made that any investment will achieve performance similar to that shown herein.

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Confidential Discussion Materials

Trustee Roundtable

February 2013

Anne Casscells

Chief Investment Officer

Aetos Capital

Value Added Strategies

An Endowment Model Case Study

- The endowment model was widely used as an investment paradigm for much of the 2000s, gaining popularity from substantial alpha generation during the 2000-2002 bear market and from high profile figures (e.g., David Swensen and Barton Biggs) who championed its merits

- Many institutional investors reshaped their portfolios along similar lines as the leading endowments, driving an explosion of investment into alternatives and other diversifying asset classes

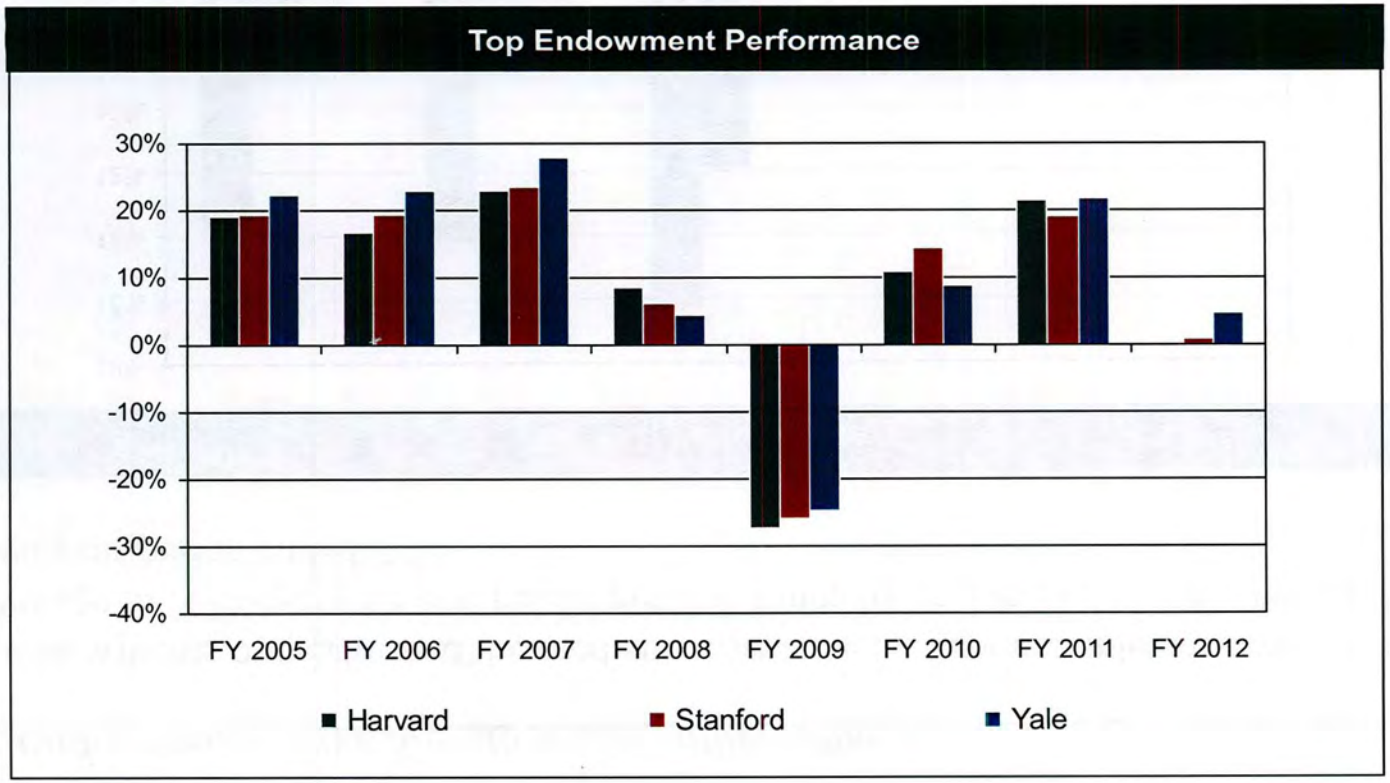
- The 2008 financial crisis exposed several critical weaknesses in the endowment model, with illiquidity at the forefront

- Using the endowment model as a case study, what does it tell us about how we should evaluate investment and asset allocation strategies?

Value Added Strategies

Leading Endowment Case Studies

- As of fiscal year end, 2012, three of the five largest college endowments were Harvard ($30.7 billion), Yale ($19.3 billion), and Stanford ($17 billion)

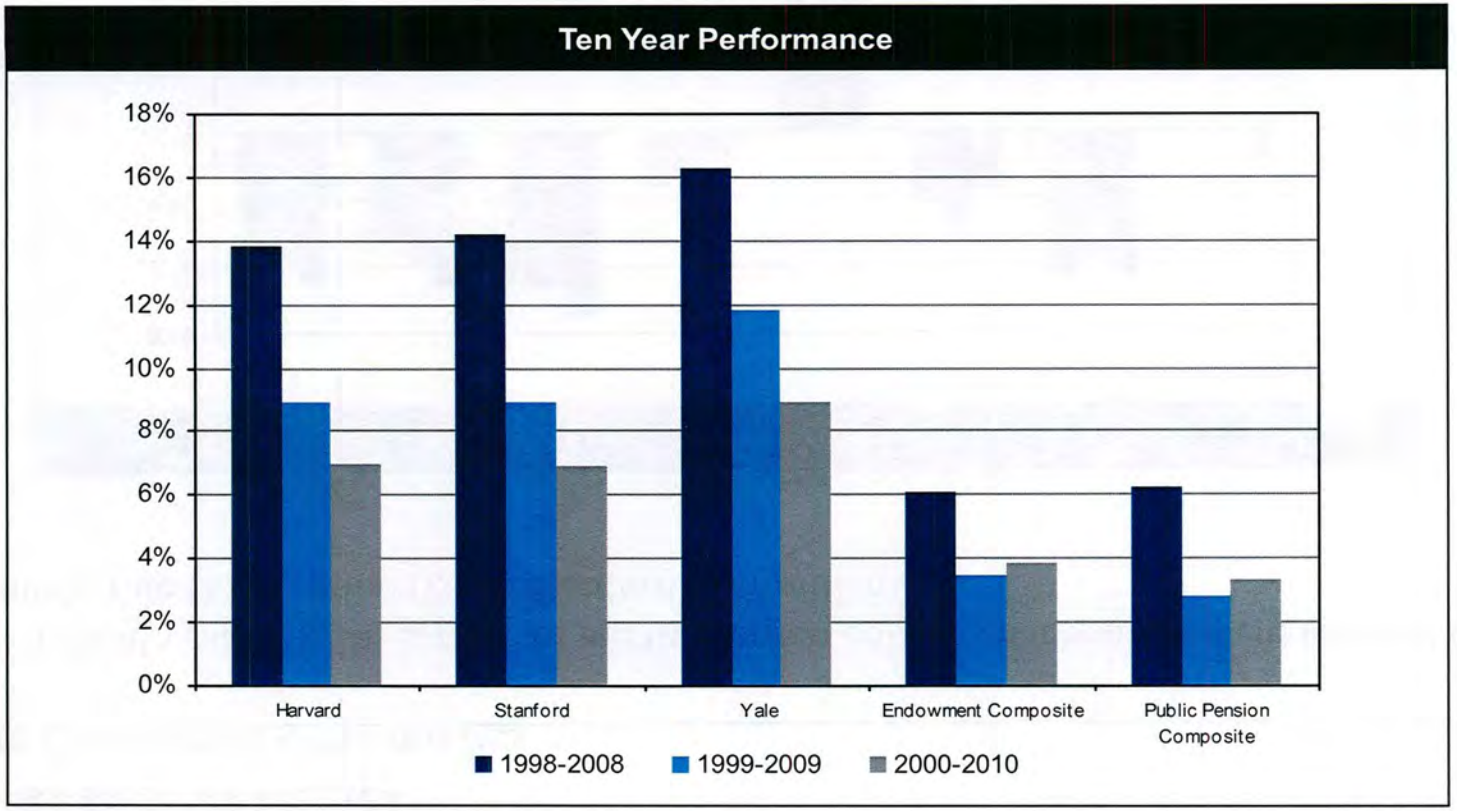


Source: Endowment annual reports.

Value Added Strategies

Leading Endowments Have Significantly Outperformed

- Top endowments outperformed the median performance of comparable endowment funds by an average of 3.7% per year and public pension funds by an average of 4.2% per year over the ten year period ended 2010



Source: Endowment annual reports, Trust Universe Comparison Service (TUCS). Endowment composite represents median performance of large endowments and foundations. Public pension composite represents median performance of public pension funds with assets in excess of $1 billion.

Value Added Strategies

Why Have Endowments Outperformed?

The Conventional Wisdom

- Endowment outperformance results from allocations to alternatives like private equity and absolute return
  - Superior returns
  - Diversification benefits
  - Capturing illiquidity premiums

The Real Story

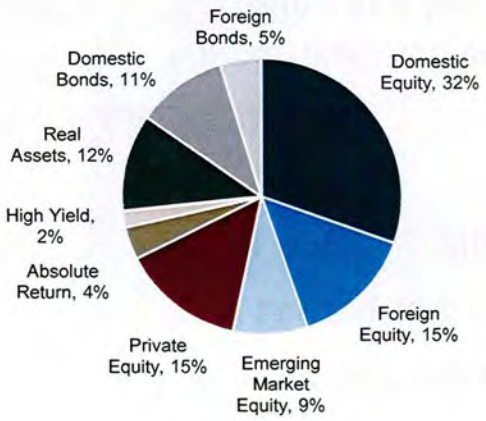
- Outperformance was really a function of a governance structure that allowed significant flexibility to a few leading endowments
  - Ability to capitalize on respective strengths/competitive advantages
  - First mover advantage in several asset classes
    - Access to top quartile managers
    - Capture risk premiums when asset classes were less efficient/crowded
  - Liquidity did not become a constraint until late in the decade

Value Added Strategies in Practice

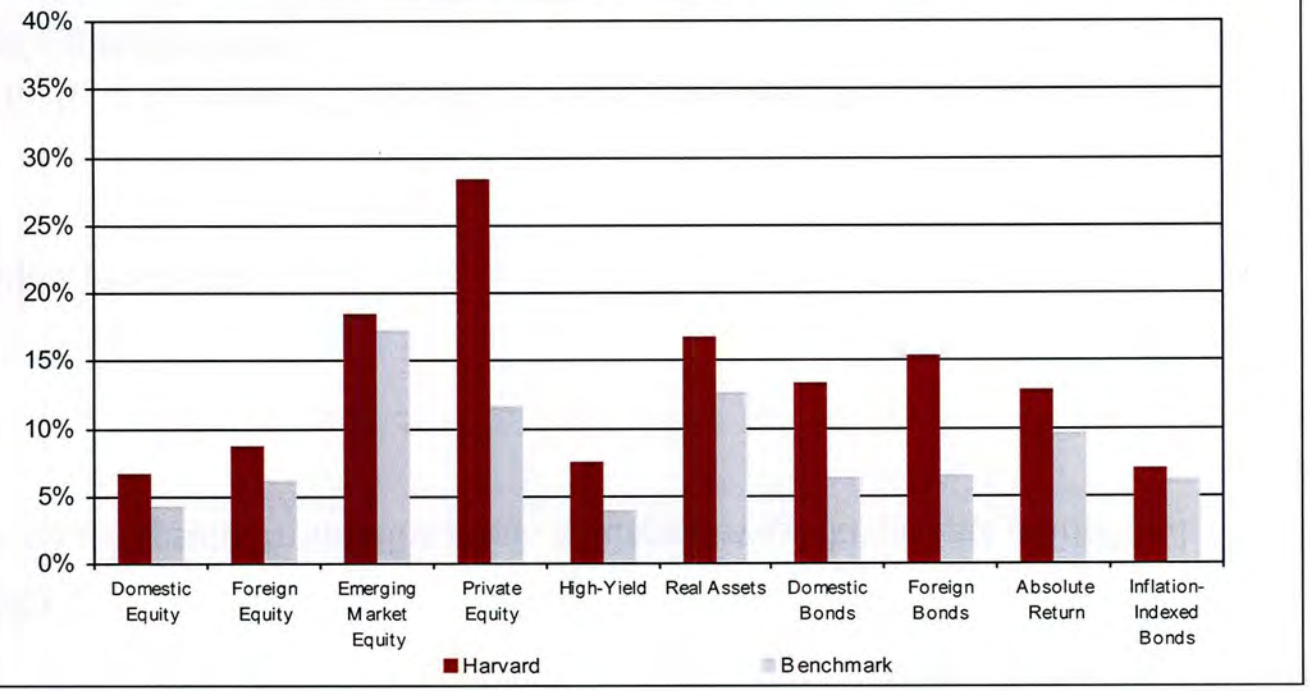
Harvard

- Harvard's excess returns during its heyday came from a broad set of asset classes
  - Driven largely by an innovative portable alpha strategy

1998 Allocation



Harvard Endowment Ten Year Performance by Asset Class (1998-2008)



Source: Harvard report. Ten year performance from 1998 – 2008.

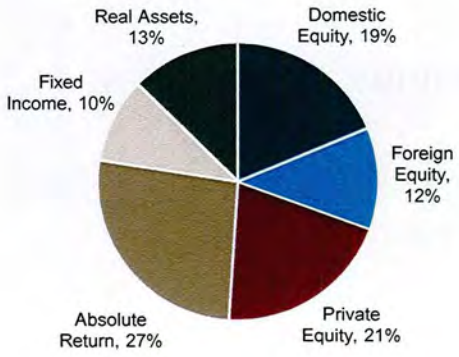
Note: Absolute return funds and inflation indexed bonds had been held for less than 10 years at the end of the data set. For these asset classes the data reflects annualized performance of 5 years.

Value Added Strategies in Practice

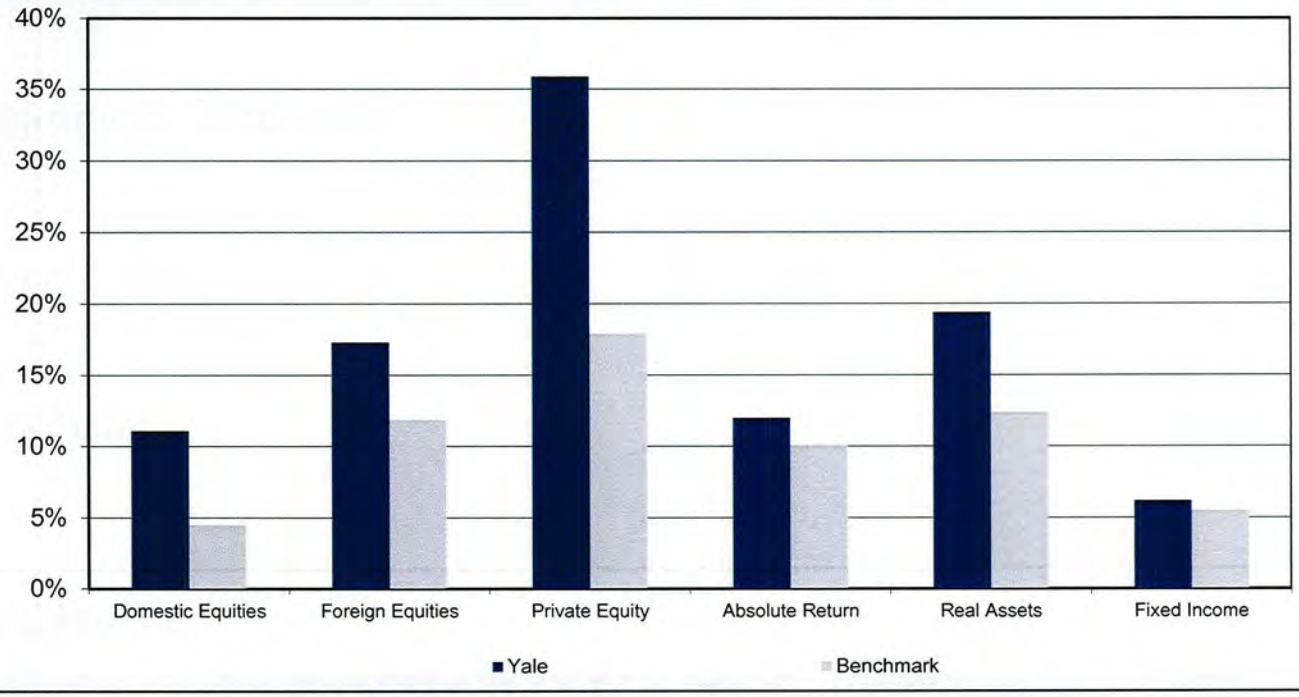
Yale

- Excess returns realized by Yale over the same period were largely attributable to private equity investments
- Many endowments' positions in top tier venture firms are difficult to replicate
- Yale's reduced allocation to public equity funded its large allocations to private equity and absolute return

1998 Allocation



Yale Endowment Ten Year Performance by Asset Class (1998-2008)



Source: Yale endowment annual report. Ten year performance from 1998 – 2008.

The Conventional Wisdom…

I. **Superior returns?**

II. Diversification benefits

III. Capturing illiquidity premiums

Why Hedge Funds?

Attractive Risk Adjusted Returns

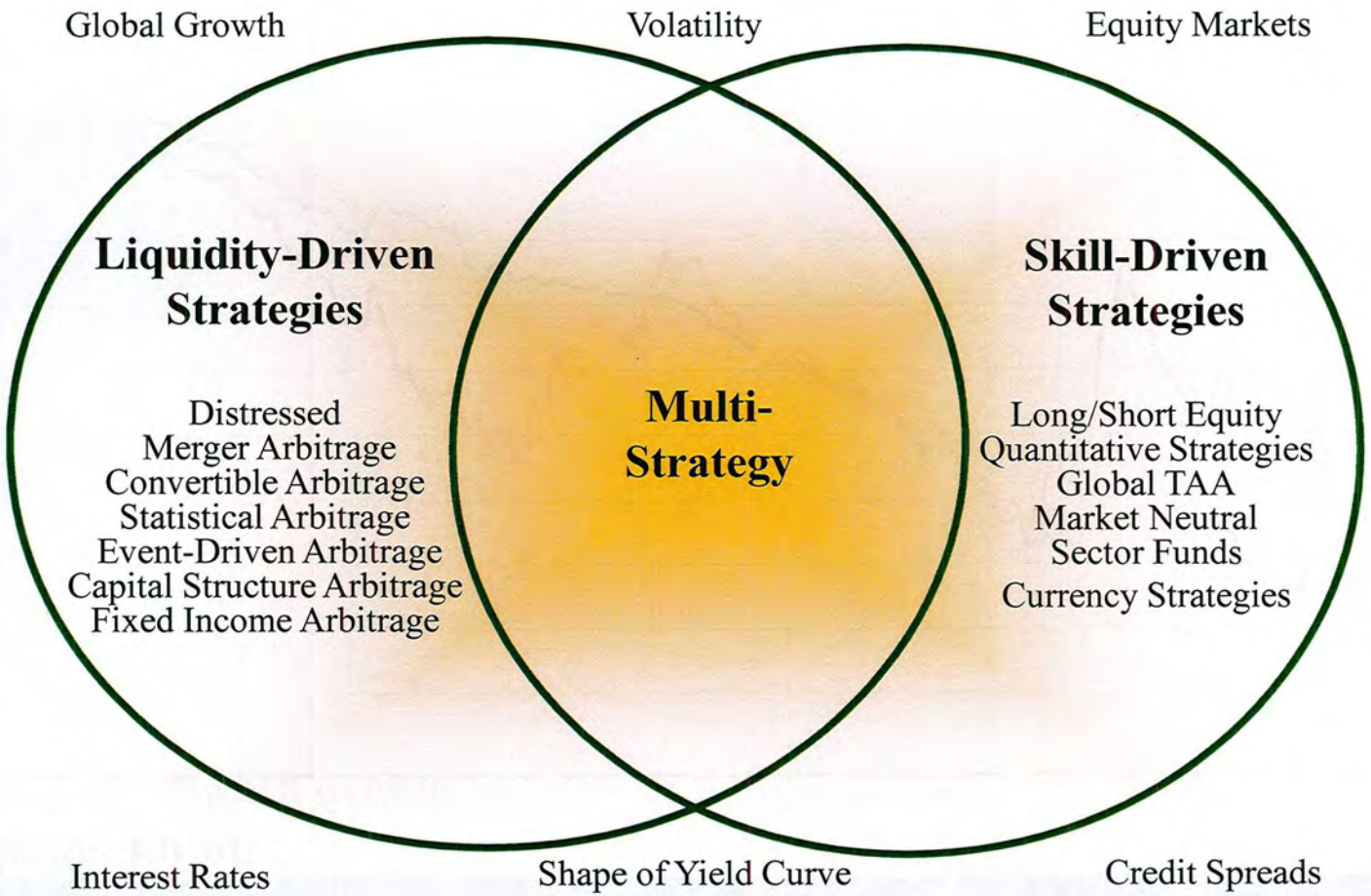
	DJCS Hedge Fund Index	S&P 500 DRI
Annualized Return	8.6%	8.1%
Standard Deviation	7.5%	15.5%

Source: Bloomberg (12/31/93 – 12/31/12).

Hedge Fund Strategies

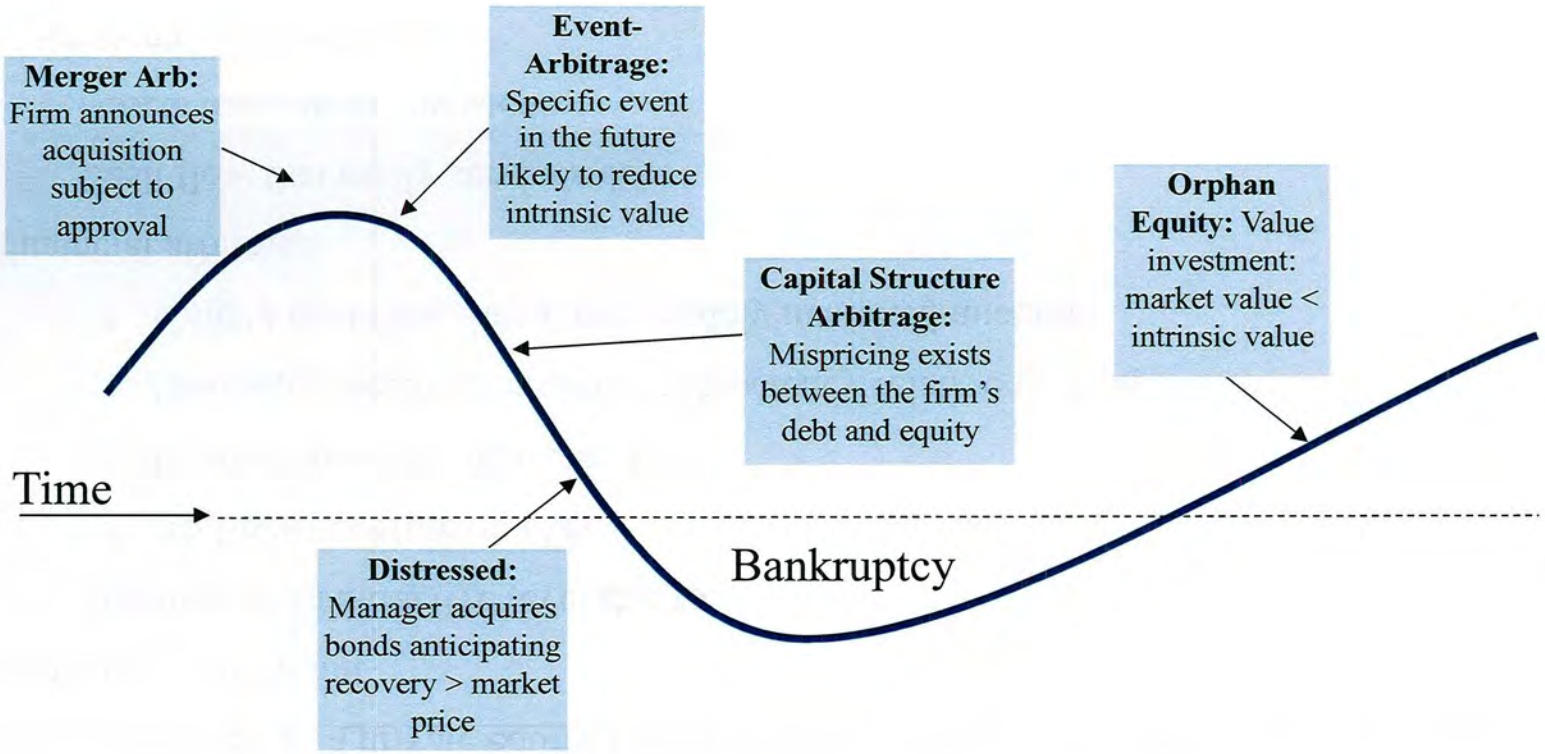
Opportunities

Opportunity Set



Event Driven Strategies

The Life Cycle of a Company



Private Equity

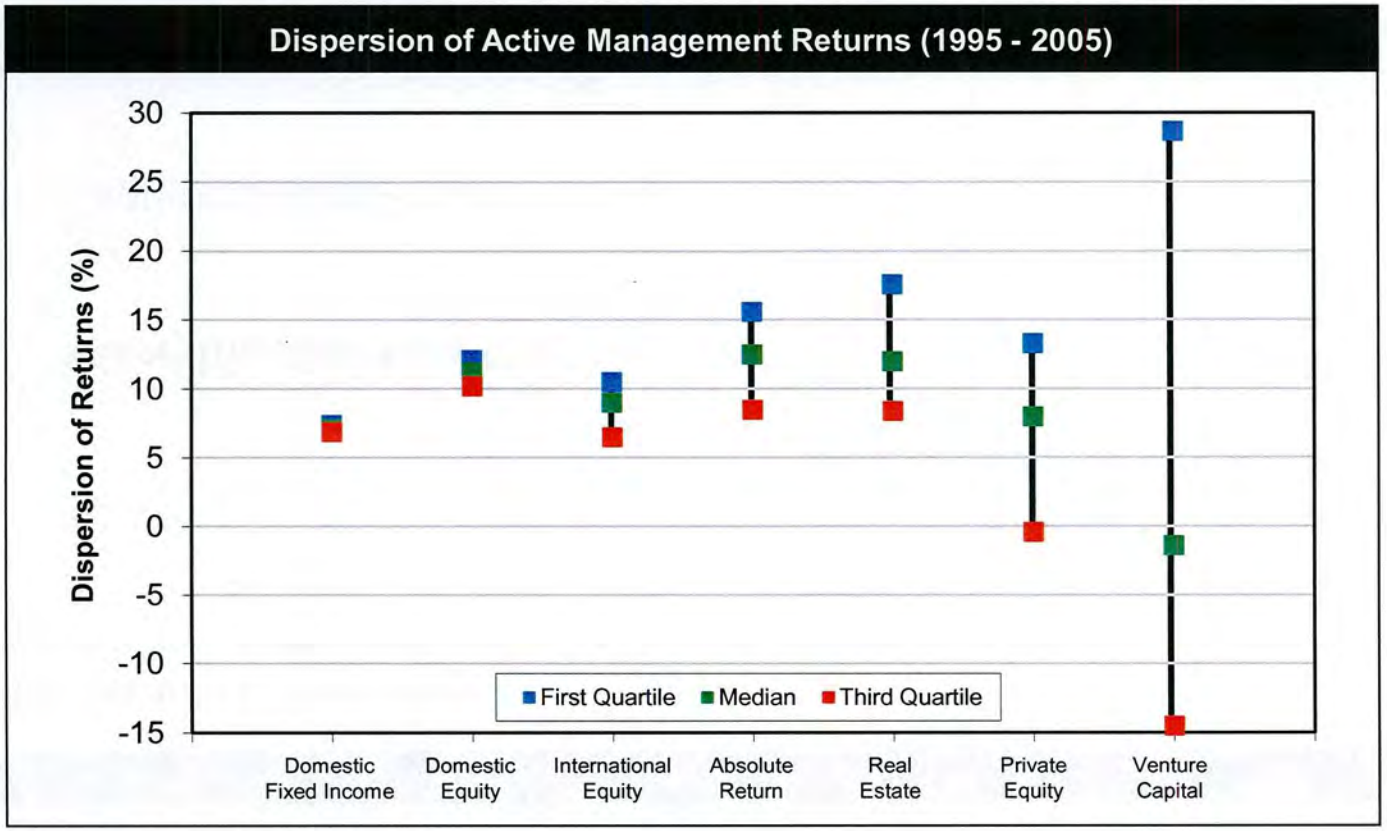
Much of the success of a private equity fund depends on one or more of the following factors…

- Attractive entry point
  - Purchase at an attractive level due to:
    - Ability to execute quickly
    - Relationship with management
    - Developed sector or regional competency relative to competitors
    - Unique deal flow that avoids widely marketed auctions
- Financial arbitrage
  - Cash flow that easily services debt
  - Assets that can be divested
- Operational improvements
  - Industry expertise helps companies grow/reposition

Venture Capital and Private Equity

All Firms are Not Created Equal

- Wide dispersion between quartiles is a function of concentrated private equity and venture capital portfolios
- Hard work and intelligence reap rewards in an environment where superior information and deal flow provide an edge
  - Value creation in venture capital overwhelmingly concentrated among top-tier firms



Source: Russell/Melon, Cambridge Associates.

The Conventional Wisdom…

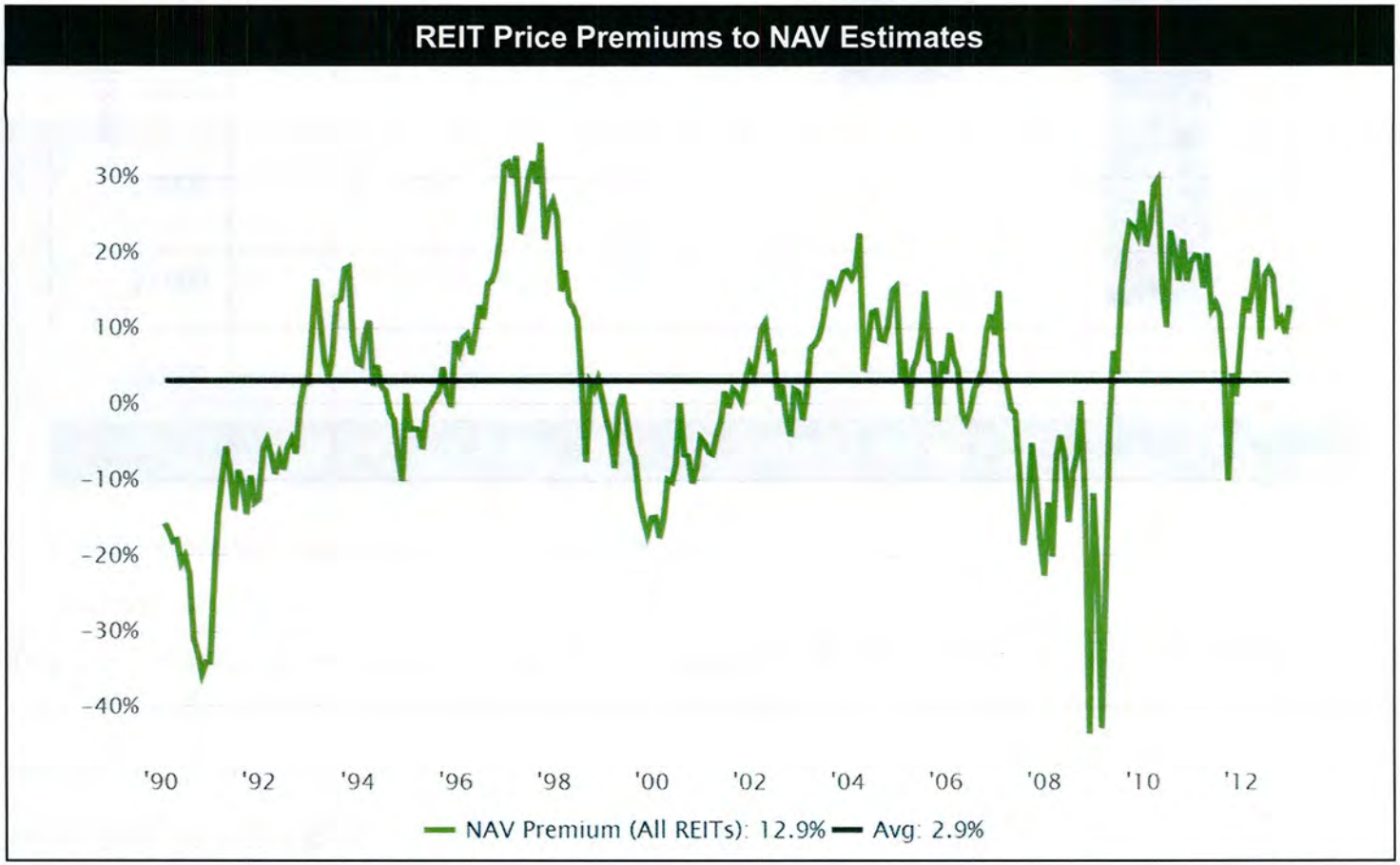
I. Superior returns

II. Diversification Benefits?

III. Capturing illiquidity premiums

Are There Diversification Benefits to Private Investments?

- While private real estate may report low volatility and correlations, a comparison with public REIT values raises interesting questions

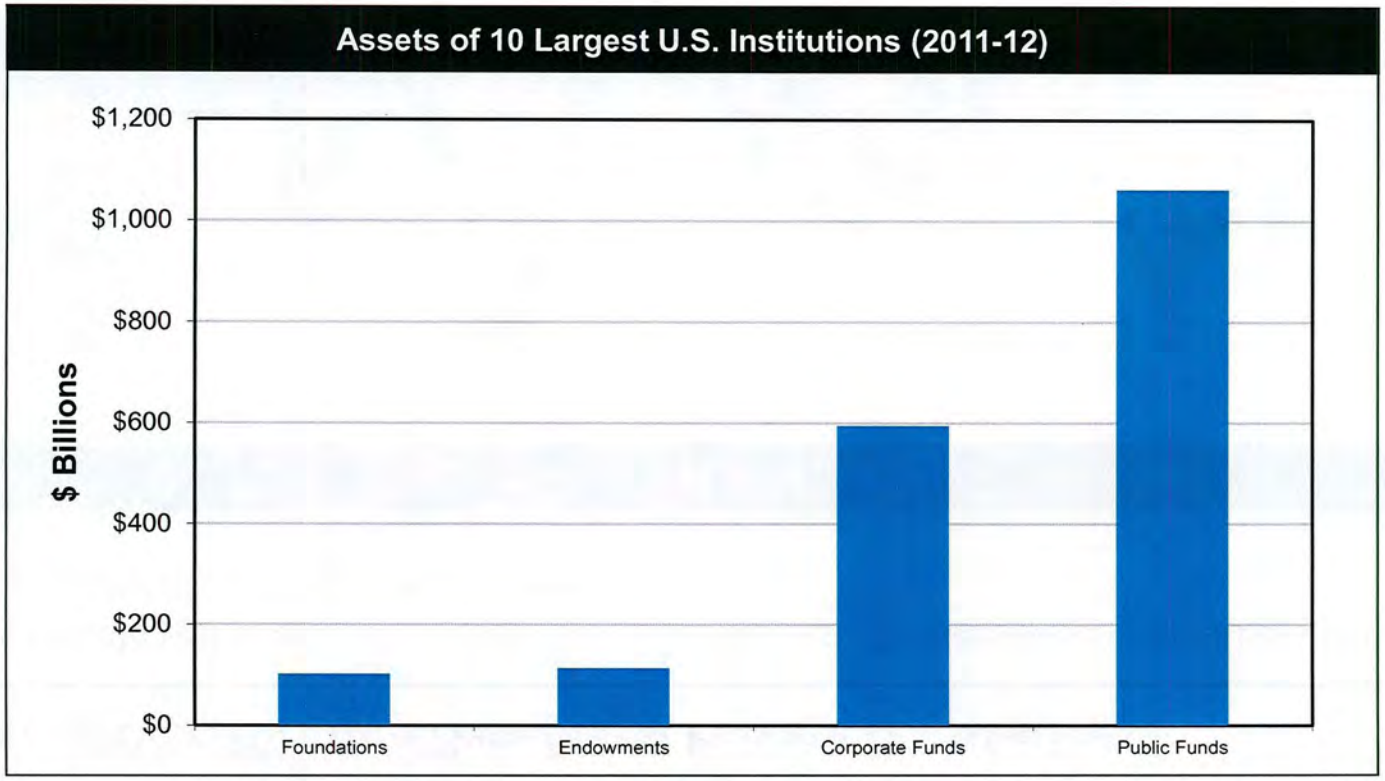


Source: Green Street Advisors. Data represents equally-weighted average of all companies in Green Street's coverage universe, excluding Hotels.

Institutional Investors

Where is the Capital?

- As larger corporate and public plans increased their allocations to the space, alternatives managers were forced to find scalable investments or opportunities in less trafficked areas
  - Private equity moved "up-market"
  - Opportunities abroad

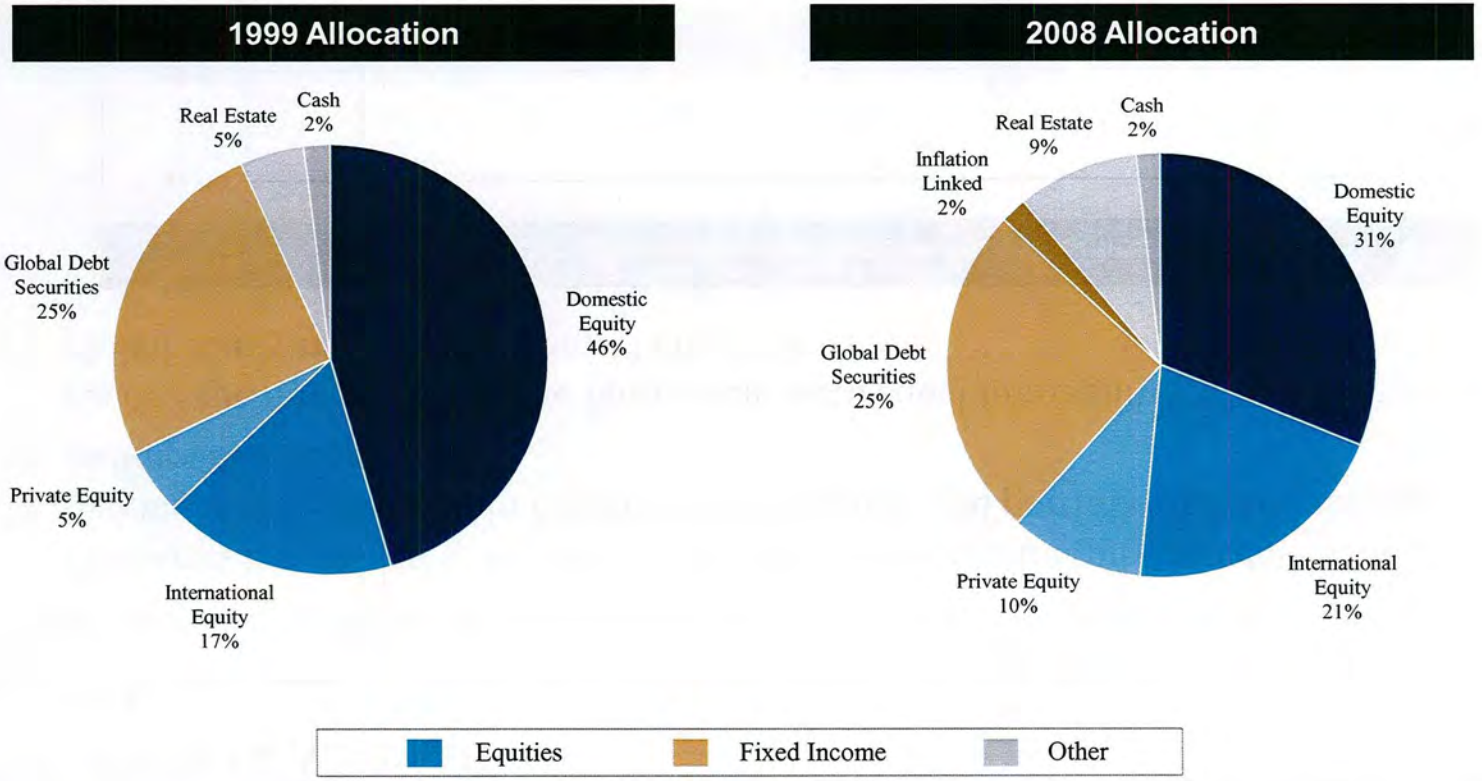


Source: Towers Watson / Pensions & Investments, NACUBO, and The Foundation Center. Data is current as of either 2011 or 2012, depending on the source and on institution disclosures.

Institutional Investors

CalPERS

- CalPERS' move into alternative investments and real estate reflects the asset allocation changes that have taken place across many public plans
- CalPERS' total assets were $237 Billion in June 2012, equivalent to 96% of the top ten endowments and top ten foundations assets combined

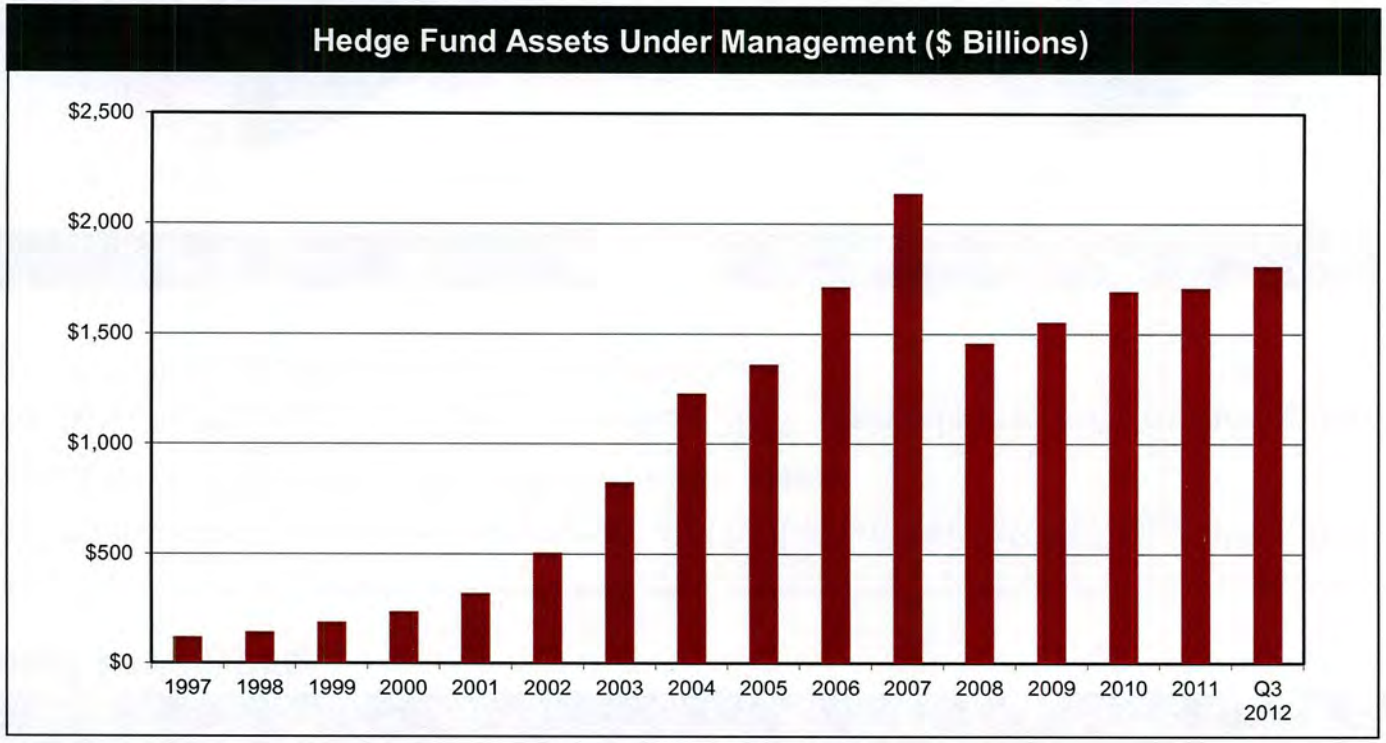


Source: CalPERS Comprehensive Annual Financial Report.

Capital Flows to Alternatives

Hedge Funds

- Capital has steadily flowed into hedge funds over the last few years
  - Globalization has led to higher correlation among public equity and debt markets, making it more difficult to achieve diversification and portfolio stability through traditional asset allocation
  - As of September 2012, hedge fund assets were equal to roughly 3.6% of the value of global equity markets, up from 1% in 2000



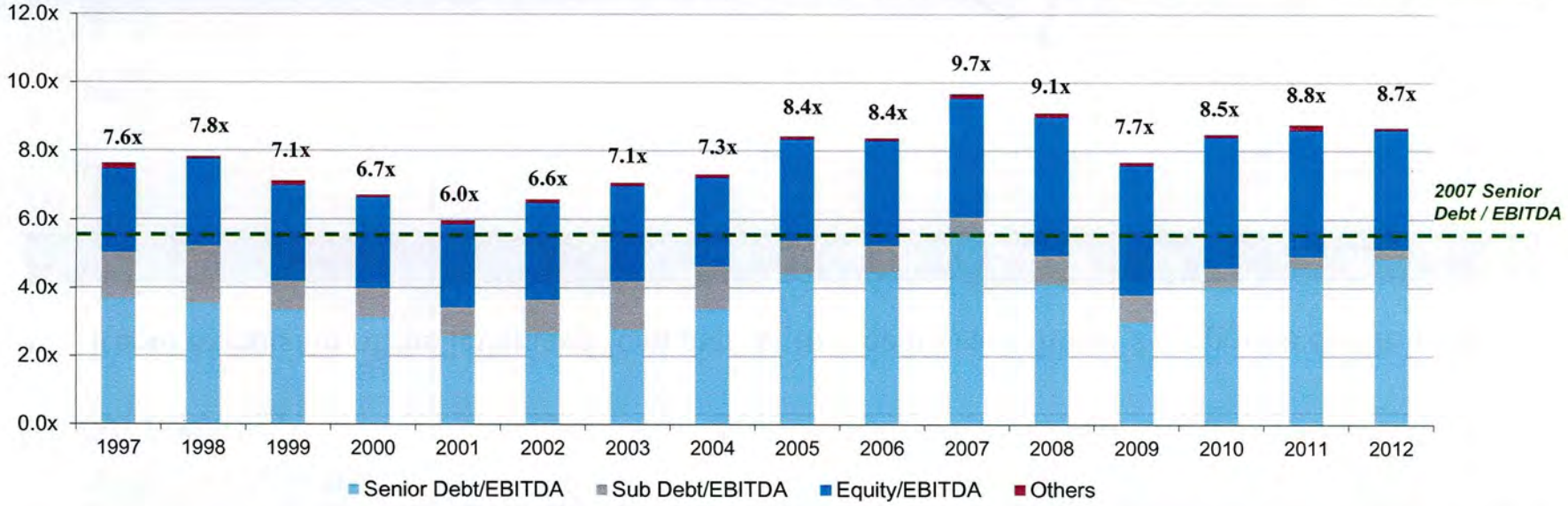
Source: BarclayHedge Alternative Investment Database; Bloomberg World Exchange Market Capitalization.

Private Equity

Highly Competitive Bidding Process

- Competition for deals drove up the cost of targets
  - Record fundraising led to a capital overhang for investments
  - Activist shareholders pressured firms to consider additional competing bids
  - Strategic buyers had fewer financial constraints and priced higher value on strategic assets
- Higher valuations were largely funded by leveraged loans
  - Viewed as more "secure," continued demand for leveraged loans allowed senior debt/leveraged loans to increase as a percentage of the capital structure in LBO deals

LBO Purchase Price to EBITDA Multiples and Funding Sources



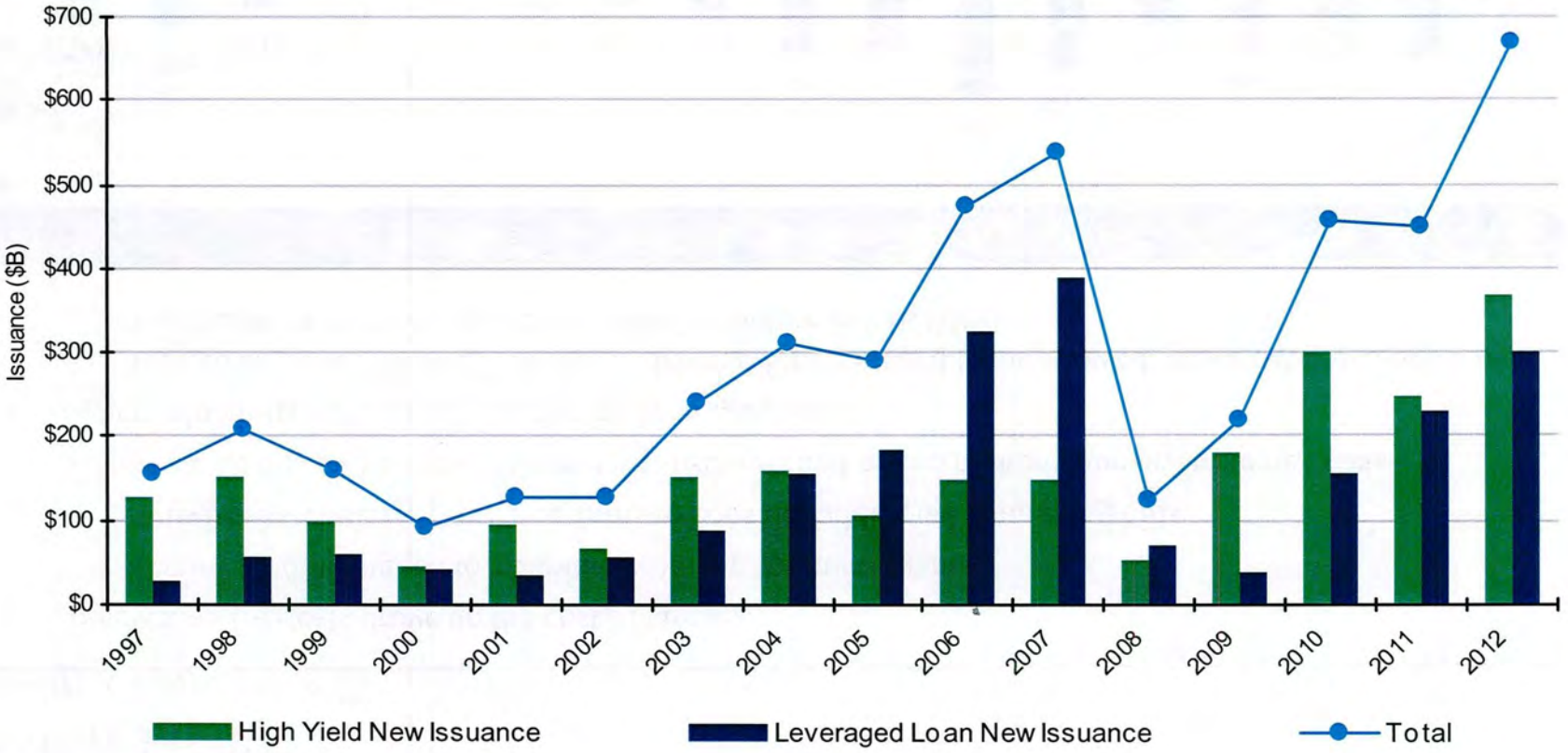
EBITDA is non-adjusted pro-forma trailing EBITDA. Source: Standard & Poor's Leveraged Buyout Review.

Leveraged Loans

Global Issuance

- Rapid expansion of the leveraged loan market in recent years fueled a corporate credit bubble

High Yield vs. Leveraged Loan New Issuance



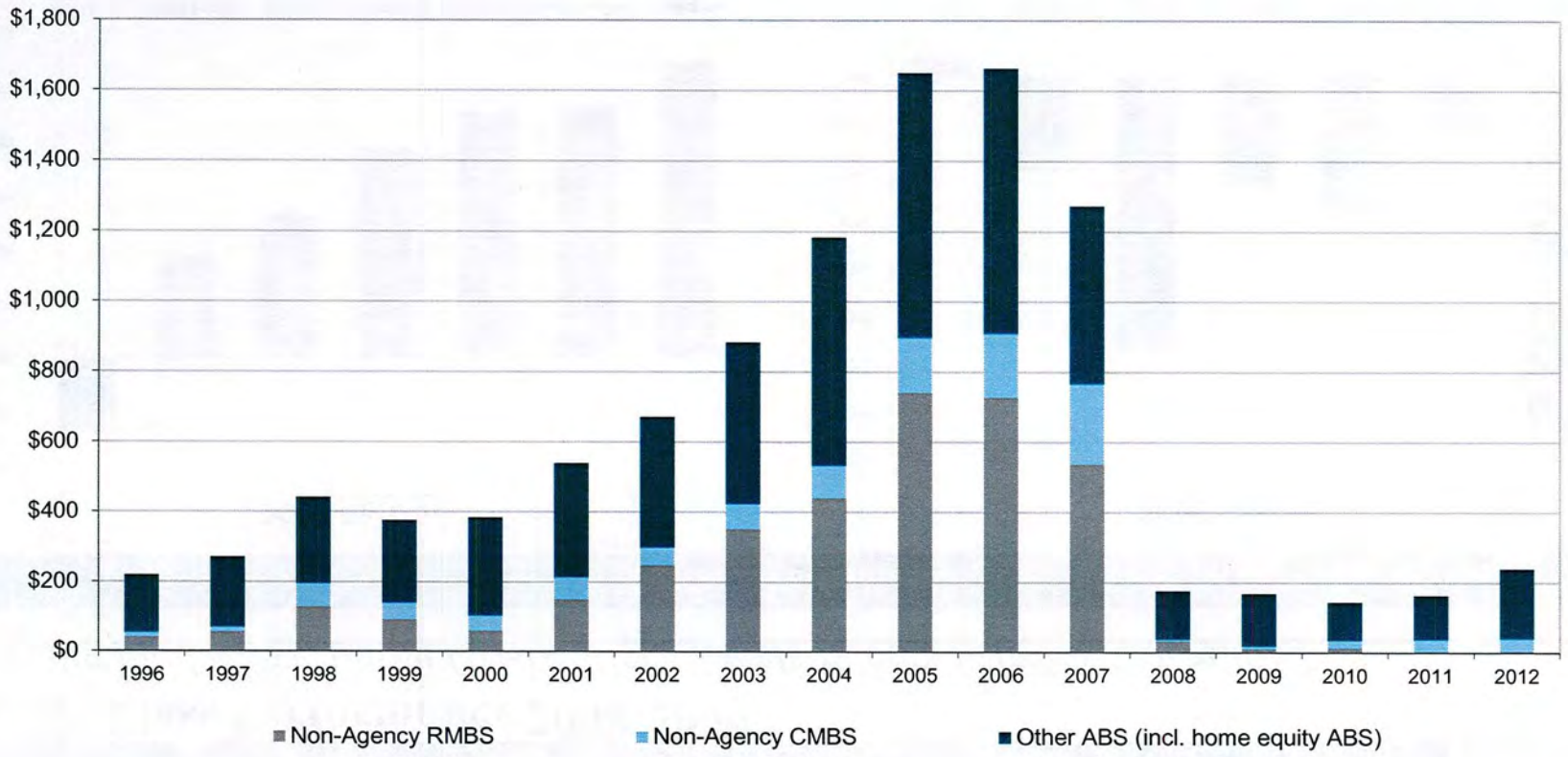
Source: J.P. Morgan as of January 2, 2013.

Asset Backed Securities

Global Issuance

- The dramatic increase in asset backed issuance helped fuel the residential/commercial real estate bubble

U.S. Issuance of Asset Backed Securities ($ Billions)



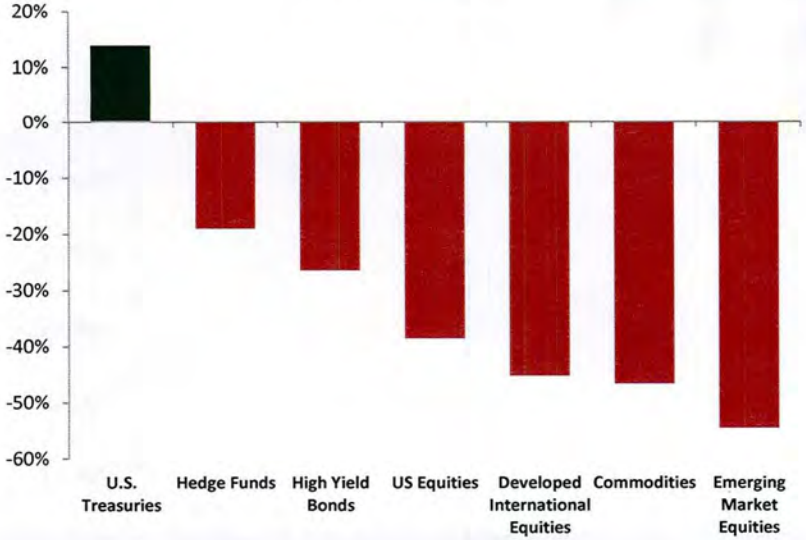
Source: SIFMA (Figures exclude agency-wrapped, mortgage-related issuance).

Asset Class Performance 2008-2009

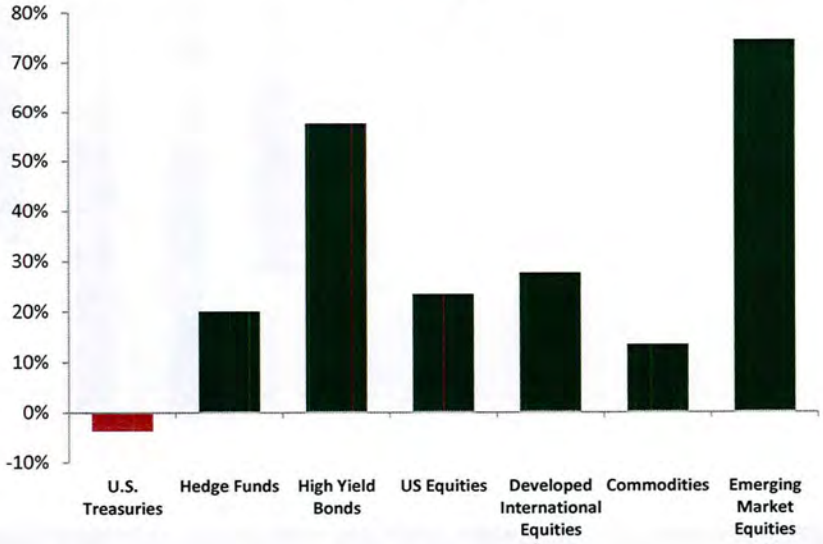
During the Deleveraging Crisis, Risky Assets Became Highly Correlated

2008-2009 Performance

2008 Return



2009 Return



Asset Class	Index	2008 Return	2009 Return	2-Year Return
U.S. Treasuries	ML Treasuries	14.0%	-3.7%	9.7%
Hedge Funds	HFRI Fund Weighted Composite Index	-19.0%	20.0%	-2.8%
High Yield Bonds	ML High Yield Master II	-26.4%	57.5%	15.9%
US Equities	S&P 500 Price	-38.5%	23.5%	-24.1%
Developed International Equities	MSCI EAFE	-45.1%	27.7%	-29.8%
Commodities	GSCI Total Return	-46.5%	13.5%	-39.3%
Emerging Market Equities	MSCI EMF	-54.5%	74.5%	-20.6%

Source: Bloomberg.

The Conventional Wisdom…

I. Superior returns

II. Diversification Benefits

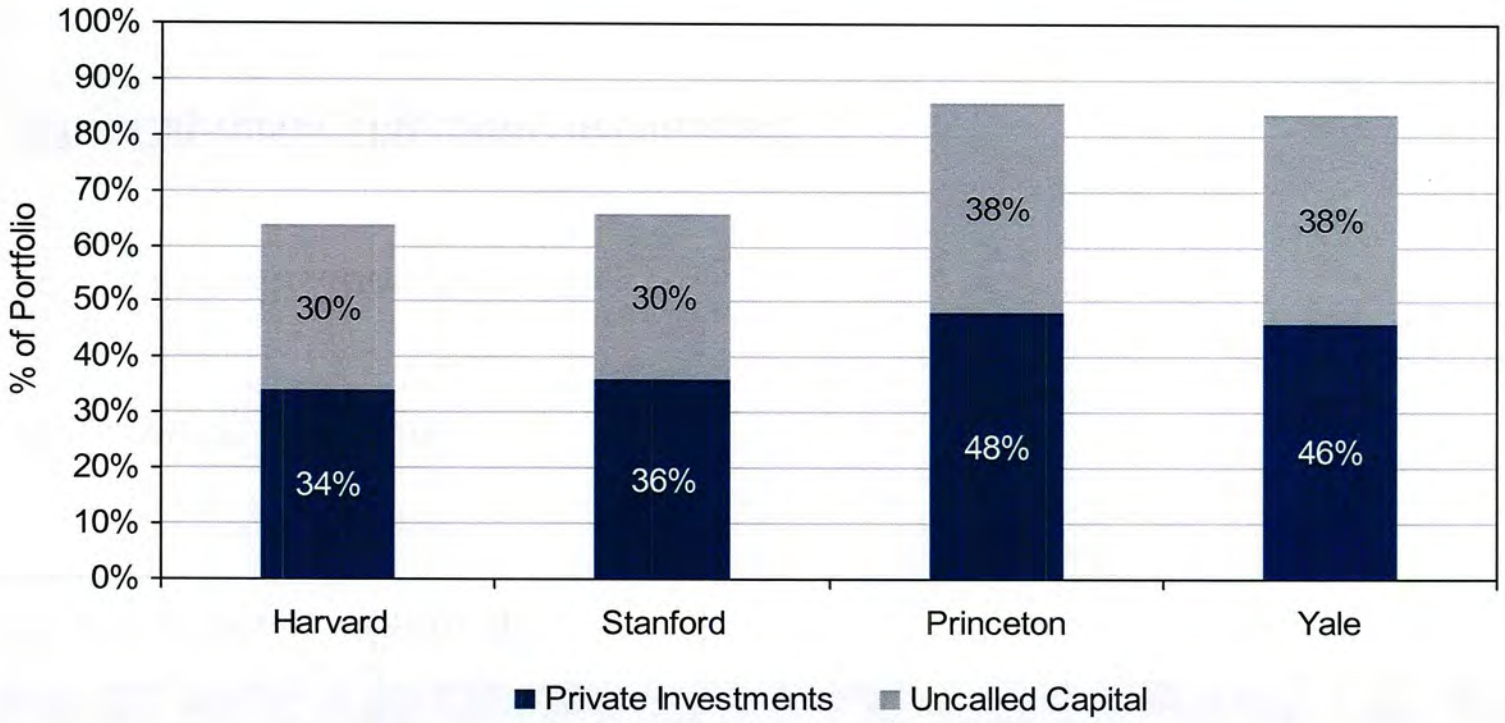
III. Capturing illiquidity premiums?

Liquidity Constraints

Illiquid Investments Restrict Portfolios

- Many institutions face an overhang of unfunded commitments to "drawdown style" private equity and real estate funds
  - The leading endowments' uncalled capital commitments at the end of 2008 comprised approximately 30% of their overall portfolios

Private Investments and Uncalled Capital as a % of Portfolio (Est.)



Note: 2008 figures per Andre Perold NMS presentation.

The "Illiquidity Premium"

Conventional wisdom implies that:

1) Investors receive an "illiquidity premium" for agreeing to lock up their capital
2) The illiquidity premium is **constant**
3) The illiquidity premium **increases** in proportion to the length of the lock-up

But is the conventional wisdom always right?

Illiquidity Premium Case Study: Portfolio Rebalancing in FY'09

Assumptions

1. Consider two portfolios beginning on July 1, 2008 (start of FY'09):

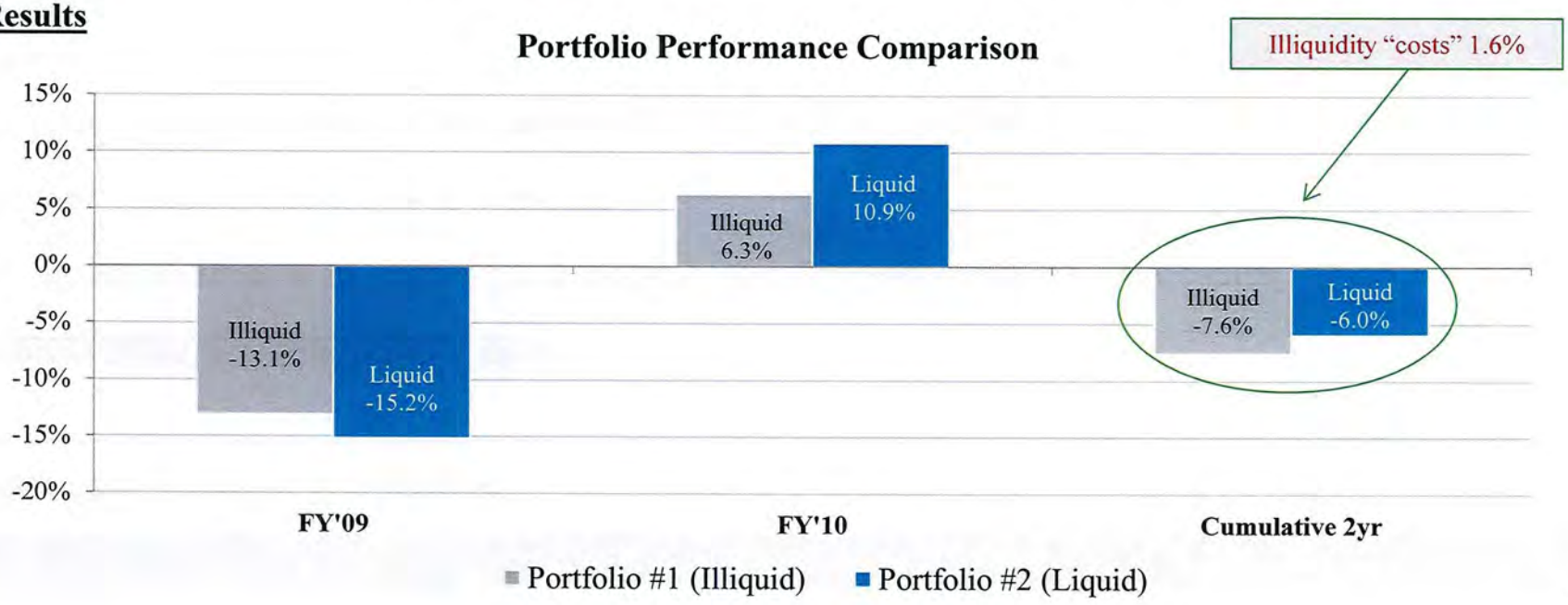
   Portfolio #1: 40% illiquid investments (PE & RE), remaining 60% split 60/40 stocks vs. bonds

   Portfolio #2: **NO** illiquid investments, 60/40 stocks vs. bonds

2. Illiquid investments deliver **-10%** in FY'09 (vs. -29% for public equities) and **+0%** in FY'10 (vs. +11.8% for public equities), outperforming public equities by more than 10% over the two-year period

3. Portfolios are rebalanced at the end of each fiscal year, but illiquid allocations may not be reduced

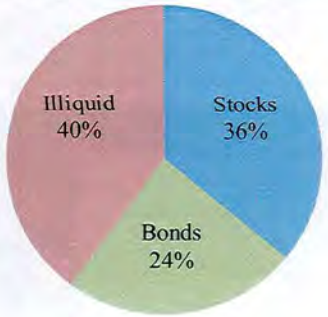
Results



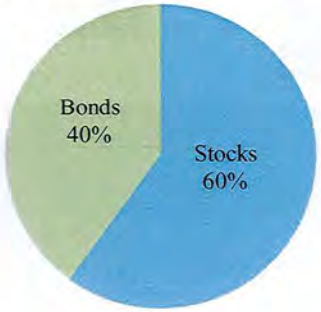
Illiquidity Premium Case Study: Analysis Detail

- Begin with the illiquid and liquid portfolio target allocations at the start of FY'09:

Portfolio #1 Beginning Allocation



Portfolio #2 Beginning Allocation



Stocks: MSCI ACWI Total Return Index

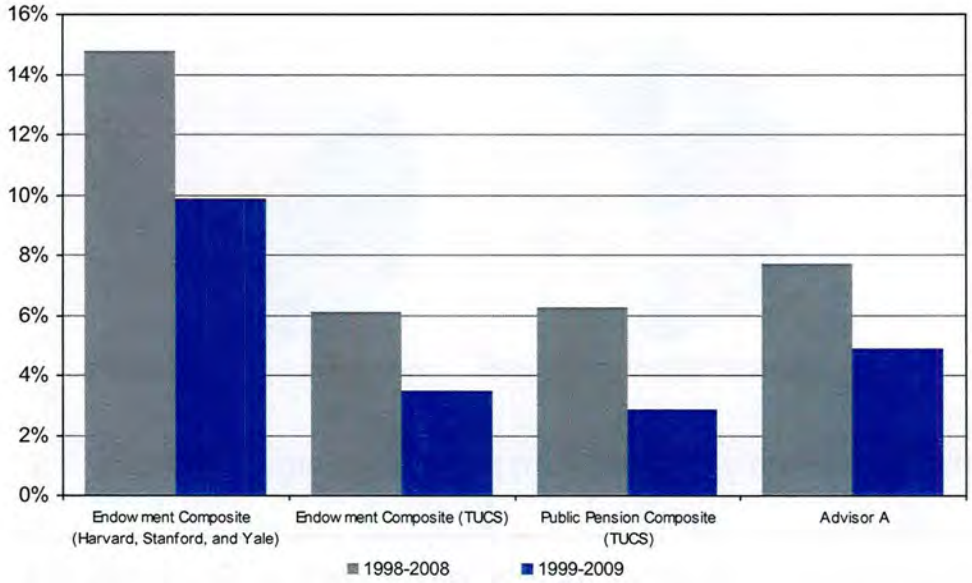
Bonds: BarCap US Aggregate Bond Index

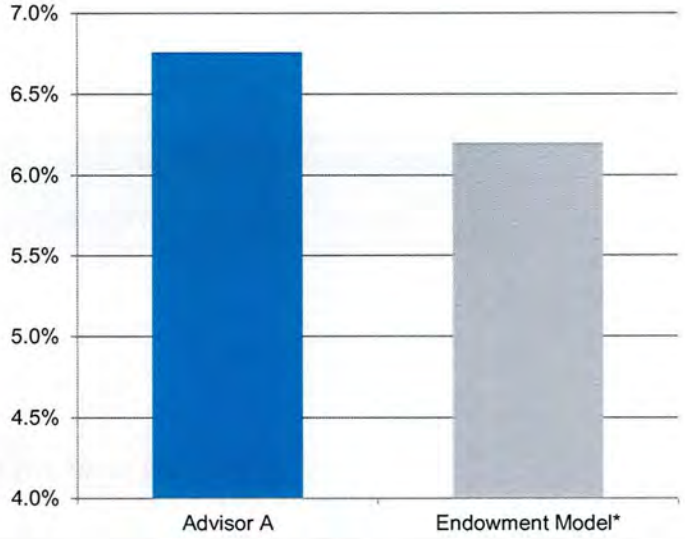
- At the **end of FY'09** (6/30/09), both portfolios are **under-allocated to stocks** because of the sharp sell-off in equity markets (MSCI ACWI -29.3%)
- Immediately prior to the start of **FY'10,** the 100% liquid **Portfolio #2 is able to fully rebalance** to its original stock vs. bond allocation of 60/40
  - **Portfolio #1 cannot fully rebalance its stock allocation** because the required 40% allocation to illiquid investments prevents it (the stock allocation is rebalanced to 34.6% of the total portfolio, vs. a target of 36.0%)
- Over the course of **FY'10**, the liquid Portfolio #2 outperforms the partially illiquid Portfolio #1, partly because of its full-sized allocation to stocks during a period of strong equity returns (+11.8%)
  - Over the entire period from 6/30/08 through 6/30/10, **the liquid portfolio outperforms by 1.6%**

"Endowment Model" vs. Liquid Portfolio

- By using similar asset allocations to those employed by leading endowments, advisors can deliver attractive long-term returns that have historically outperformed larger institutions
- The advisor below (Advisor A) uses a mix of index funds and active managers to build a portfolio that has approximately 70% in equities and 30% in fixed income. The portfolio includes:

– Domestic Large Cap	– U.S. Government Bonds	– Domestic REIT
– Domestic Small Cap	– Investment Grade Bonds	– International REIT
– International Large Cap	– International Bonds	
– International Small Cap	– High Yield Bonds	





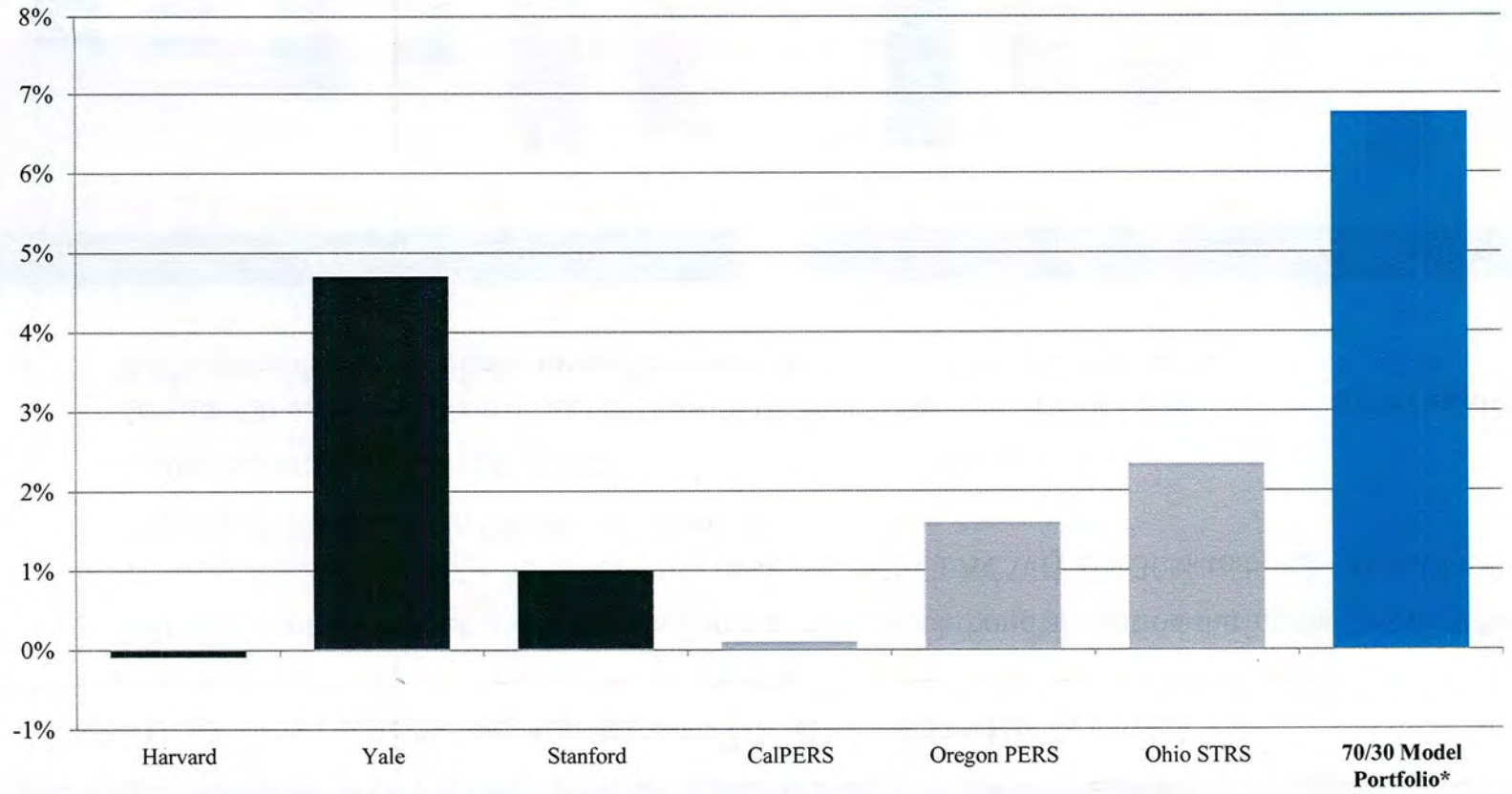
10yr Annualized Performance as of June 30, 2012

*Based on 831 U.S. college and university endowments and affiliated foundations, representing over $406 billion in endowment assets.
Source: 2012 NACUBO-Commonfund Study of Endowments, Endowment annual reports, Trust Universe Comparison Service (TUCS). Endowment composite represents mean performance of Harvard, Stanford, and Yale endowments. TUCS Endowment Composite represents median performance of large endowments and foundations. TUCS Public Pension Composite represents median performance of public pension funds with assets in excess of $1 billion. Advisor A data from its disclosures.

Institutional Portfolios vs. Generic 70/30 Portfolio (FY 2012)

- In FY2012, the 70/30 stock/bond portfolio returned 6.8%, significantly outperforming a number of the top endowments and public funds

2012 Performance Comparison: 70/30 vs. Representative Endowments & Public Plans

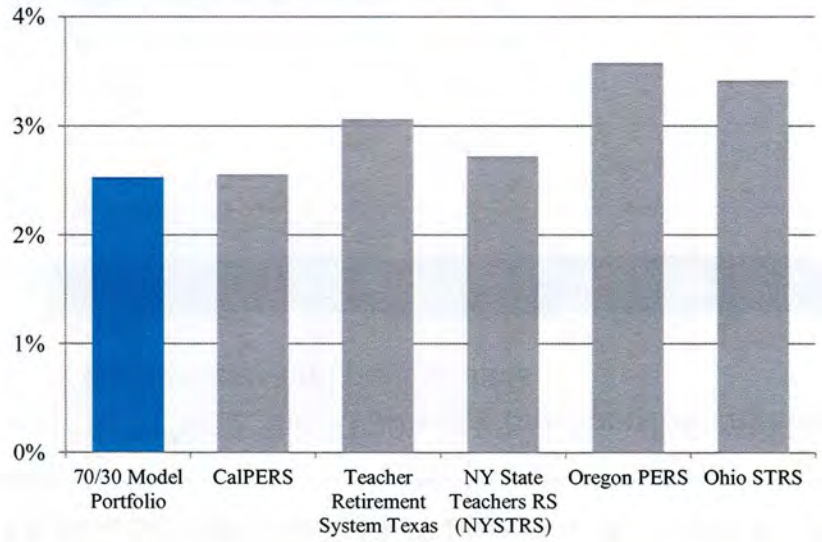


*70/30 portfolio is allocated 70% to MSCI ACWI Index and 30% to BarCap US Aggregate Bond Index, rebalanced quarterly.
Sources: Pension and Investments, Comprehensive Annual Financial Reports.

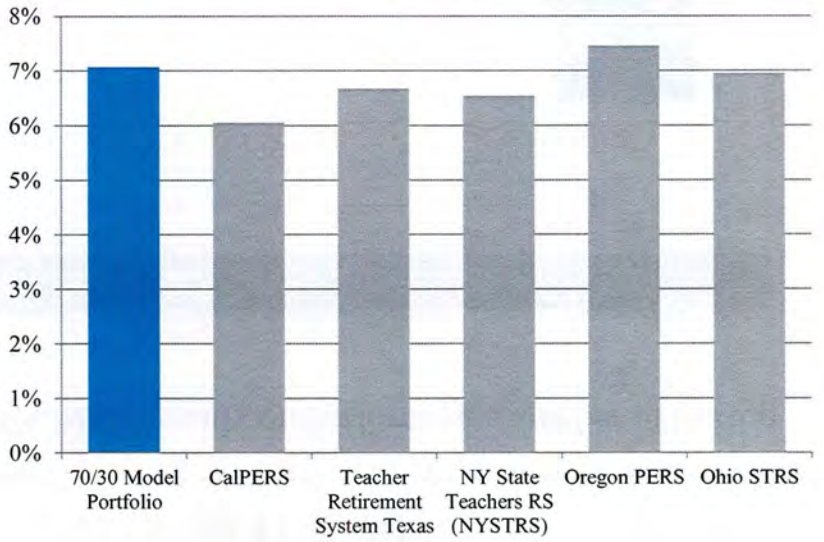
Institutional Portfolios vs. Generic 70/30 Portfolio (cont.)

- How did large institutional portfolios compare to a generic stock/bond allocation during the last decade?
  - Construct model portfolio allocated 70% to stocks (MSCI ACWI) and 30% to bonds (Barclays Capital Aggregate Bond Index), rebalanced quarterly
  - Compare returns to those of sizable public investment plans
  - **Result: Over the ten years ended June 2010, the 70/30 portfolio underperforms by an annualized 0.5% on average; it performs in line over the ten years ended June 2012**

10-Year Performance Comparison (Jun 2000 - Jun 2010)



10-Year Performance Comparison (Jun 2002 - Jun 2012)



Sources: California Public Employees Retirement System, Teacher Retirement System Texas, NY State Teachers RS, Oregon PERS, Ohio STRS.

Conclusions

- The endowment model, like other models of investing, may be context-specific and limited in its ability to be applied on a wider scale
  - Early success of a strategy may not be a reliable long-term guide to performance
  - Scaling up investment strategies may change their risk/return characteristics
  - Liquidity premiums may be cyclical (i.e., not static)

- All investment ideas/models should be subjected to rigorous scrutiny
  - Sensitivity to time periods used (are there long periods over which it does not work?)
  - Scalability (will it change if everyone does it?)
  - Implications of inherent volatility/leverage/illiquidity (tracking error)

Speaker Biography

Anne Casscells

Anne is the Chief Investment Officer of Aetos Alternatives Management and a Managing Director of Aetos Capital, LLC, where she manages approximately $8 billion dollars on behalf of pension funds, endowments and foundations. She is also an adjunct professor (lecturer) at the Stanford Graduate School of Business, teaching a course on event driven investing.

Prior to joining Aetos in 2001, Anne was Chief Investment Officer of the Stanford Management Company, where she was responsible for the investment of over $10 billion in endowment funds and other assets of Stanford University. Prior to joining Stanford, Anne was a Vice President in Goldman Sachs' Fixed Income Division and an analyst at Morgan Stanley & Company.

Anne earned her MBA from the Stanford Graduate School of Business, where she was an Arjay Miller Scholar, and a BA in British Studies from Yale University.

She is a member of the Board of Trustees of Grace Cathedral in San Francisco where she is a vice chair and head of the committee on trustees. She has served on the Board of Directors of KQED as Treasurer and head of the Finance Committee, and she continues as an off-board member of the finance committee and head of the investment committee. She has also been a trustee of the Stanford Business School Trust, and an Advisor to the Finance Committee of the David & Lucile Packard Foundation.

Anne is the co-author with Robert Arnott of two articles titled "Demographics and Capital Markets Returns" (Financial Analysts' Journal 2003) and "Will We Retire Later and Poorer?" (Journal of Investing 2004). These articles discussed the prospect that retirement ages in the U.S. will have to rise to bring Social Security and other retirement programs into balance. She is also the co-author, with Clifford S. Asness, of an unpublished monograph titled "Comparing Apples-to-Apples the Stock Market is Expensive," April 2004, which compares different measures of price earnings ratios and their predictive power.

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- **Flagship Strategy has Outperformed the S&P 500 by 239 Basis Points Per Year over the past 10+ Years since Inception**
- **5 Star Morningstar Rating for this strategy's 10 Year Record**

Global Macro Outlook – We are Constructive

- US GDP Grudgingly Inching Higher
- Stock Market Closing in on All-Time High
- Corporate Fundamentals Are Solid
- Consumer Fundamentals Are Strengthening
  - Balance Sheets Have Been Cleaned Up
  - Net Worth Is Back to Pre-Crisis Levels
  - Consumer Confidence is Rising
  - Home Prices Have Bottomed and Are Rising
  - Auto Sales at 15MM
- Emerging Markets Lifting Developed Markets
- Inflation Contained
- Many Negatives Seem Priced Into the Market

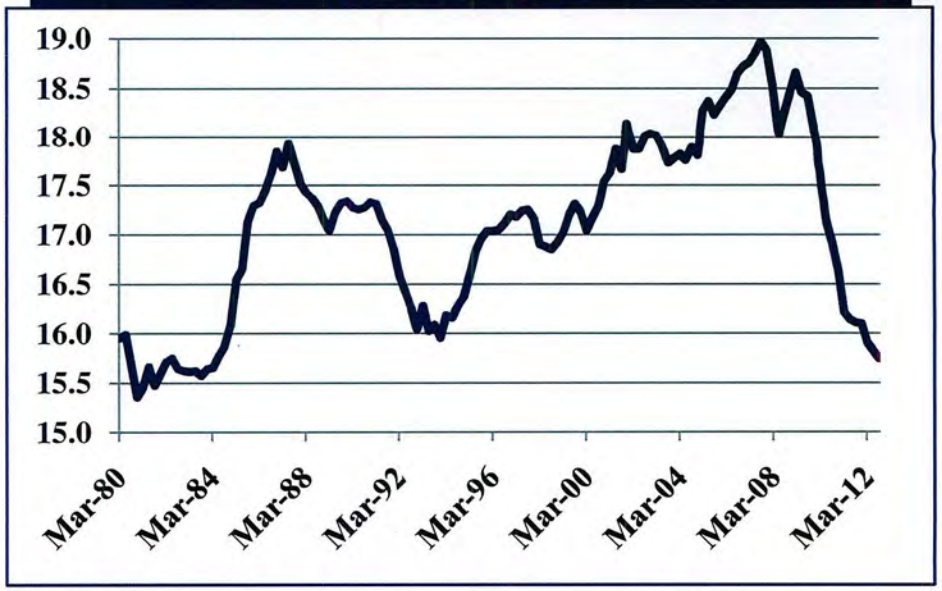
Consumer Trends

U.S. CONSUMER CONFIDENCE
7 DAY AVERAGE FEB. 6: 98.9

- Consumer Confidence continues to Strengthen

- Consumer Debt Service recovers to mid 1990s level

U.S. CONSUMER DEBT PROFILE
DEBT AS % OF DISPOSABLE PERSONAL INCOME
Q3 2012: 15.7%



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Emerging Countries Lifting World Growth

WORLD ECONOMIC PROJECTIONS

• World Output	2.4%
• Developed Countries	1.3%
• Emerging Countries	5.5%

• USA	1.9%
• Euro Area	-0.1%
• China	8.4%
• Japan	0.8%
• India	6.1%
• Brazil	3.4%
• Mexico	3.3%

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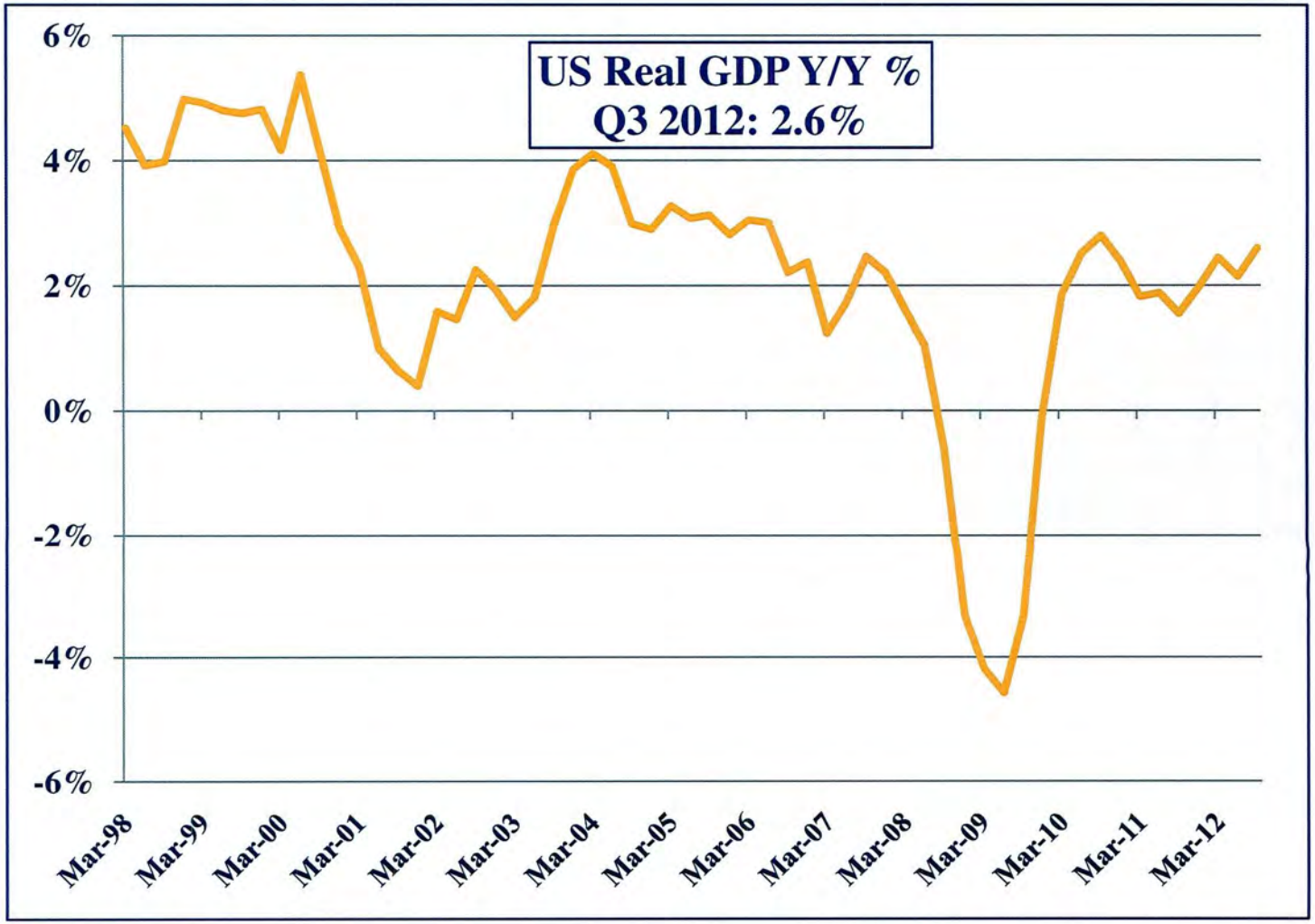
Source: World Bank

U.S. Real GDP Y/Y %

- Q4 2012 will likely be flat because of Hurricane Sandy

- 2013 should be around 2.5% with some acceleration during the year



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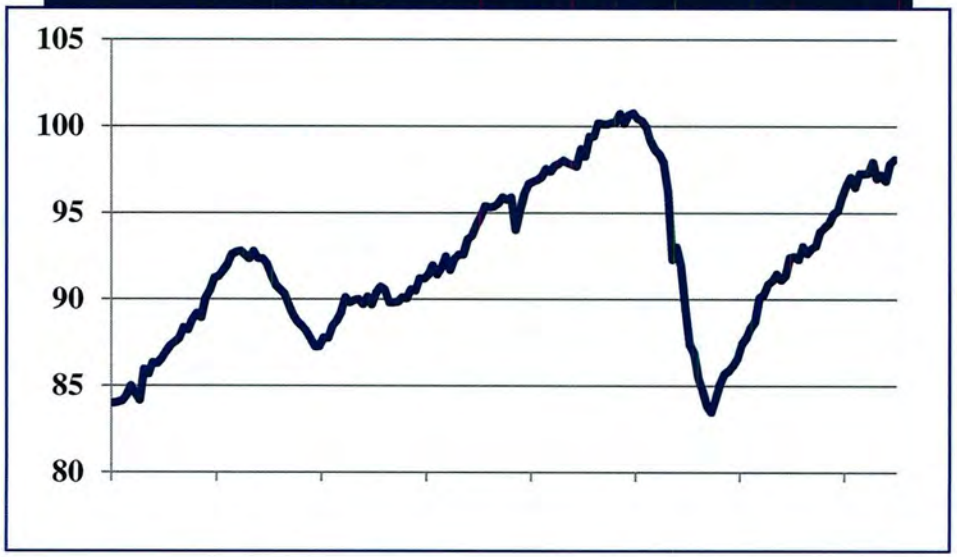
Corporate Trends

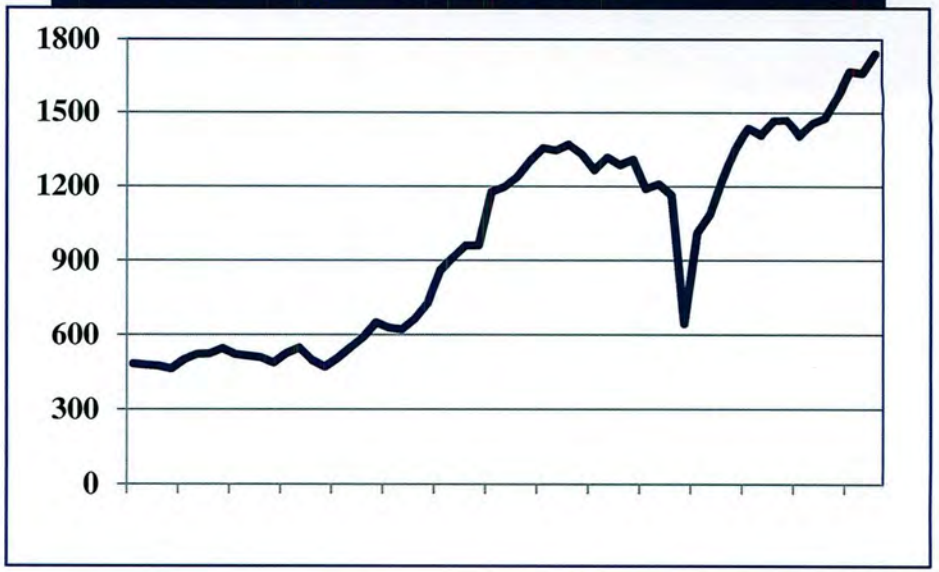
U.S. INDUSTRIAL PRODUCTION
Dec. 2012: 98.1



- Strengthening Industrial production

- Record Corporate Profits

U.S. CORPORATE PROFITS
Q3 2012: $1742B



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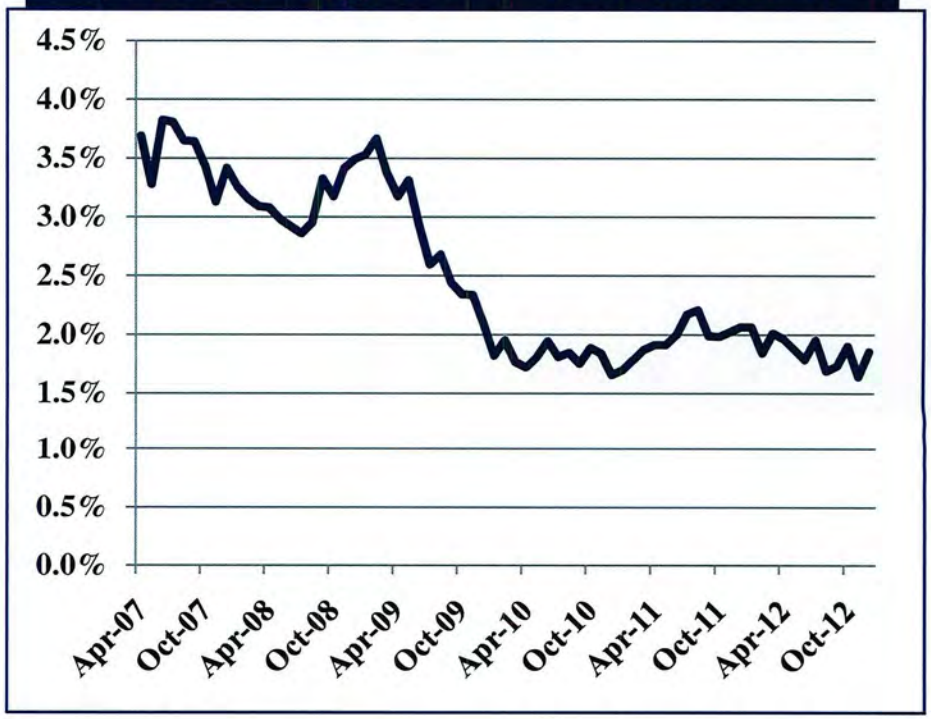
Inflation Remains In Check … For Now

U.S. CPI Y/Y %
Dec. 2012: 1.74%

U.S. AVERAGE HOURLY EARNINGS
3 Month Avg. Y/Y % Dec 2012: 2%



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Commercial Banking Trends (All FDIC Banks)

	Q4 2007	Q3 2012	% Δ
LOANS	$7,908	$7,580	(4.1)%
SECURITIES	$1,954	$2,986	52.8%
CASH-LIKE	$2,092	$2,566	22.7%
TOTAL ASSETS	$13,034	$14,223	9.1%
TOTAL DEPOSITS	$8,415	$10,504	24.8%
TOTAL EQUITY	$1,347	$1,638	21.6%

- Both Bank Deposits and Cash Like Holdings are 20-25% higher than Q4 2007

- However Loans are 4% lower than Q4 2007 so some upside likely remains

Risks Still Remain – A Few are as Follows:

- **Higher Tax Rates Coupled With Flat Real Incomes Suggests Subdued Consumer Spending**
- **Consumer Deleveraging May Not Be Finished**
- **US Corporate Tax Rates Disadvantages Them Globally**
- **Continued Slow/No Growth In Europe**
- **Fiscal Situation Is a Dampening Element**
- **Dysfunctional Washington DC**

- **RESULT: Continued Sub-Par GDP Trends**

Total Federal Revenue, Outlays & Deficits (Billions of Dollars)

	2007	2008	2009	2010	2011	2012
Receipts	$2,568	$2,524	$2,105	$2,163	$2,302	$2,449
Outlays	$2,729	$2,983	$3,518	$3,456	$3,599	$3,538
Deficit	-$161	-$459	-$1,413	-$1,293	-$1,297	-$1,089

Sources: Department of the Treasury, Office of Management and Budget, Congressional Budge Office

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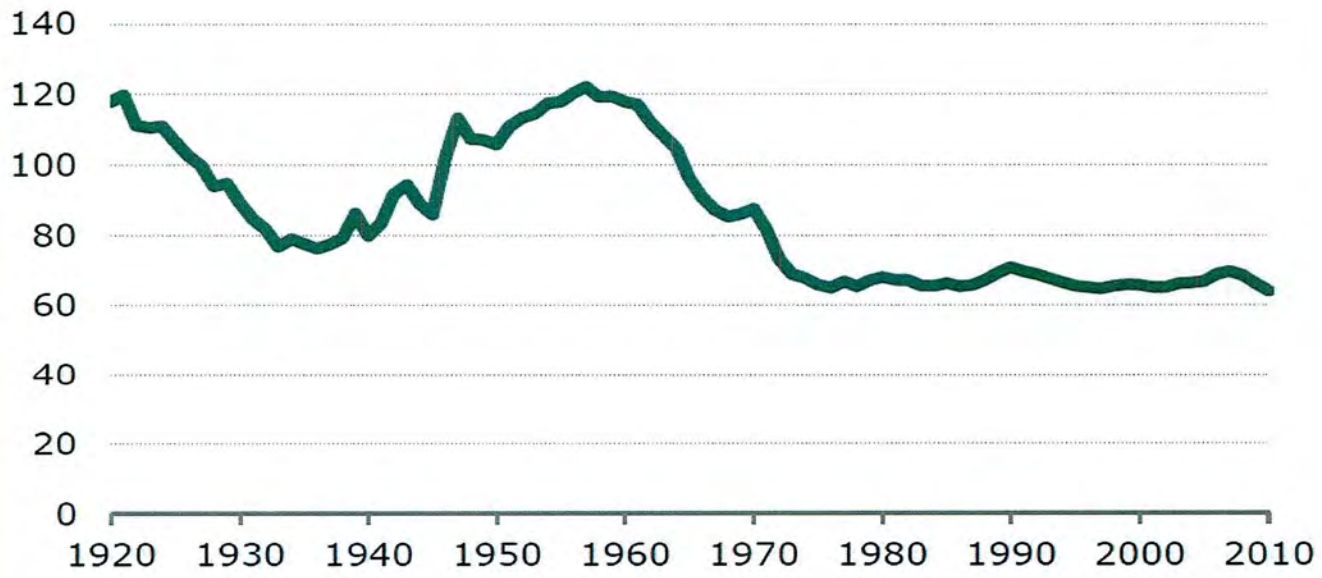
Demographic Challenges – US Birth Rate at Lowest Level Ever

Birth Rates, 1920-2010

Births per 1,000 women ages 15-44



Source: Statistics calculated using data obtained from the National Center for Health Statistics and Heuser (1976), available here

PEW RESEARCH CENTER

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So what does this mean for Pension Plan Investments?

- **Global Uncertainty may mean that Volatility continues to be a concern for years to come.**

- **<u>Challenge #1</u> – To make Volatility a "friend"**

- **<u>Challenge #2</u> – Greater portfolio stability as outflows likely to exceed inflows in coming years**

- **<u>Challenge #3</u> – To Generate Income in a Stubbornly Low Interest Rate Environment**

Hedging may address all of the Challenges

- Core Equity portfolios may benefit from Dynamic Hedging
- Although Hedge Funds have a role, the Big Tradeoff is Lack of Liquidity and Fees

- One Method is to hedge an Equity Portfolio with Covered Call Options
- Strategy may Generate Excess Returns over Broad Equity Markets in Flat or Declining Markets
- Approach is likely to trail in Strong Bull Markets

How Covered Options Work

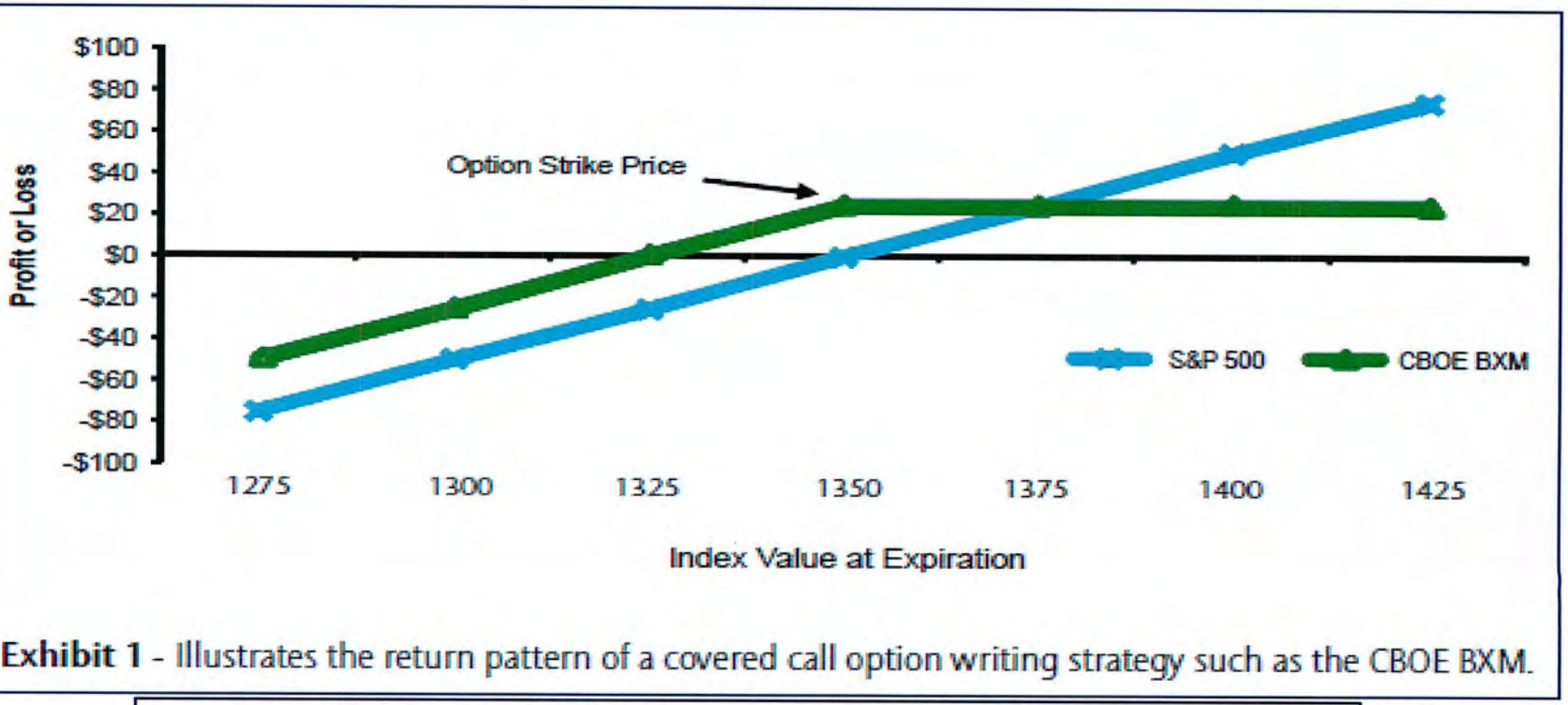

Exhibit 1 - Illustrates the return pattern of a covered call option writing strategy such as the CBOE BXM.

Sources: Hewitt EnnisKnupp. The CBOE S&P 500 BuyWrite Index (BXM) - A Review of Performance (2012)

- **Covered options outperform in flat or declining markets**
- **Upside is capped at the level of the Option Strike Price**

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Systematic Option Writing has effectively Lowered Volatility

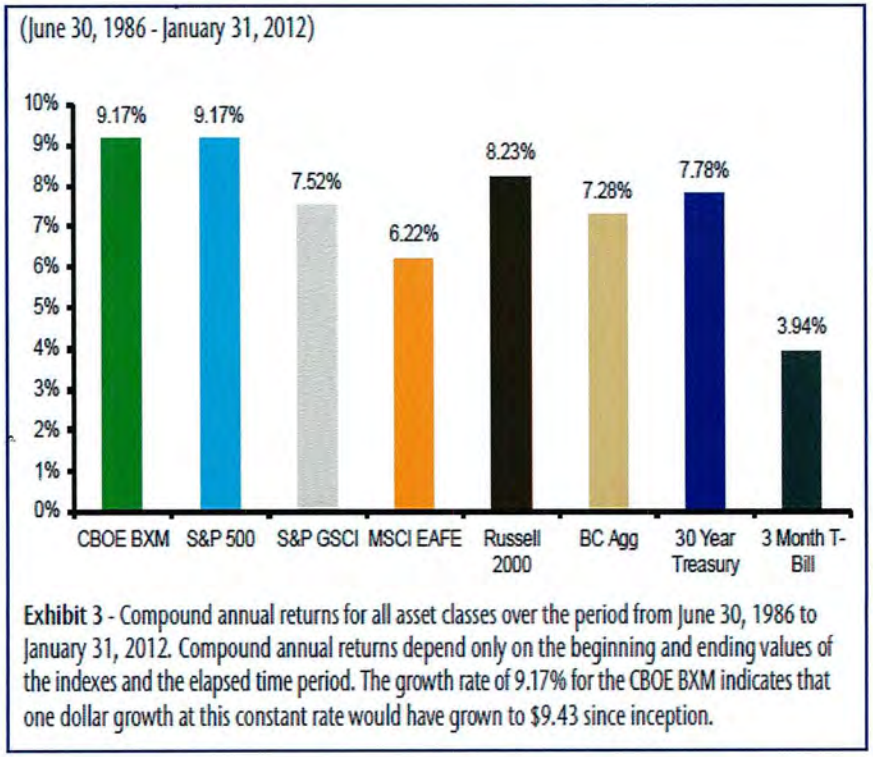

Exhibit 3 - Compound annual returns for all asset classes over the period from June 30, 1986 to January 31, 2012. Compound annual returns depend only on the beginning and ending values of the indexes and the elapsed time period. The growth rate of 9.17% for the CBOE BXM indicates that one dollar growth at this constant rate would have grown to $9.43 since inception.

- Similar Long Term Returns to the S&P 500

- Significantly less volatility and thus superior risk adjusted returns

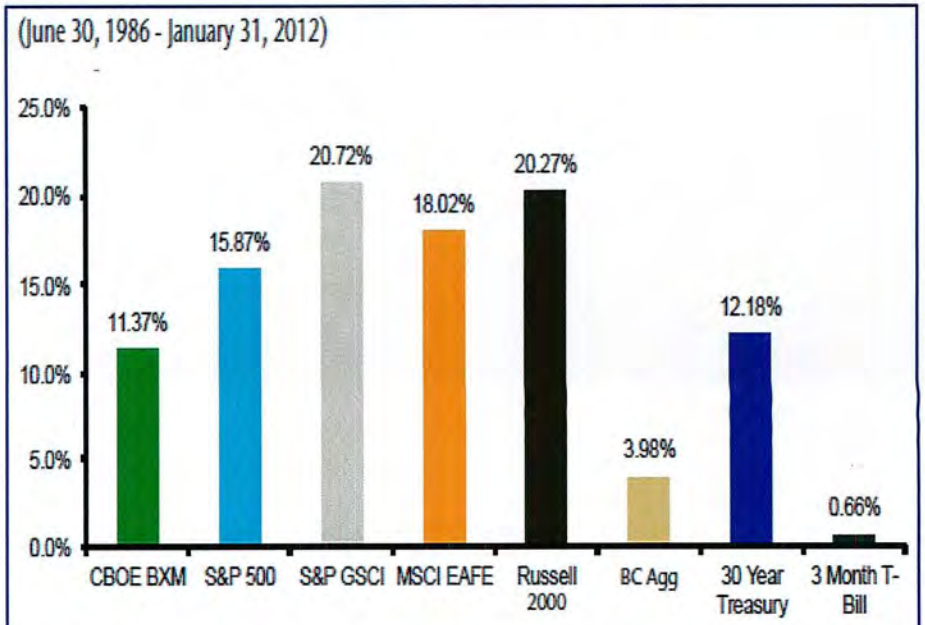

Exhibit 4 - Annualized standard deviation for all asset classes over the period from June 30, 1986 to January 31, 2012. CBOE BXM has performed in-line with the S&P 500 annulized returns while at a much lower level of volatility.

Sources: Hewitt EnnisKnupp. The CBOE S&P 500 BuyWrite Index (BXM) - A Review of Performance (2012)

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Performance during Extreme Market Conditions

(June 30, 1986 - January 31, 2012)

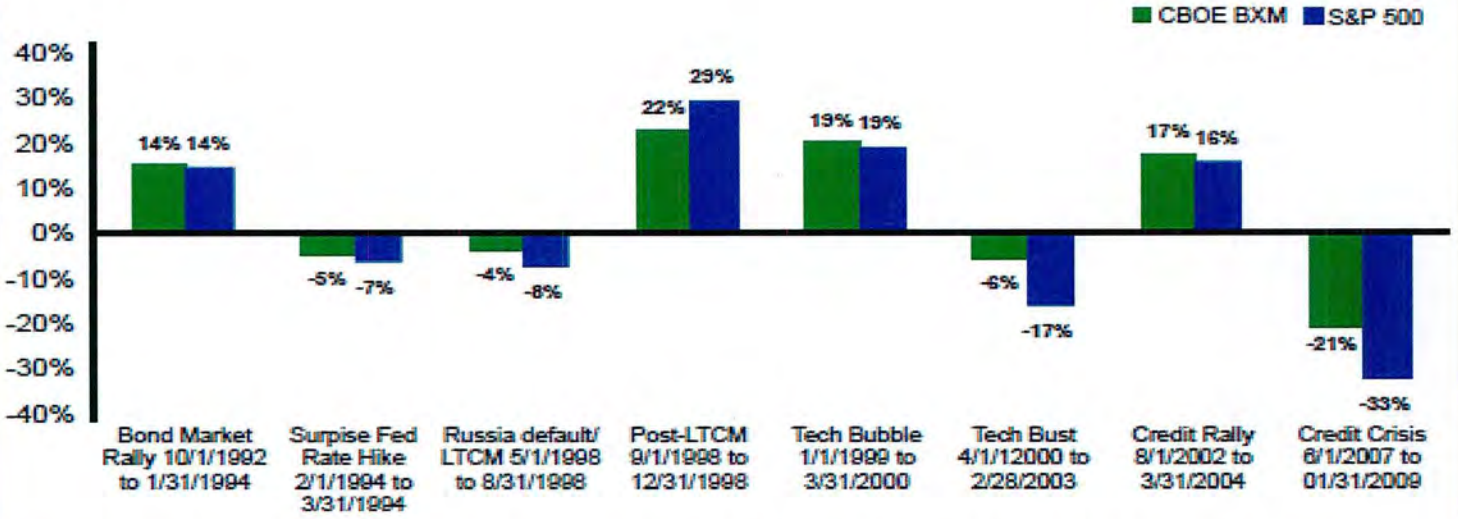

Exhibit 10 - Return Comparison between the CBOE BXM and the S&P 500 during extreme market environments in the last two decades. The CBOE BXM outperformed the S&P 500 during most extreme market conditions except the Post-LTCM period.

- Systematic Option writing prevailed in almost all Extreme Periods post 1986

- Option Premiums provided the buffer during Drawdowns

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Adding Option Strategies to an existing Balanced Portfolio

(June 1, 1986 - January 31, 2012)

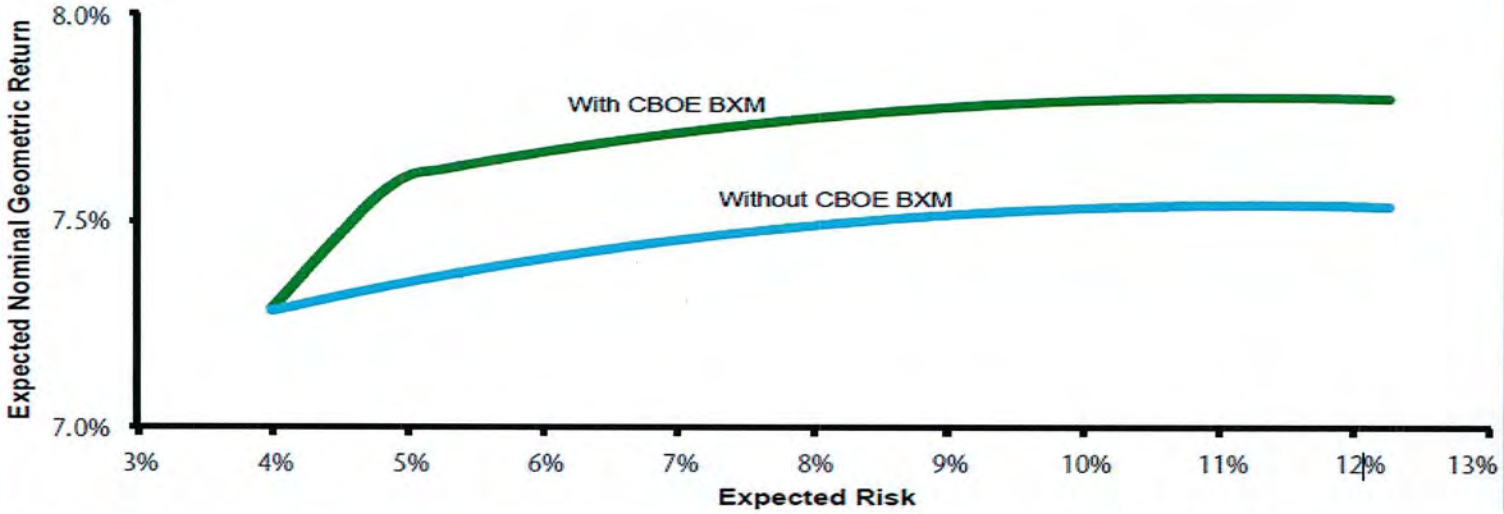

Exhibit 14 - Mean-Variance Efficient Frontier expands when the CBOE BXM is added to the asset mix of U.S. Bonds and Global Equity. U.S. bonds are represented by the Barclays Capital U.S. Bond Aggregate Index and global equity is represented by MSCI All Country World Index. The Efficient Frontier is constrained to a maximum 15% allocation the CBOE BXM.

- Adding a 15% allocation of a systematic option writing strategy increases expected returns with minimal increases in risk

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Systematic versus Dynamic Option Writing

- CBOE BuyWrite Index is derived from Systematic, at the Money, Option Writing on the S&P 500

- Dynamic Option Writing Varies the Levels at which the Monthly Strike Prices are Written

- Approach creates the flexibility to write Options Out of the Money where Manager's model indicates the Underlying Portfolio is likely to appreciate

- Manager may write the Options At or In the Money where Short Term Factors point to a Market Decline

Option Writing on Multiple Indices

- Implied Volatility may be higher for certain Indexes and thus generate more generous Option Premiums

- Multiple Indexes creates greater Diversification for the Underlying Equity portfolio

- Varying the Allocation of the Underlying Indexes provides another method of potential Alpha Generation

- Option Premiums, Dividends and Underlying Equity Appreciation may all contribute to Strategy Performance

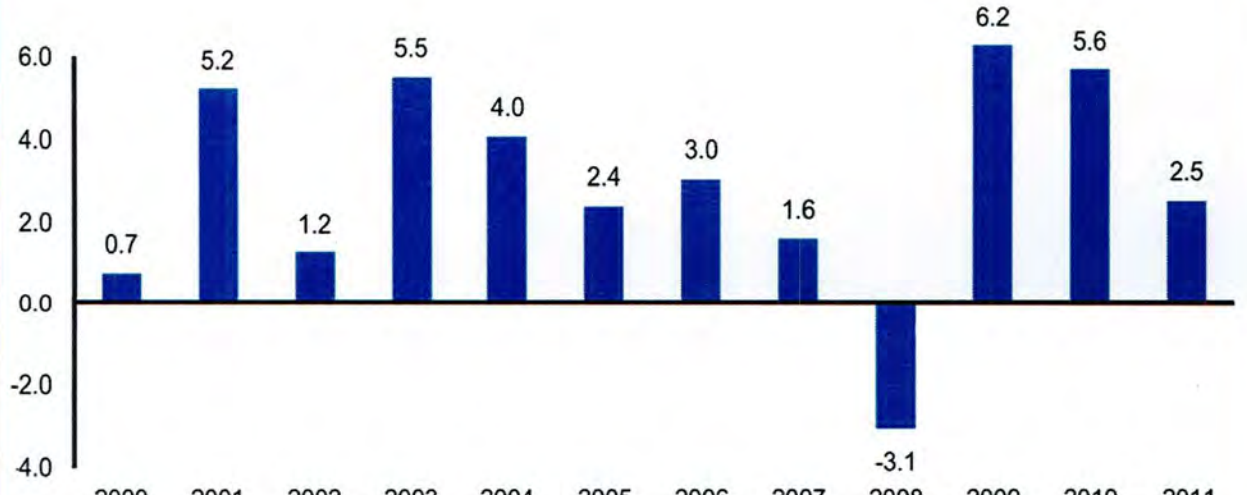
Benefiting from opportunities in Index Option pricing

- ETF index options tend to trade at prices above their fair value

- **Implied volatility on the S&P 500 historically trades at a higher level than realized volatility**
- **As such one is generally being 'overpaid' to sell index options**
- **The inverse is generally true of single stock options where realized volatility exceeds implied volatility**

Source: Bollen and Whaley, The Journal of Finance, Vol. 59, No. 2, (April 2004) pp. 711-753

Exhibit 12 - Implied Volatility (VIX) minus Subsequent S&P 500 Realized Volatility – Average Per Year (2000 - 2012)



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Implied Volatility	23.0	25.4	26.7	21.7	15.3	12.7	12.7	17.5	32.8	31.4	22.7	24.0
Realized Volatility of S&P 500	22.2	20.2	25.5	16.3	11.3	10.39	9.7	16.0	35.9	25.2	17.0	21.5

Source: 2012 Paper on BXM by Hewitt EnnisKnupp (www.cboe.com/benchmarks)

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Options Premiums are Non-Correlated to the Market

- Option Premiums are generally higher as Market Volatility increases
- Markets are typically falling during periods of increased volatility
- As a result higher option premiums can cushion market drawdowns

Premium Income Component

Exhibit 13 - 12-Month Gross Premium Income Earned vs. CBOE BXM Return
(May 31, 1989 - January 31, 2012)

Source: 2012 Paper on BXM by Hewitt EnnisKnupp (www.cboe.com/benchmarks)

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Options Premiums Can Provide Income When Most Needed

- **Options Premiums can increase dramatically during falling markets and other periods of high market volatility**
- **Excess premiums can be reinvested or utilized for distributions**

Strategy Total Return	2008	2009	2010	2011	Cumulative Return 2008-11
Main BuyWrite	-21.83	20.64	10.22	4.73	8.86
MSCI ACWI	-42.19	34.63	12.67	-7.35	-18.75
S&P 500	-37.00	26.46	15.06	2.11	-6.39

Strategy Price Return	2008	2009	2010	2011
Main BuyWrite	-31.86	21.18	12.93	-5.37
MSCI ACWI	-43.54	31.51	10.42	-9.41
S&P 500	-38.49	23.45	12.78	0.00

Strategy Income Return	2008	2009	2010	2011
Main BuyWrite	10.03	-0.54	-2.71	10.1
MSCI ACWI	1.35	3.12	2.25	2.06
S&P 500	1.49	3.01	2.28	2.11

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Main Buy Write Strategy

Global Low-Volatility Equity Income

Description

Main Management employs a disciplined process of fundamental analysis to allocate a globally diversified equity portfolio. Monthly covered call options are written on the portfolio to generate income and lower overall volatility. The strategy aims to outperform the MSCI All Country World Index over a full market cycle with one-third less volatility. It has a long term target goal of 4-6% per annum for the collective income from option premiums and dividends.

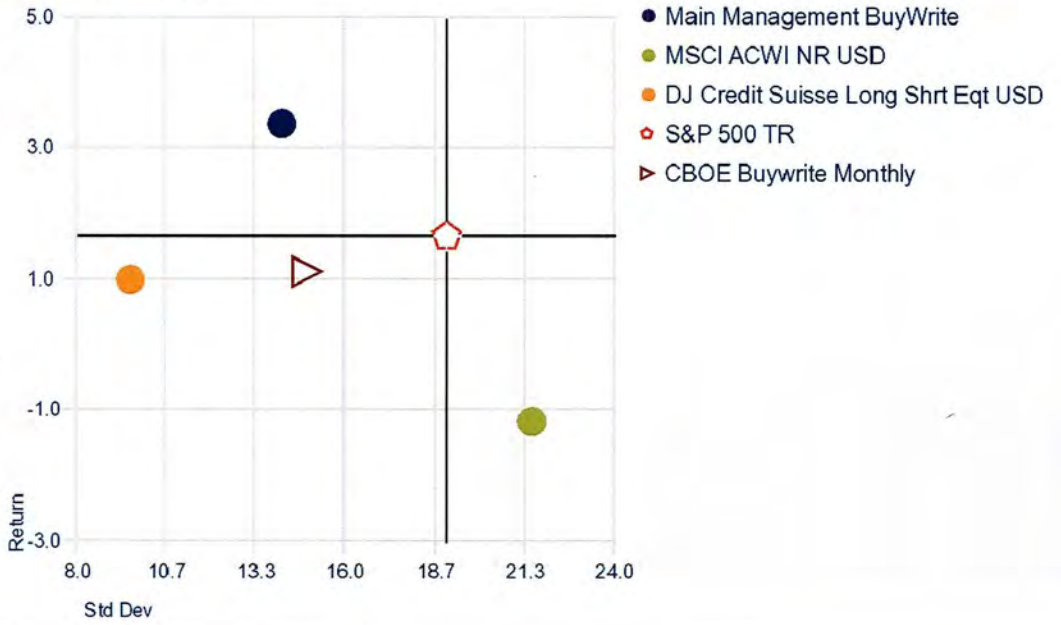
Return Objective

To provide an income stream and reduce the volatility of the underlying portfolio of globally diversified equities.

Risk-Reward

Time Period: 1/1/2008 to 12/31/2012

Source Data: Net Return



Risk Parameters vs. MSCI All Country World Index (ACWI)

Time Period: 1/1/2008 to 12/31/2012 Source Data: Net Return

	Return	Std Dev	Up Capture Ratio	Down Capture Ratio	Alpha	Beta	Sharpe Ratio	Max Drawdown
Main Management BuyWrite	3.38	14.12	63.93	51.31	3.44	0.61	0.28	-32.25
CBOE Buywrite Monthly	1.13	14.89	58.18	53.26	1.37	0.61	0.12	-35.81
S&P 500 TR	1.66	19.04	89.67	81.15	2.40	0.85	0.16	-48.45
Credit Suisse Long Short Equity	0.99	9.62	46.84	42.82	0.73	0.40	0.11	-21.65
MSCI ACWI NR USD	-1.16	21.59	100.00	100.00	0.00	1.00	0.04	-52.31

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Source: Morningstar Direct

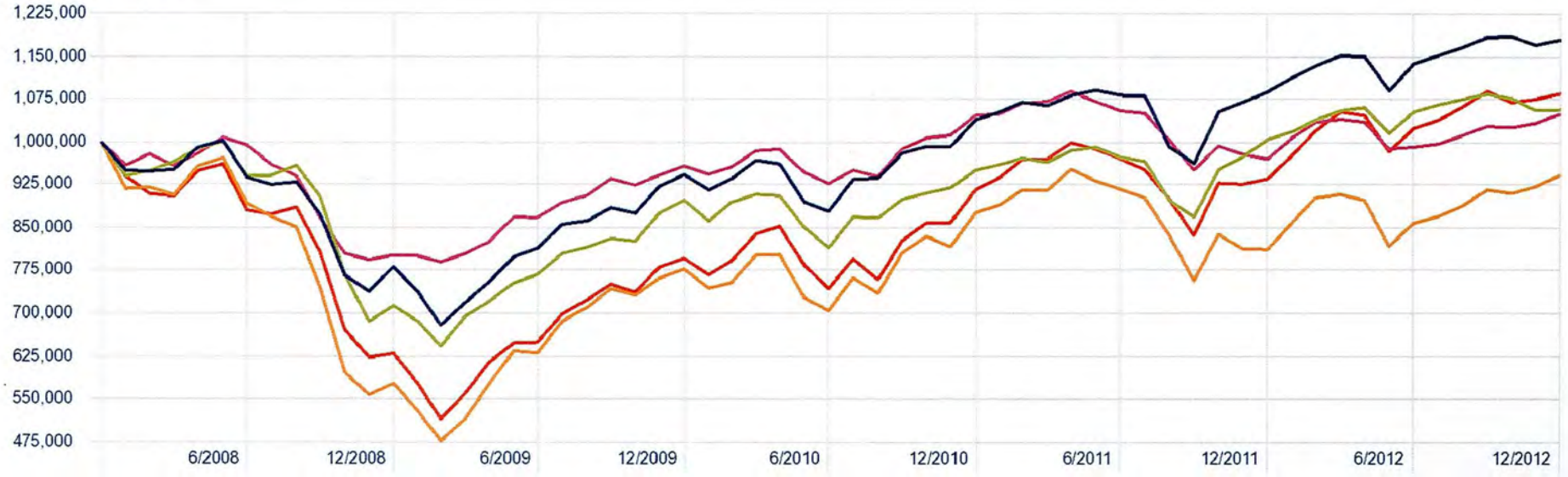
Main Buy Write Strategy

Global Low-Volatility Equity Income

Investment Growth

Time Period: 1/1/2008 to 12/31/2012

Source Data: Net Return



Main Management BuyWrite	1,180,859	CBOE Buywrite Monthly	1,057,699	MSCI ACWI NR USD	943,412
Credit Suisse Long Short Equity	1,050,661	S&P 500 TR	1,085,946		

Trailing Returns

As of Date: 12/31/2012 Source Data: Net Return

	3 month	1 Year	3 Years	5 Years
Main Management BuyWrite	-0.34	8.48	7.78	3.38
CBOE Buywrite Monthly	-2.49	5.20	5.59	1.13
MSCI ACWI NR USD	2.88	16.13	6.63	-1.16
Credit Suisse Long Short Equity	2.11	8.21	3.10	0.99
S&P 500 TR	-0.38	16.00	10.87	1.66

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Source: Morningstar Direct

Buy Write Strategy versus College Endowments

	(6/30/11 through 6/30/12)	(6/30/10 through 6/30/11)	Trailing 3-Year (through 6/30/12)	Trailing 5-Year (through 6/30/12)
Main Management Buy Write (Net)	5.1%	23.2%	11.8%	3.2%
Average U.S. College Endowment	-0.3%	19.2%	10.2%	1.1%

- College Endowments employ Stocks, Bonds, Hedge Funds, Private Equity and Other Alternatives to derive returns

- Main Buy Write employs Option Writing on Global Broad Market Equity ETFs

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Source: NACUBO and Commonfund Institute study of 831 College Endowments; Feb. 2013

Disclosure

Main Management, LLC ("Main Management", or the "firm") is an investment adviser registered under the Investment Advisers Act of 1940. The firm was founded in 2002 and provides investment management services primarily to high net worth, family groups, foundations/endowments, and serves as a sub-advisor to third-party investment advisors & broker-dealers.

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Composite Definition: Main Management's Buy-Write composite is a long only equity and fixed income strategy that seeks to generate income and dampen volatility from selling covered calls on its underlying holdings. The Buy-Write strategy seeks to generate an income stream from selling covered calls at the money, or slightly out of the money or in the money, on multiple asset classes. This strategy was designed to achieve capital preservation and provide income with low fees, low turnover and minimal taxes. Our objective for the Buy-Write composite is to seek superior risk adjusted returns by investing in multiple asset classes and to generate premium income by selling covered calls, at a monthly duration, on the underlying investments in the portfolio. The underlying asset class selection is supported by fundamental research with reversion-to-the-mean coupled with a catalyst. The Portfolio Manager will use options on 70%-100% of the portfolio. Frequency will vary depending on the market environment. The sell discipline includes taking into consideration state and federal capital gains taxes. Benchmark is the CBOE BXM.

The composite's minimum account size is $100,000. Accounts are included in each composite after the first full month of performance to the present or to the cessation of the client relationship with the firm. Investment results are time weighted performance calculations representing total return.

Reported returns include all realized and unrealized gains and losses, all dividends and interest income and expense and all transaction costs. Performance results are presented gross and net of management fees and commissions. Net-of-fee returns are calculated using actual management fees charged. Management fees are payable in arrears in quarterly installments at the beginning of each calendar quarter and are based on a percentage of net assets in each client's portfolio. The annual investment management fee schedule for the composite is 0.75% on the first $5,000,000, 0.65% on the next $10,000,000, 0.55% on the next $10,000,000 and 0.45% on the remaining assets over $25,000,000. Trade date accounting has been used to value the composite throughout the periods presented. Valuations and returns are computed and stated in U.S. dollars. Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request. Past performance does not guarantee future results. Benchmarks are unmanaged and do not take transaction costs or fees into consideration. It is not possible to invest directly in a Benchmark. Performance figures assume reinvestment of dividends and capital gains.

The SMA fee includes all charges for trading costs, portfolio management, custody, and other administrative fees.

For accounts that have been charged an SMA fee, net of fee performance has been reduced by custody and administrative fees in addition to portfolio management and trading fees.

Prior to September 30, 2011, the composite did not include any accounts paying a bundled fee.

Main Management will provide a complete list of composites and descriptions upon request.

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