

Investment Solutions for the FELRA and UFCW Pension Funds

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WURTS  ASSOCIATES

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ORGANIZATION BACKGROUND

I. Please provide the following information regarding your firm:

a. Firm Name

Wurts & Associates Inc.

b. Contact's Name and Title

Brad Ness

Senior Consultant

c. Contact's Mailing Address

999 Third Avenue, Suite 4200

Seattle, Washington 98104

d. Contact's E-mail Address

bness@wurts.com

e. Contact's Phone and Fax Numbers

(206) 622-3700 – **Phone**

(206) 622-0548 – **Fax**

f. Firm's Internet Address (if any).

www.wurts.com

2. Please provide a brief history of the firm, including its year of organization and the ownership structure of the firm, including any parent, affiliated companies or joint ventures.

Wurts & Associates was founded in 1986, in Seattle, by William Wurts as a provider of independent, institutional investment consulting services to a wide variety of investors. We have offices in Seattle, Washington and Los Angeles, California and maintain relationships throughout the United States. Wurts & Associates continues to grow and now advises on more than \$41 Billion in assets. We remain dedicated to bringing a thoughtful and independent approach to investment consulting.

Wurts & Associates is 100% employee-owned. The firm is not owned by a parent organization. The current owners of Wurts & Associates are: Jeffrey MacLean, CEO; Bill Wurts, Chairman; Shelly Heier, CFA, CAIA, President & COO; Scott Whalen, CFA, Executive Vice President; Anne Westreich, CFA, Senior Consultant; Annie Taylor, CFA, Senior Consultant; and Angela Swensen, Treasurer.

In 2012, Wurts & Associates formed KEI Investments, LLC, a new related entity. KEI Investments was formed to provide institutional investment advice on a discretionary basis to certain separate account clients and pooled investment vehicles. KEI is jointly owned by owners of Wurts & Associates and key investment professionals involved in the delivery of our discretionary services.

3. List all owners of the firm including applicable ownership percentage, and include short biographical descriptions of the owners.

Wurts & Associates is a privately held corporation currently 100% owned by 7 key professionals. The current owners of Wurts & Associates are: Jeffrey MacLean, CEO (69%); Bill Wurts, Chairman (7%); Shelly Heier, CFA, CAIA, President & COO (7%); Scott Whalen, CFA, Executive Vice President (7%); Anne Westreich, CFA, Senior Consultant (5%); Annie Taylor, CFA, Senior Consultant (2%); and Angela Swensen, Treasurer (2%).

A short biography for each of these key professionals is provided in **Tab II**.

4. Describe any ownership changes that have occurred within the last five (5) years, as well as any anticipated changes in ownership, organizational structure, or professional staffing.

There have been no significant changes in firm ownership in the last five years, and Wurts & Associates does not anticipate changes in ownership, organizational structure, or professional staffing. However, Wurts & Associates has offered firm ownership to key

investment staff in the past, and plans to continue this program to provide incentives for key employees that make outstanding contributions to the success of the firm.

5. Please provide the following information related to your firm:

a. Number of years providing investment consulting services.

Wurts & Associates has been providing investment consulting services to our clients for over 27 years.

b. Number of years providing consulting services to jointly-trusted benefit funds.

Our firm has provided investment consulting services to jointly-trusted benefit funds for over 27 years since the firm's inception.

c. General categories of services available to clients.

As a full-service institutional investment consulting firm, Wurts & Associates provides a comprehensive set of investment consulting services:

- Asset Allocation Modeling
- Asset/Liability Modeling
- Investment Management Research and Selection
- Performance Measurement and Analysis
- Trustee/Committee Educational Presentations
- Investment Research
- Macroeconomic Research
- Investment Policy Review and Development
- Investment Manager Fee Analysis
- Transition Assistance to New Managers
- Securities Lending Vendor Selection and Guidance
- Commission Recapture Agent Selection and Guidance

In addition, we provide a number of value-adding project services as well which may be of interest to you outside of the traditional consulting cycle:

- Service Provider Search
- Custodial Evaluation and Selection Services
- Litigation Support

d. Asset classes that the firm is currently monitoring for clients.

Wurts & Associates monitors the following asset classes for our clients:

Equities

- US Large
- US Small
- International Developed
- International Small
- Emerging Markets
- Private Equity

Fixed Income

- Cash
- US TIPS
- Core Fixed Income
- Investment Grade Corp. Credit
- High Yield Corp. Credit
- Global Credit
- Emerging Markets Debt

Alternatives

- Commodities
- Hedge Funds
- Core Real Estate
- REITs
- Opportunistic Real Estate

e. Total firm revenue.

Wurts & Associates is a privately held company and, while we are not required to release the particulars of our finances, we would be willing to do so should it be a deciding factor at a later stage in the process and granted a non-disclosure agreement is signed.

f. Percentage of firm's revenue from services to jointly-trusted benefit funds.

Wurts & Associates earned 32.1% of firm revenue through jointly-trusted benefit funds in 2012.

FELRA AND UFCW PENSION FUNDS

6. Please provide the following information related to your firm's current clients:

a. Total number of clients, including total assets of all clients.

Wurts & Associates currently advises 122 clients and over \$41 Billion in assets.

b. Number of jointly-trusted benefit fund clients, including the size (in assets) of each jointly-trusted benefit fund client.

Wurts & Associates currently serves 46 jointly-trusted benefit fund clients. We are unable to release individual asset values of each of our clients. However, a breakdown by assets under advisement is displayed below for your reference.

Type of client	Total clients	< \$250 Million	> \$250 Million	> \$1 Billion
Jointly-trusted benefit funds	46	35	10	1

c. Percentage breakdown of clients by category (e.g. public pension funds, endowments, etc.).

A breakdown of our current client relationships is provided in the table below.

Type of client	Total clients
Public Pension Plans	8
Corporate Plans	29
Jointly-trusted benefit funds	46
Endowments, Foundations & Hospitals	23
Other	16
Total	122

FELRA AND UFCW PENSION FUNDS

- d. Distribution of all clients by asset size within the following ranges: (1) less than \$250 million, (2) \$1 billion, (3) above \$1 billion.

Type of client	Total clients	< \$250 Million	> \$250 Million	> \$1 Billion
Public Pension Plans	8	2	4	2
Corporate Plans	29	17	8	4
Jointly-trusted Benefit Funds	46	38	7	1
Endowments, Foundations & Hospitals	23	20	2	1
Other	16	15	0	1
Total	122			

- e. List of your firm's five (5) largest clients, including name, address, contact name, telephone number and asset size, for use by the Board as references.

Due to client confidentiality, we are unable to disclose all of our current client relationships. However, we have provided the contact information for five of our Jointly-trusted benefit fund clients below:

Mr. Ed Gormley
Co-Chairman
U.A. Local 290 Plumbers Pension Plan
Phone: (503) 472-4101
ed@gormleyplumbing.com

Mr. Al Shropshire
Co-Chairman
U.A. Local 290 Plumbers Pension Plan
Phone: (503) 691-5700
shropshire@ua290.org

Mr. Alan Cote
Co-Chairman
Inlandboatmen's Union of the Pacific
National Pension Plan
Phone: (206) 284-6001 x21
alan.ibu@mindspring.com

Mr. Lee Eglund
Co-Chairman
Inlandboatmen's Union of the Pacific
National Pension Plan
Phone: (206) 332-8241
lee.egland@crowley.com

Mr. Doug Wagner
Chairman
Western Washington Glaziers
Retirement Fund
Phone: (206) 441-5554
doug@iupatdc5.org

7. Please provide details on the number, name and asset values of any terminated client relationships within the past five years, including reasons for the termination. Please provide the name and position of the applicable contact person and telephone number for each such client.

While it continues to be our goal to retain all clients, we recognize there are factors influencing retention decisions that are sometimes beyond our control. That being said, six clients chose not to renew our services in the past five years. Due to confidentiality concerns, we are unable to list the names of these former clients.

It is important to note that Wurts & Associates has gained 36 new client relationships over the past five years.

8. Please provide details on the number, name and asset values of any new client relationships gained in the past five years, including names and positions of contact persons and applicable telephone numbers.

Due to client confidentiality we are unable to disclose all new client relationships of the past five years. However, we have provided references below of three client relationships that were gained during these five years.

Name of institution: Western States 401(k) Retirement Fund for OPEIU
Type of relationship: General investment consulting services
Approximate assets under management: \$43 Million
Name and title of contact person: Mike Richards, Board Member
Phone number of contact person: (360) 719-1814
Address of contact person: OPEIU Local 11
3815 Columbia Street
Vancouver, Washington 98660
E-mail address of contact person: MLR@opeiu11.comcastbiz.net

Name of institution: Employer-Industrial Sheet Metal Workers Local #16 Pension
Type of relationship: General investment consulting services
Approximate assets under management: \$71 Million
Name and title of contact person: Catherine Gladstone, Administrator
Phone number of contact person: (503) 282-5581
Address of contact person: William C. Earhart Co., Inc.
P.O. Box 4148
3140 NE Broadway
Portland, Oregon 97208
E-mail address of contact person: catherine.g@wcearthart.com

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Name of institution: Oregon & Southwest Washington Painters
Type of relationship: General investment consulting services
Approximate assets under management: \$101 Million
Name and title of contact person: Ryan Stephens, Administrative Manager
Phone number of contact person: (503) 282-5581
Address of contact person: Oregon & Southwest Washington Painters
P.O. Box 4148
Portland, Oregon 97208
E-mail address of contact person: ryan.s@wcearthart.com

9. Please provide a current annual report.

As a privately held corporation, Wurts & Associates is not required to file an annual report. We would be willing to provide specific firm information should it be a deciding factor at a later stage in the process and granted a non-disclosure agreement is signed.

PROFESSIONAL STAFF

10. Provide an organization chart showing functions, positions and names of all professionals within your firm. Include the total number of professional employees and total support staff. :

An organizational chart is provided in **Tab III**. Wurts & Associates currently employs 45 professional employees, and 5 support staff.

11. Please provide the names of all professionals who will be assigned the Fund's account, including designated primary and secondary consultants, as well as detailed biographical data on all such individuals. At a minimum include, the following information for each:

- a) Length of experience in investment consulting services and with your firm
- b) Names of currently assigned accounts, including total assets of each client.
- c) The highest educational degree and/or professional designation attained

Wurts & Associates is pleased to propose Mr. Bradley Ness, Senior Consultant, as primary consultant to this relationship, and Mr. Brent Nelson, Senior Consultant, as secondary consultant. Together, these senior professionals possess more than 42 years

of investment experience. Biographies of Mr. Ness and Mr. Nelson are provided below. Please note that due to client confidentiality we are unable to disclose current client relationships of our consultants.



Mr. P. Bradley Ness, Senior Consultant

Mr. Ness is a Senior Consultant based out of our corporate headquarters in Seattle, Washington. He has thirty years of experience in the pensions and investments industry advising Taft-Hartley, corporations, foundations, and municipality clients. He currently works directly with clients in the development of their strategic planning, including asset allocation and investment policy development, benchmark selection, investment manager research and selection, and performance evaluation. In addition to providing strategic advice to clients, Mr. Ness also has responsibility for business development.

Prior to joining Wurts & Associates in 2009, Mr. Ness had a distinguished 26-year career with Columbia Management Company where he held various positions, including Senior Vice President, Institutional Client Service, with responsibilities focused on marketing and client service.

Mr. Ness earned a Bachelor of Arts degree in Business Administration with an emphasis in Finance from Washington State University.



Mr. Brent Nelson, Senior Consultant

For the past 10 years Mr. Nelson, *Senior Consultant*, has worked with both ERISA and Non-ERISA plan Fiduciaries providing proactive guidance with respect to risk management, asset allocation, manager analysis and investment policy design. In addition to working with Taft-Hartley and Nonprofit clients Brent serves on the Wurts' 401(k) and Research Advisory Committees. As a member of the Firm's Research Advisory Committee Brent provides strategic direction to the Firm's research staff on important investment issues affecting client portfolios. Brent also serves as Wurts' consultant practice lead on custodial, transition management and alternative strategies such as commodities and hedge funds.

Mr. Nelson's work with institutional clients on Fiduciary constructs has provided him with the opportunity to speak at a wide array of industry conferences, where he has presented on a broad range of investment topics including asset allocation, alternative

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investing, active vs. passive investing, and the challenges and potential benefits of opportunistic investing.

Mr. Nelson holds a Bachelor of Science in Business Administration from the University of Montana. He is a member of the International Foundation, the Seattle Alternative Investment Association and the Western Benefits Pension & Benefits Conference.

12. Please explain how the team dedicated to the Fund's account would function, and the procedures for addressing the Fund's account when the primary or secondary consultant(s) are traveling or otherwise unavailable.

At Wurts & Associates, all relationships are serviced by a lead consultant, a back-up consultant, a consulting associate, and the collaborative efforts of our 23 member Research and Analytics group. The lead consultant will serve as the primary contact and will attend all client meetings, if possible. The back-up consultant will assume the role of primary contact in the unlikely event that the lead consultant is unavailable. The consulting associate assists each consultant to ensure that all client objectives are accomplished. Investment manager research, due diligence, and performance reporting are all managed by our 23 member Research and Analytics group.

13. Please indicate the turnover of professional staff (senior management, consultants and personnel dedicated to consulting services) in the past five years, including the name and position of each departing employee, the date and reason each employee left the firm, and the name of any replacement employee.

The turnover rate of professional staff in the past five years was 3%, and our average consultant tenure is 11 years. Maintaining tenure amongst our consultants is a key priority for Wurts & Associates as it ensures that clients maintain a stable relationship with the firm.

Below is a table displaying professional staff turnover over the past five years. Please note that, due to confidentiality reasons, the names of professionals no longer with the firm have been excluded from this table.

Title	Name	Reason	Date Left	Date Hired
Director of Risk Management	Omer Tareen, CFA	Further developed our discretionary consulting practice		6/1/2012

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Chief Strategist	-	No longer fit into the firm's strategic direction	12/21/2011	
Director of Fixed Income	Scott Day, CFA	Further developed our discretionary consulting practice		10/17/2011
Consultant	Edward Hoffman, CFA	Expanded consulting staff to accommodate recent growth		9/1/2011
Chief Investment Officer	Jeffrey Scott, CFA	Further developed our discretionary consulting practice		8/1/2011
Director of Risk Allocation	Max Giolitti	Further developed our discretionary consulting practice		8/1/2011
Senior Consultant	Jason Taylor	Replaced retiring Sr. Consultant		12/20/2010
Senior Consultant	-	Retired after 10 years of service	12/17/2010	
Consultant	-	Relocated out of state	11/18/2010	
Sr. Consulting Associate	-	Seeking other opportunities	10/15/2010	
Director of Manager Research	Brian Rowe, CFA, CAIA	Added resources to research department		10/11/2010
Senior Consultant	Lorelei Chao, CFA	Expanded consulting staff to accommodate recent growth		12/8/2009
Senior Consultant	Brad Ness	Expanded consulting staff to accommodate recent growth		8/2/2009
Senior Consultant	-	Retired from the industry	7/14/2008	

14. Within your firm, what is the average number of clients per consultant?

The firm-wide average number of clients per consultant is 12.

15. Please provide a brief description of your firm's compensation arrangement for professional staff, including any incentive bonuses and how such bonuses are awarded. Please indicate if any professional staff has an ownership stake in the firm or otherwise shares in the firm's profits, and if so, please provide details.

At Wurts & Associates, competitive salaries, profit sharing, 401(k) plans, and medical/dental coverage are all offered to our professional staff. Annual bonuses are offered and awarded based on each professional's embodiment of the firm values of customer service, professionalism, expertise, collaboration, and diligence. Consulting staff compensation consists of a base salary plus two forms of incentive compensation. The first is based on client retention and development. The second is based on individuals' embodiment of firm values. Finally, Wurts & Associates is 100% owned by our key professionals, and we continue to offer ownership stakes to employees who make an exceptional contribution to the firm.

16. Please discuss your firm's plans for future growth in the benefit consulting area.

At Wurts & Associates, we are committed to the growth of our benefit consulting services, and the firm as a whole, to ensure our investment solutions remain relevant in an ever changing market environment. We believe we must maintain vibrant growth to continue our investments in research and thought leadership and to continue to attract and retain highly talented and motivated professionals.

SERVICES AND CAPABILITIES

17. Describe the range of consulting and other financial services that your firm offers.

As a full-service institutional investment consulting firm, Wurts & Associates provides the following range of investment consulting services:

- Asset Allocation Modeling
- Asset/Liability Modeling
- Investment Management Research and Selection
- Performance Measurement and Analysis
- Trustee/Committee Educational Presentations
- Investment Research

- Macroeconomic Research
- Investment Policy Review and Development
- Investment Manager Fee Analysis
- Transition Assistance to New Managers
- Securities Lending Vendor Selection and Guidance
- Commission Recapture Agent Selection and Guidance

In addition, we provide a number of value-adding project services as well which may be of interest to you outside of the traditional consulting cycle:

- Service Provider Search
- Custodial Evaluation and Selection Services
- Litigation Support

18. List your firm's lines of business and the appropriate contribution of each business to your firm's total revenue and profits. If the firm is an affiliate or subsidiary of an organization, what percentage of the parent firm's total revenue and profits does the subsidiary or affiliate generate?

Wurts & Associates' only line of business is investment consulting, which generates 100% of the firm's revenue. All revenue is generated through annual retainer fees from our existing consulting relationships. We do not accept compensation of any kind (hard dollars or soft dollars) by providing services to investment managers, product sales, brokerage services, or investment banking.

For the past calendar year, our affiliate KEI will have contributed 9.1% of revenue through discretionary investment consulting services. Due to KEI's relatively recent establishment, we expect this figure to increase in the coming months as Wurts & Associates continues to grow its discretionary service offerings.

19. Describe the internal structure, organization, and capabilities of your firm's research department (if no separate department exists, describe how this function is performed).

At Wurts & Associates, our organizational approach to manager research is somewhat unique in that we split responsibilities between our dedicated manager research staff of 11 professionals, our staff of 10 general analysts, and our 18 member consulting staff, each of which is assigned specific asset class coverage. We find this to be an effective way to achieve deep and expert coverage of specific asset classes and managers.

Wurts & Associates maintains an in-house research group comprised of over 40% of the firm's overall staff with 23 members and is organized into three primary areas of focus - portfolio and investment manager analytics, investment manager research and due diligence, and capital markets research. In addition, we believe that accreditations are all the more relevant in assessing the complexities of investment opportunities, and as such our research team possesses the following educational and professional accreditations to make this task more manageable:

- 14 Chartered Financial Analysts (CFA)
- 5 Chartered Alternative Investment Analysts (CAIA)
- 13 MBAs
- 2 Ph.D.'s

Our Manager Research Group directs the Firm's investment manager search and selection efforts and provides ongoing coverage for all appropriate asset classes. Each asset class is continually monitored by a dedicated Manager Research Associate, an Investment Consultant and an Analyst. This cross-sectional approach to investment manager research ensures that each team member's unique perspective is incorporated into the monitoring process. For example, Consultants are encouraged to share their historical experience and perspective with the team; suggest other managers for further evaluation; and discuss the criteria by which they have seen managers evaluated in the past, or by other organizations. A summary table is provided below which illustrates how the Firm's investment professionals are organized in order to maintain effective coverage of all appropriate asset classes:

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Capital Markets				
Jeffrey Scott, CFA ★ Chief Investment Officer	Max Giolitti Director, Risk Allocation	Omer Tareen, CFA Director, Risk Management	Scott Day, CFA Director, Risk Management	Peter Wilamoski, Ph.D. Director, Capital Markets Research
	Ling Zhang, Ph.D. Senior Research Associate	Matt Brady Research Associate		
Equity	Fixed Income	Real Assets	Private Investments	Hedge Funds
Peter Wilamoski, Ph.D. Director, Capital Markets Research	Scott Day, CFA Director, Risk Management	Omer Tareen, CFA Director, Risk Management	Jeffrey Scott, CFA ★ Chief Investment Officer	Max Giolitti Director, Risk Allocation
John Wasnock Senior Research Associate	Brian Rowe, CFA, CAIA Director, Manager Research	John Wasnock Senior Research Associate	Peter Wilamoski, Ph.D. Director, Capital Markets Research	Eyal Bilgrai, CFA, CAIA Senior Research Associate
Elena Solovyeva, CFA Research Analyst	Matt Brady Research Associate	Eyal Bilgrai, CFA, CAIA Senior Research Associate	Brian Rowe, CFA, CAIA Director, Manager Research	Craig Shubin Analyst
Matt Lowe, CFA Analyst	Stefan Meyers Analyst	Rob Meussner Analyst	Elena Solovyeva, CFA Research Analyst	Shelly Heier, CFA, CAIA ★ President and COO
Danny Sullivan Analyst	Ryan Ross Analyst	Kevin Chambers Analyst	Brent Nelson ★ Senior Consultant	Danny Sullivan Analyst
Trevor Parmelee Analyst	Craig Shubin Analyst	Shelly Heier, CFA, CAIA ★ President and COO	Victor Lee Senior Consultant	Shelly Heier, CFA, CAIA ★ President and COO
Victor Lee Senior Consultant	Jason Taylor Senior Consultant	P. Bradley Ness Senior Consultant	Scott Whalen, CFA Executive Vice President	Anne Westreich, CFA ★ Senior Consultant
Annie Taylor, CFA Senior Consultant	Lorelei Chao, CFA Consultant			
Ed Hoffman, CFA Senior Consultant				
★ Research Advisory Committee Member ■ Risk & Capital Markets Team ■ Consulting Team ■ Research & Analytics Team				

Finally, all of the Firm's research efforts and processes are overseen by Wurts & Associates' Research Advisory Committee (RAC). The seven member Research Advisory Committee helps to ensure all research initiatives are shared across our client base and that all research initiatives are properly vetted. The RAC is responsible for the strategic direction of our firm's research efforts and oversees the creation of our Quarterly Research Report.

20. Describe the manner in which internal and external resources and sources of information are used in the research process. How does your firm integrate internal and external research?

We utilize a variety of external technologies. First, our Bank of New York Mellon subscription provides us with a performance database. Evestment Alliance and Morningstar are investment manager databases which we use for preliminary screening and manager research. MPI Stylus Pro Suite is used for portfolio modeling. ProVal and Winklevoss' proprietary liability files are used to conduct asset/liability studies and analysis. We also have access to fundamental index valuation data through our relationships with Russell and MSCI.

Where Wurts sets itself apart from its competitors though is not its access to commonly available third party software vendors, but its overall approach to research and use of publicly available sources of data. The fact of the matter is that although third party software packages are integral tools to providing consulting services, the real value added comes from thoughtful analysis and integration of capital markets and global investment opportunity sets. Such analysis is primarily conducted not through the aforementioned software providers, but through an analysis of publicly available economic and capital markets data. In this regard, we draw much of our research from such places as the US Federal Reserve (Fed), Bureau of Economic Analysis (BEA), Bureau of Labor Statistics (BLS), the International Monetary Fund (IMF), Organization for Economic Cooperation and Development (OECD), and many of the world's central banking organizations. We also examine information from the Congressional Budget Office and Office of Management and Budget to dimension the potential effect of government fiscal policy on economic activity.

Finally, we integrate key capital markets valuation data from S&P, Shiller, Moody's, and Barclays to guide many of our asset class expectations. Overall we believe our top down research efforts are the most comprehensive in the industry and argue they add tremendous value to our clientele.

21. Has your firm conducted an asset/liability study for a jointly-trusted benefit fund? If so, how many has it conducted within the last three (3) years, and provide a written sample of a recent study performed by your firm for a client with a similar profile as the Board.

Yes, Wurts & Associates has conducted asset/liability studies for benefit funds since our inception in 1986. Asset/liability studies are typically performed ad-hoc as requested by each client.

With that said, one asset/liability has been completed in the past three years, and our firm is in the process of completing six more studies for clients this year. A sample study is provided in **Tab IV**.

22. Describe your firm's process for determining the appropriate asset allocation for a jointly trustee benefit fund. At a minimum, include the criteria on which you base your assumptions. Also describe your process for determining and analyzing a client's investment structure. Describe your process for recommending modifications to the portfolio structure as warranted by changes in the market place or benefit obligations/assumptions.

At Wurts & Associates, we like to think about allocating to risk, not assets. The reason is simply that different assets carry similar risks and by considering this fact, fiduciaries will gain a better perspective on true diversification and the risks they own.

Our approach begins with forward looking capital market return assumptions that are driven by well-established methods. An example of our recent Capital Market Assumptions is provided in [Tab V](#). We believe asset returns are inextricably linked to the economic environment and their entry point valuation.

Based upon the client's risk tolerances and anticipated liabilities, we construct policy portfolios and run them through a multi-faceted process that includes stochastic modeling, risk budgeting and scenario testing to determine an optimal solution for the client. Our construction process favors diversification by economic regime as we believe true diversification requires investment into assets that consider the effects of inflation, deflation, and periods of low economic growth. We believe in globally diversified portfolios and appropriately sized allocations to alternatives that benefit from anticipated alpha and premiums associated with illiquidity.

All of these ideas unfortunately cannot be nicely pulled together using a Mean Variance Optimization ("MVO") framework. We do not rely on this tool to determine which portfolios are the most efficient or to estimate its drawdown risk. MVO implies an unrealistic level of precision and therefore we believe it cannot be solely relied upon. For more information on the many imperfections of MVO, please see the Topic of Interest titled *"Strategic Asset Allocation: Moving Beyond Mean Variance Optimization"*, included within [Tab VI](#) of our response.

In order to estimate a more reasonable return forecast and realistic drawdown risk, we employ our proprietary Scenario Analysis Model. This tool drives returns and risk forecasts using current and prospective valuations, GDP growth and inflation, and potential valuations that could occur during various economic and market "scenarios". For example, the potential effects of an "economic shock" on portfolio returns would be far different if current PE ratios were 15 than if they were 30, which is something MVO cannot take into account. By dimensioning the drivers of portfolio returns during various economic scenarios, including the effects of inflation, earnings, dividends, interest rates,

credit spreads, currencies and PE ratios, we are able to better dimension risk beyond simple standard deviations and correlations.

Additional work is required to further test risk in the policy portfolios. We examine them relative to the five prominent risk factors found in most all asset classes. These factors include: equity risk, interest rate risk, credit risk, inflation risk, and currency risk. Using Barra and other tools, our professionals give our clients a more accurate estimate of risk, helping them to better understand the true drivers of risk within the policy portfolios.

Once a policy portfolio is adopted, we then overlay our research to determine if any strategic tilts are warranted or if any special opportunities present themselves. Given our heavy emphasis on understanding the economic environment and relative valuations within the ever changing capital markets, we may recommend modest tilts relative to the policy portfolio to improve returns. Examples might include a capitalization tilt within the equity portfolio, a heavier weighting towards credit, or an overweight to certain regions of the world. It could also involve an opportunistic allocation to distressed debt or taking advantage of a special program like TALF. The action taken in regards to these special opportunities will vary depending on client objectives and constraints.

The final result is an asset allocation methodology rooted in reality and which regards the drivers of risk within the portfolio. We believe this process best serves our clients as it enables them to become better equipped to understand risk, withstand volatility, and take advantage of opportunities when they present themselves.

23. Describe your firm's process for developing, recommending, and maintaining a client's investment policy, strategy and asset mix, including re-balancing.

Investment Policy development and review is an ongoing process driven by the consultant with close consideration of the specific needs and desires of each client. Wurts & Associates has assisted Funds with this process since the Firm's inception in 1986. Below is a brief timeline illustrating the specific approach in which the investment policy is developed and reviewed with specific consideration of manager guidelines:

IPS Initial Review

- Does IPS contain sufficient detail to define, implement and manage a specific investment strategy?
- Does IPS take into account the appropriate level of liabilities forecasted?

- Does IPS give a thorough and appropriate representation of risk tolerance and return objectives?
 - Typically requires detailed assessment of risk tolerance and objectives with staff and Board
 - Specific, yet with recognition of difficulty in quantifying

IPS Secondary Review

- Are key sections included?
 - Duties & responsibilities of all involved parties
 - Investment objectives and standards
 - Asset allocation guidelines, including
 - Administration of cash flows (including authority)
 - Rebalancing
 - Allowance, if any, for tactical or strategic “tilts”
 - Allowable ranges
 - Criteria for selecting and monitoring investment managers and other vendors
 - General investment guidelines
 - Allowed/prohibited investments, Proxy voting, etc.
 - ESG restrictions or Mission-driven investing
 - Portfolio Review & Evaluation
- What is the purpose/relevance of additional sections?

Investment Manager Guidelines Review

- Is the benchmark appropriate?
- Are any guidelines contradictory to core components of the IPS?
- Is the risk represented by the breadth of the guidelines consistent with the intent when manager was selected?
- How do guidelines differ from manager’s core composite?

Investment policy statements are reviewed whenever the portfolio changes in complexity or when market fundamentals change. For example, the investment policy will be reviewed whenever an asset allocation study is conducted. If the Fund adds an asset class or investment style not currently used, then the investment policy will be reviewed and revised.

24. Describe how benchmarks are chosen or developed and how performance is compared to similar portfolios. Can your firm provide custom benchmarks? Please indicate whether the firm has ever developed benchmarks for a jointly-trusted benefit fund and if so, provide a description of the benchmarks developed and the method used in developing the benchmarks.

Our firm has developed a proprietary performance measurement system for calculating the performance of client portfolios. We are able to calculate returns at the total fund, asset class, and manager levels. We can make peer group comparisons at each level as well. In instances where non-marketable investments are included in a client portfolio, our performance system is able to show Total Fund performance with or without these components. Benchmark weightings are then automatically adjusted accordingly.

Wurts & Associates has much experience developing customized benchmarks for defined benefit plans. These benchmarks can include combinations of several underlying benchmarks or benchmarks tied to various macroeconomic metrics such as the Consumer Price Index. We have several liability-related benchmarks to measure the funded status of the plan: Funding Target Attainment Percentage (FTAP), Accumulated Benefit Obligations (ABO), Projected Benefit Obligations (PBO), ABO/PBO Funded Ratio.

25. Does your firm maintain internally or otherwise have access to a jointly-trusted benefit fund database for peer group comparison purpose? If so, please describe such database in detail, including

- a. the composition of the database (especially in terms of its representation of the jointly-trusted pension fund universe),

Yes, Wurts & Associates has access to multiple jointly-trusted fund databases, used for peer group comparisons. The BNY Mellon Asset Servicing database is compiled from data from 600 plan sponsors with market value of over \$2.2 Trillion. This allows us to compare our client's total fund against its respective universe category. It provides the most robust and meaningful universe comparison available. We also utilize a Morningstar database to rank and evaluate the performance for all mutual funds. Morningstar Direct's database consists of over 131,000 open-end funds, 31,000 stocks, 14,600 closed-end funds, 9,300 separate account composites and 8,200 hedge funds across all strategies.

- b. how the database is maintained and updated, and

State Street Corporation is charged with the oversight of all of the data submitted by each consulting firm. Both eVestment Alliance and Morningstar Direct are responsible for compiling and verifying all of the information throughout their respective databases.

FELRA AND UFCW PENSION FUNDS

- c. how the database can be used to compare and rank the Funds in terms of risk, returns, asset allocations, and portfolio structure?

Our database access allows for a multitude of fund comparisons and rankings. Sample metrics are provided in the table below.

Composite Total Fund Rate of Return	Peer Universe Comparison	Tracking Error	Sharpe Ratio
Policy Index Benchmarking	Asset Allocation Weights	Information Ratio	Alpha
Manager-Level Rate of Return	Manager Allocation	R-Squared	Beta
Standard Deviation	Growth of One Dollar	Up/Down Market Capture	Batting Average

26. Describe in detail the experience and expertise of your firm, and the primary consultant in particular, in alternative investments, including valuing hard-to-value assets.

Wurts & Associates has experience with real estate, private equity and hedge funds dating back more than two decades. Today, we approach evaluating alternative investments in much the same way we would traditional investments. More specifically, this means we incorporate asset class specific and macroeconomic factors into strategic considerations. We believe such an approach is especially important in the area of alternatives since these investments are not only more complicated in nature, but also less efficient than their traditional counterparts. Our expertise in this regard stems primarily from our capital markets and macroeconomic research.

Within the area of private equity investing we believe there are two primary areas in which to focus our research efforts. The first is examining the industry-level aggregate capital commitments for any given strategy. Since private markets are necessarily illiquid and finite in nature, the amount of capital dedicated to specific strategies will materially bear on expected returns. Generally speaking it is wisest to overweight in areas that are less popular with investors, and avoid those areas experiencing substantial amounts of interest. This is because returns tend to be materially affected by over/under commitments of investor capital. The area of mega/large buyouts is a prime example of this in recent periods, as we have seen leverage and associated valuation multiples dramatically increase over recent years. Setting aside recent credit woes that

are weighing heavily on these assets, we would nonetheless expect lower prospective returns going forward. In the area of buyouts, we would instead focus our efforts on finding managers focused on smaller, niche type of deals to avoid competing for already overpriced opportunities in the large buyout space.

The second area of consideration is the macroeconomic environment, and how this may weigh on strategy considerations. For example, we are currently in the midst of a credit-induced economic slowdown. This portends opportunities for distressed debt strategies, bodes poorly for the aforementioned buyout opportunities, and may even present opportunity for secondary managers that can take advantage of investors experiencing liquidity needs. Going forward though, we would also be on the lookout for a bottoming of multiples of buyout strategies and indicators of a resurgence of strong equity markets, which would portend higher prospective returns for venture capital investments. Essentially, we believe we fully understand the nature of all private equity strategies and strive to allocate as appropriate given market conditions. This is not to say we will recommend highly concentrated strategy allocation over short term periods of time, but will recommend over/under weight positions that could meaningfully impact returns.

This same logic also carries over to hedge fund strategies. However, one must understand hedge fund returns are ultimately derived from public capital markets and that the strategies available to investors are virtually limitless in nature. The wonderful aspect of strategically employing hedge funds is they allow investors to act upon virtually any capital markets trend. For example, we know the credit markets ebb and flow as economic growth fluctuates, and there are managers that specifically offer exposure to these markets. We also know some managers are inherently long, short, or market neutral. Depending on one's expectations for equity returns, different types of equity-focused hedge fund strategies should be employed. Furthermore there are many hedge funds that are best described as "structured leverage" portfolios that will provide returns that are relatively uncorrelated to broad movements in capital markets during most market environments. Albeit these managers are still susceptible to macroeconomic risk factors, not to mention the risk of "failure of imagination" to accurately model their risk exposures, which has been the cause of many hedge fund failures. The best examples of these types of managers are the merger and convertible arbitrage strategies, and probably the most prevalent risk factor to them is the supply of deals and assets chasing those opportunities, as well as the credit environment because leverage ultimately drives returns.

Overall though we believe hedge fund allocations should be structured to mitigate the portfolio's overall risk exposures to capital markets, while still strategically shifting assets when compelling opportunities arise. This practice manifests itself in a combination of managers that are sensitive to equity, fixed income, and credit markets with either positive or negative correlations, as well as managers that are inherently structured to systematically provide absolute returns.

Real assets must also be structured strategically as well with an eye towards the macroeconomic environment and theoretical considerations. Real estate is probably the most employed subset of real assets, presumably due to its intuitively understandable nature. Without a doubt the most important consideration in allocating to real estate are capitalization rates, as they will determine a preponderance of returns. An analysis of NCREIF returns shows the majority of total returns are due to the income generated by properties, and that income returns tends to lag capitalization rates by less than 0.5% over time. So in this regard we must recognize that capitalization rates will drive returns, and that those rates will be affected by not only institutional investors' interest, but by credit conditions as well. These factors apply mostly to core real estate, but are nonetheless material considerations for all real estate strategies. Of course as you cross the spectrum of core, core plus, valued added, and so forth, manager skill becomes a far more important consideration. Moreover macroeconomic considerations also play a role in determining strategy.

We have been allocating client assets to alternative investments for many years, albeit the bulk of these efforts have been recently as institutional interest has skyrocketed for alternatives. Generally speaking, our allocations have been implemented through the fund of funds approach, with a few clients going directly to managers on an ad hoc basis. Again, we would like to point you to our most recent Private Equity Outlook, Hedge Fund Outlook, and Real Estate Outlook in **Tab VII** for further evidence of our research capabilities within the alternative investment space.

27. Describe your firm's process for the evaluation and recommendation of investment managers for a client, including a sample due diligence matrix if applicable. Include how the firm evaluates a manager's performance, personnel and organization, investment philosophy, investment style(s) and products, research and/or modeling capabilities, financial condition, client service and fees. How is the accuracy of performance numbers determined?

Wurts & Associates integrates the evaluation and recommendation of investment managers into the general investment consulting process. Ongoing evaluation is imperative in this process but the search and selection aspect is undertaken on an as

needed basis. In the following passages, we describe our manager evaluation and selection process. This sequence involves the following three steps:

- Initial Screening
- Qualitative and quantitative screening
- Application of the macroeconomic framework

Initial Screening

Our on-going research process begins with extensive database screening with the goal of narrowing the universe of investment strategies down to a more manageable group upon which we can conduct due diligence. The database screening focuses on grouping investment strategies into appropriate style classes, and then screens basic criteria such as assets under management and minimum performance track record.

Once the initial “research lists” for each asset class are developed, we then use our robust database to evaluate fundamental factors on the managers and their products. By evaluating these qualitative data points we are able to find and rule out managers for a variety of problems. Examples of some of the factors we look for at this point are recent organizational changes, investment professional turnover, significant style drift, lack of institutional focus, significant asset growth or loss, and unreliable performance composite data.

Quantitative & Qualitative Due Diligence

Following our initial database screening, which typically results in a much more focused list of managers, our Research Professionals then spend considerable time conducting further quantitative and qualitative analysis. This part of the search and selection process utilizes our framework of the “Five Ps:” an analysis of People, Philosophy, Product, Performance and Price. We spend a substantial amount of time researching the qualitative factors of the organizations and investment strategies through a series of meetings, conference calls, and on-site visits. The end result is a dynamic list of managers that we are extremely confident in recommending to our clients.

Application of the Macroeconomic Framework

Our views and research on manager search and selection set us apart from our competitors because we apply a Macroeconomic framework. As evidence of this, we suggest you take the time to review our most recent “Active Management Environment” ([Tab VIII](#)) research piece which demonstrates not only an extensive availability of salient research, but also one of the most thoughtful applications thereof within the consulting industry.

In short, this research substantiates our views that the conventional wisdom in the consulting industry may contain fundamental flaws with respect to manager search, selection, and performance monitoring. More specifically, such practices as hiring/firing based on past performance or peer rankings generally result in the opposite of the desired result. Additionally, simply evaluating managers relative to a benchmark tells us very little about their success or failure; macroeconomic factors must also be taken into consideration. For example, we know equity managers' excess returns are subject to overall market volatility, aggregate valuation ratios, and the momentum of the handful of companies that dominate capitalization weighted indices. Moreover, we can also identify that credit spreads are a material factor in the returns for most active fixed income managers. In other words, evaluating managers is far more complicated than looking at an arbitrary benchmark, and as mentioned above, is more about their role in overall portfolio design.

We would stress however, the bulk of our research is geared towards making educated estimations regarding future performance for active managers, rather than focusing on the past. Looking backwards to find successful managers is easy after the fact. Looking forwards is far more difficult, which is why the correct approach to researching these opportunities is paramount to success. We can add value in this regard and our research demonstrates this capability.

In regards to the accuracy of performance numbers, an investment manager metric that our firm integrates into the search process is whether the manager is compliant with the Global Investment Performance Standards (GIPS). Investment managers that claim compliance with GIPS report fund performance in a uniform manner that allows for ease of comparison. Also, our database managers, eVestment Alliance and Morningstar Direct, are accountable for compiling and verifying all information throughout their respective manager databases.

28. How many manager searches has your firm conducted in the last three (3) years, broken down by asset class? Of these searches, have any recommended managers that were hired by clients been subsequently terminated? If so, how many and why?

Investment manager search details for the three years ending December 30, 2012 are provided in the table below.

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Investment Manager Searches		Number	Value of Assets
Domestic Equities		107	\$2,360 M
Domestic Fixed Income		104	\$2,202 M
International and Global Equities		63	\$1,530 M
International and Global Bonds		8	\$212 M
Alternative Investments – real estate, private equity & hedge funds	Individual funds & managers	30	\$395 M
	Fund-of funds	6	\$40 M
Real Assets – commodities, timberland, infrastructure, etc.	Individual funds & managers	15	\$273 M
	Fund-of funds	0	\$0
Other (specify):		17	\$173 M
Total Manager Searches		350	\$7.18 Billion

In regards to the termination of investment managers, no managers have been terminated in the past three years. This is supportive of our diligent manager review process and view that investors should be focused on qualitative and structural monitoring of investment managers rather than hiring and firing based on past performance or peer rankings, which generally results in the opposite of the desired result.

Research indicates plan sponsors tend to chase performance, firing poor performing, and hiring top performing managers in an attempt to enhance investment returns. Overall this practice has cost plan sponsors money. This research is highlighted in a study conducted by Amit Goyal & Sunil Wahal entitled, *The Selection and Termination of Investment Management Firms by Plan Sponsors*. This research is summarized in the table shown below:

The Cost of Market Timing Managers (hiring/firing) for Plan Sponsors

	Number of Years Before Firing			Number of Years After Firing		
	-3 to 0	-2 to 0	-1 to 0	0 to 1	0 to 2	0 to 3
Fired Firms	2.0	-1.6	-0.1	1.8	3.1	4.3
Hired Firms	11.6	7.6	4.5	1.3	2.3	3.2
Return Differential (Hired - Fired)	9.5	9.1	4.6	-0.5	-0.9	-1.0

As you can see, plan sponsors tend to hire investment managers with large, historical, positive returns. This returns-chasing behavior can backfire as top-quartile performing managers can subsequently suffer from a period of underperformance. Additionally, once a manager is fired for lagging performance, they tend to bounce back with improved performance in the ensuing years. This research underscores the idea that the hiring or firing of investment managers solely based on historical returns is an incorrect way to fulfill a plan sponsor's investment objectives.

What is most important to us is whether manager returns are behaving in line with their theoretically expected patterns in relation to key macroeconomic factors. For example, most managers should produce excess returns during times of heightened dispersion of returns amongst sectors. Other managers tend to do well in strongly upward trending markets; even contrarian managers, for example, need them to see turnarounds in the valuations of their holdings. On the other hand, a manager that focuses primarily on high quality companies that self-finance through high levels of free cash flow will likely see underperformance during period of cheap credit, but will also see outperformance during times of rising credit spreads as their counterparts suffer falling valuations due to the perceptions of higher credit costs.

29. Describe your firm's manager database and how your firm gathers, verifies, updates, maintains and analyzes the data collected on managers for the database. How many managers are contained in the database? Describe the screening variables and capabilities of the database. Describe the capability of providing custom client reports.

Wurts & Associates maintains an in-house database of investment managers for all appropriate asset classes. This database integrates all of our information sources and includes manager staffing changes, meeting notes, strategy analysis, news items, as well as any other material which aids in the investment monitoring process. This database contains hundreds of managers across hundreds of strategies, and allows us to prepare comprehensive reports on the managers we recommend to clients. It is updated at least weekly based on information gathered through our due diligence process. We

supplement this data with the eVestment Alliance database which provides in-depth quantitative and qualitative information on over 1,600 investment management organizations and over 10,000 investment strategies across all asset classes.

Our comprehensive in-house performance measurement system allows for fully customizable reports that show metrics which are most important to you. The following is a sample of the various portfolio analytic metrics that we provide to clients in our quarterly performance reports: manager-level rates of return, composite portfolio rates of return, policy index benchmarking, peer universe comparison, asset allocation, manager allocation, tracking error, information ratio, r-squared, Sharpe ratio, alpha, beta, and standard deviation. Each of these measurements play a unique role in evaluating the manager's performance given the amount of risk they assume.

Additionally, in the case of non-marketable assets where quarterly return-based measures and benchmarking are either less relevant, or the data is simply less available, we can provide key statistics that we believe is all the more insightful when monitoring these asset types. In this case, we track and monitor the following portfolio analytic metrics in our quarterly reports: overall portfolio liquidity, investment vintage years, capital committed / called / returned, market values, distribution paid in (DPI), total value paid in, (TVPI) and IRR since inception. These can be shown for each individual fund, then rolled up for the portfolio as a whole and benchmarked against the industry standard peer-group data that we have available.

We have included a sample performance report for your review in **Tab IX** as well as a sample alternative investments report in **Tab X**.

Please refer to question (27) above for our extensive screening process and capabilities of our database.

30. Describe the experience and capabilities of your firm, and the primary consultant in particular, in analyzing and monitoring managers. Specifically, include the monitoring of performance, risk style integrity, contract compliance, account restrictions, activities creating potential conflicts of interest, reporting requirements, and trading costs (including foreign exchange).

Wurts & Associates maintains 24 different performance and qualitative-based guidelines that can be incorporated into a watch list according to each client's specific considerations. We have listed a few examples of these guidelines below for your reference:

- The fund has underperformed the 75th percentile in the appropriate style universe over a one year period.
- The Fund has underperformed the median fund in the appropriate style universe over a 3 and 5 Year period.
- The manager has a Sharpe Ratio less than or equal to the median manager in an appropriate style universe over the most recent five-year period.
- Fund experiences non-performance related issues including personnel turnover, changes in investment philosophy or style drift, excessive asset growth, change in ownership and any other reason that causes concern.

Our performance evaluations are certainly important and relevant throughout the manager evaluation process. However, we would like to use this question as a way to highlight our distinctive capabilities in evaluating both the quantitative and qualitative attributes of each manager. These capabilities are particularly demonstrated with our Macro-Factor Analysis.

Macro-Factor Analysis

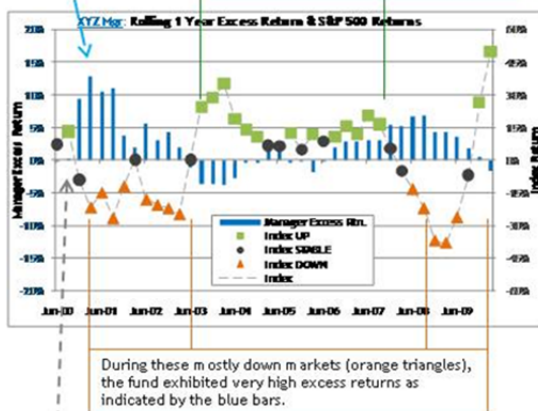
We mention throughout this RFP that macroeconomic research is incorporated in all of our strategic investment advice, including manager searches. Since peer group rankings and performance relative to a benchmark do not tell the entire story from an investment strategy perspective, we have developed The Macro-Factor Analysis as a proprietary methodology which allows us to evaluate the way a manager is expected to perform in various market environments. At a very basic level, we measure a manager's excess return in relation to market movements. Certain managers produce excess returns when GDP is on the rise and valuations are high. On the other hand, managers may consistently produce excess returns when GDP is on the decline and valuations are low. The remaining subset of managers produces most of their excess returns in stable market environments. An illustrative example of our Macro-Factor Analysis is below.

» How to Interpret Macro-Factor Data

Macro-factor charts illustrate manager excess return in relation to market movements. From these charts, it can be seen what type of market environment the manager has historically performed best and worst in. Analysis of these charts can also provide some insight into future manager performance.

Blue bars = manager excess return

During this mostly up market (green squares), the fund exhibited mixed excess returns as indicated by the blue bars.



Dotted gray line = index performance

Macro-factor tables show the manager's average annual excess return during various market environments (up/down/stable). Differentiation between up/down/stable environments is individually determined for each performance metric (change in P/E ratios, index return, change in GDP growth, etc.).

For example, when rolling 1-year returns for the S&P 500 meet the "Factor" threshold of +10%, we consider this an "up" market environment based on that metric. Looking at the table, this manager has an average of -0.2% annual excess return when the S&P 500 increases 10% or more in a year. As illustrated in the graph, this manager generates most of its excess return in down markets.

Factor: Amount (+/-) differentiating up/down/stable environments

Range: Range of up/down/stable excess return. Small range indicates similar performance in all markets.

XYZ Manager	Factor	Up	Down	Stable	Range	Best
S&P 500 P/E (Change)	0.50	-0.2%	4.7%	1.5%	4.9%	Down
S&P 500 Rolling 1-year Return	10%	-0.2%	6.1%	2.3%	6.3%	Down

Manager's average annual excess return during up/down/stable environments

Minimize Portfolio Expenses

Controlling costs is an important fiduciary responsibility, but one which is often lost in the pursuit of excess returns. In particular, complicated fee structures and transaction costs often make it difficult to accurately assess the total expense incurred. Our experience in negotiating fees and in understanding trading costs allows us to increase the fund sponsor's leverage in negotiating with investment managers, custodians, brokers and other vendors. Wurts & Associates reduces costs by:

- Designing a portfolio structure that explicitly considers expenses
- Negotiating more favorable vendor fees
- Constructing performance based fee programs when appropriate
- Executing efficient transitions

31. Describe the experience and capabilities of your firm, and the primary consultant in particular, in analyzing and monitoring minority management firms and brokerage firms.

As mentioned, Wurts & Associates maintains 24 different performance and qualitative-based guidelines that can be incorporated into a watch list according to each client's

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specific considerations. Research into qualitative and quantitative money manager metrics are deployed initially, and a diligent monitoring and analysis process is implemented once a manager has been retained.

32. Discuss in detail your performance attribution analysis. How does it handle alternative investment portfolios?

Our performance measurement system is capable of providing attribution analysis at the total fund and at the individual domestic equity manager level. Attribution analysis is beneficial in evaluating sources of value-add from the underlying investment manager and as a tool to confirm that an investment manager's philosophy is in-line with the portfolio structure. All calculations are based on holdings data relative to an appropriate index. This approach is consistent with industry standards set by the CFA Institute.

SAMPLE CLIENT

PERFORMANCE ATTRIBUTION | QTR

Period Ending: June 30, 2010

MANAGER C

	Portfolio		RUSSELL 1000 GROWTH INDEX		Selection		
	Market Value	Return	Market Value	Return	Stock	Industry	Total
	A	B	C	D	E	F	G
Consumer Discretionary	11.2	-13.1	10.1	-9.5	-0.5	0.0	-0.4
Consumer Staples	11.7	-7.8	15.9	-8.0	0.0	-0.1	-0.1
Energy	11.4	-10.9	3.5	-14.6	0.5	-0.3	0.2

SAMPLE CLIENT

TOTAL ATTRIBUTION BY ASSET CLASS QUARTERLY

Period Ending: December 31, 2011

TOTAL FUND vs. POLICY INDEX OVER/UNDER PERFORMANCE

	SEGMENT	INDEX	OVER/UNDER	SEGMENT	POLICY	OVER/UNDER	MANAGER	SEGMENT	TOTAL
	RETURN	PERFORMANCE		WEIGHTING*	WEIGHTING		RETURN	WEIGHTING	FUND
	A	B	C	D	E	F	G	H	IMPACT
Domestic Equities**	12.5	12.2	0.3	30.2%	31.0%	-0.8%	0.1	-0.1	0.0
International Equity	4.3	3.8	0.7	12.7%	13.0%	-0.3%	0.1	0.0	0.1
Domestic Fixed Income	2.4	2.2	0.2	43.8%	38.0%	5.8%	0.1	-0.2	-0.1
Real Estate	0.0	3.0	-3.0	0.0%	5.0%	-5.0%	0.0	0.1	0.1
Alternative Investment	3.6	0.6	3.0	13.5%	13.0%	0.5%	0.4	0.0	0.4
Cash	0.0	0.0	0.0	0.0%	0.0%	0.0%	0.0	0.0	0.0
TOTAL FUND	5.9	5.3	0.6				0.7	-0.2	0.5

Contributor

Stock	Information Tec
	Energy
Industry	Telecommunica
	Information Tec

Wurts & Associates

4th QUARTER 2011 - SUMMARY

TOTAL FUND RETURN	5.9
POLICY RETURN	5.3
RETURN vs. POLICY	0.6
MANAGER IMPACT	0.7
WEIGHTING IMPACT	-0.2
TRADING IMPACT	0.1

MANAGER RETURN IMPACT: $E = G \times (A - B)$

SEGMENT WEIGHTING IMPACT: $F = (G - H) \times (I - Policy Index)$

TOTAL FUND IMPACT: $R = E + F$

* Segment weighting is the previous quarter asset weight
 ** Domestic Equities is made up of domestic equity, multi-strategy equity, and global equity

Wurts & Associates

2

PERFORMANCE MEASUREMENT SYSTEM

This attribution analysis is contained within each quarterly reporting package, a sample of which is included in **Tab XI**.

In regards to the attribution analysis of alternative investments, due to the inherent nature of these investment vehicles, attribution analysis is not pursued on certain investment vehicles due to extensive caveats. In regards to performance tracking of alternatives, Wurts & Associates typically utilizes fund-of-funds vehicles for hedge funds and does not pursue attribution analysis of private equity, given the limited transparency of deal structure and operating details. We enhance client knowledge in this area through our thoughtful approach to the use of these asset classes within client portfolios, and the means of each towards establishing appropriate exposures to risk factors that we believe position the plan for risk-adjusted returns within the client's tolerance for risk.

In regards to performance analysis of alternative investments, Wurts & Associates has procedures in place to monitor the fair market value of alternative investments in which there is not a determinable fair market value. While we do not review or audit holdings level or transaction level information for these alternatives, we rely on un-audited and audited statements provided by the investment managers for our monitoring and performance measurement services. We can distribute these documents upon request.

Wurts & Associates is aware of the guidance the American Institute of Certified Public Accountants (AICPA) issued for valuing alternative investments in audits. Our consulting services include investment manager due diligence and monitoring, two critical elements that support an institutional investor's controls related to asserting valuation of alternative investments. The following describes the activities we undertake:

Initial Due Diligence

- Require manager's response to detailed Request for Proposal.
- Face-to-face meetings with the investment firm's management team.
- Evaluation of investment strategy, process and portfolio, including review of historical performance.
- Review of documents, including offering memorandum, legal agreements, pitch books, and Form ADV (if registered with the SEC).
- Evaluation of fit within asset class and overall portfolio on client-by-client basis.
- Complete formal report.

Ongoing Monitoring

- Conduct regular in-person or phone meetings with the investment team.
- Conduct on-site visit if economically feasible.
- Review fund communications, including quarterly shareholder's letters and review audited financial statements.

- Monitor portfolio performance versus benchmark and peer universe.
- Review portfolio allocation and style
- Monitor press reports for significant management/structure/personnel/portfolio developments.
- Monitor personnel changes.
- Monitor size of assets under management in strategy and firm-wide.

Our investment manager research and due diligence efforts are responsible for sourcing, vetting, and conducting ongoing due diligence for investment managers. Unlike our analytics staff that is heavily data oriented, this portion of our research efforts are higher level in nature and are focused primarily on how to integrate investment managers into our clients asset allocations and overall portfolio design. They conduct hundreds of face to face meeting with investment managers across the entire spectrum of asset classes and opportunities. In addition to these responsibilities, our manager research staff also produces our semi-annual Active Management Environment Report (included in **Tab VIII**), as well as research on various topical issues and other strategic investment opportunities as they become available.

33. Please provide a sample quarterly performance report. How soon after quarter-end is the report available? What is included in the standard reporting package to your clients?

A sample quarterly performance report is provided in **Tab IX**.

Our comprehensive performance evaluation reports are produced and delivered quarterly, and are available between 30-45 days after quarter-end (depending on when the investment manager releases quarter-end performance). We are also able to provide monthly “Flash Reports” as necessary.

In addition to providing educational presentations in the form and frequency preferred by FELRA & UFCW Pension Funds, we also provide mid-cycle memos, Topics-of-Interest papers, asset class outlooks, and conduct conference calls to keep you updated on significant events that may affect your plan, including any pertinent changes to the investments within the plan. All of our research is 100% internally produced and based on a myriad of publicly available raw data; the following is a list of our reports and white papers routinely provided to a client:

- **2013 Capital Markets Expectations** – provided in **Tab VII**
- **2013 Active Management Environment** – provided in **Tab VIII**

- **Capital Markets Updates – 2013 March Capital Markets Update** provided in **Tab V**
- **Topics of Interest** – provided in **Tab VI**
 - “Strategic Asset Allocation: Moving Beyond Mean Variance Optimization”
 - “Institutional Investing in Long Commodities Strategies”
 - “Defending Global Equity Allocations”
 - “The Private Equity Secondary Market: Its Characteristics and Role in a Private Equity Portfolio”
- **Quarterly Research Reports** – 1Q 2013 Quarterly Research Report provided in **Tab XIII**
- **2013 April Quarterly Research Conference Call** – available online at: <http://www.wurts.com/knowledge/CRM/2013Q1QuarterlyResearchReport.pdf>
- **Market Outlooks** – provided in **Tab VII**
 - Hedge Fund Outlook
 - Private Equity Outlook
 - Real Estate Outlook

Wurts & Associates is committed to research-driven investment solutions to help all of our clients fulfill their fiduciary responsibility, and have dedicated substantial resources to our research initiatives. In addition to the samples provided; we encourage you to take a look at our library located at: <http://www.wurts.com/knowledge>.

34. Please discuss the use of performance based fees, asset based fees, flat fees and any other fee structures you may recommend for use with external managers.

We are largely agnostic on the topic of investment manager fee structure. We believe that because the relative value of any given fee structure is largely dependent upon market and excess return cycles, it is unlikely that one will provide clear advantage over another over the long term.

Academic positions on the subject are equally ambiguous with some focusing on the goal-alignment aspect of performance-based fees and others stating they can cause aberrant behavior in managers during periods of extreme under-or out-performance.

We have experience implementing performance-based and asset-based fee structures and have developed a flexible fulcrum-based model that allows our consultants and

managers to jointly specify various elements of performance-based fees. However, our clients predominantly use asset-based fees, which is in line with our view that these are appropriate for most situations.

35. Describe your firm's criteria for recommending a manager be placed on probation, removed from probation, or replaced.

As mentioned, Wurts & Associates maintains 24 different performance and qualitative-based guidelines that can be incorporated into a watch list according to each client's specific considerations. We have listed a few examples of these guidelines below for your reference:

- The fund has underperformed the 75th percentile in the appropriate style universe over a one year period.
- The Fund has underperformed the median fund in the appropriate style universe over a 3 and 5 Year period.
- The manager has a Sharpe Ratio less than or equal to the median manager in an appropriate style universe over the most recent five-year period.
- Fund experiences non-performance related issues including personnel turnover, changes in investment philosophy or style drift, excessive asset growth, change in ownership and any other reason that causes concern.

Should a manager repeatedly perform below some or all of these standards, Wurts & Associates would recommend that manager be placed "on watch." We have assisted many clients in developing "watch list" procedures to set forth the criteria and method for termination when necessary. Creating watch list procedures ensures a process-driven and consistent approach to manager evaluation. While a manager is "on watch," that manager is closely monitored and notified that they are a potential candidate for replacement. The amount of time a manager stays on the watch list varies depending on the situation, but we typically carry a manager on the watch list until these conditions change or until we are prepared to recommend termination.

While it is very simple to create a strict and explicit framework for these issues, such as a "watch list," executing on precise termination guidelines will always require subjective adaptation. Nonetheless, we are always on the lookout for the basics such as organizational and ownership issues, as well as performance that is well outside of expected levels of tracking error.

36. Describe your firm's experience and capability for implementing a manager transition plan. What factors are considered in developing a transition plan?

Wurts & Associates has been providing transition manager evaluation and selection services to our clients for nearly a decade. Through our service, we have helped our clients successfully select transition managers for a wide variety of transition events, including fixed income, global equities and complex multi-strategy. We evaluate transition managers based on both qualitative and quantitative factors, which include:

- Areas of expertise
- Business model, including understanding all sources of revenue
- Transition costs
- Tenure, depth of experience, and structure of transition management team
- Access to liquidity
- Transparency
- Potential conflicts of interest
- Historical transition activity (i.e., client type, asset class, performance, etc.)

The importance of transition management has increased considerably in the past decade, which is why our firm has developed an in-house subject matter expert to advise clients in this area.

37. What do you consider is the most significant recommendations your firm has made to a large sophisticated benefit fund? Specifically, what value was added and how does this recommendation demonstrate a "unique" insight or value that your firm would bring to the Board's relationship, such as in the area of valuing hard-to-value assets.

An example of a significant strategy recommendation that Wurts & Associates provided to our larger benefit fund clients involves the credit bubble of 2007-2008. This period presented tremendous opportunity for innovative advisers with deep research capabilities to take advantage of severe market dislocations. During that time, we were able to help many of our clients take advantage of multiple private and public market opportunities. High Yield, Distressed, and Mezzanine Debt opportunities were actively promoted, beginning in late 2008, as we saw evidence that the monetary and fiscal policies were desperately pursuing any means necessary to stave off a collapse of the financial markets. During that time, there were many "great investment" options, but our team focused on contractual income producing opportunities since it was not yet clear when or at what level the "bottom" might appear.

In early 2011, we encouraged clients to consider diversifying their fixed income exposure to a broad basket of global and emerging markets. The thesis there included a

discussion about diversified interest rate and yield curves across countries and regions, the strengths of foreign balance sheets, improving stability of central banks in emerging markets and the fundamentally stronger demographic and economic tailwinds that supported those regimes' ability and willingness to pay their obligations. Specifically, the recommendation was for hard currency denominated debt, since we were not targeting an anti-dollar position, nor do we feel that adequate compensation in returns has been earned for the increased volatility of local currency exposure. Subsequently, the local currency markets experienced dramatic "repricing" (relative to the hard currency index) in Sep-2011 and the first quarter of 2012.

Finally, in late 2011 and continuing throughout 2012, we have proposed a number of Distressed Debt opportunity funds and other Special Situation lenders. This theme has carried through to the most recent recommendation of some Direct Lending strategies. Plans are in place for a recommendation of bank loans and structured vehicles that participate in syndicated bank loans in the event the markets suffer a dislocation similar to 2008, resulting in dramatic discounts on assets we believe managers can obtain and capture significant rebound returns. The opportunity is not evident today with these assets trading at or above par in many cases. However, the floating rate mechanism and senior secured nature of this sector is appealing for its interest rate risk reduction and secured credit-sensitive features.

Our intense focus on research has, and will continue to allow for exceptional agility in leveraging these market opportunities for our clients' benefit.

38. Please identify the most challenging or difficult problem that your firm has encountered regarding a jointly-trusteed benefit fund issue and explain how the firm's recommendations were either successful in resolving the problem or not. Do you believe that the recommendations demonstrated the firm's ability to succeed where others may not have been as successful? If so, why?

One of the largest challenges facing our firm today is assisting our jointly-trusteed clients whose benefit plan is in critical status because of funding and/or liquidity problems. There are four sources that alone or in combination can improve a plan's funding status; contribution increases, benefit reductions, increase in hours or; investment returns in excess of the actuarial assumed rate. Our recommendations focus on strategic tilts that position our clients' portfolios with an increased potential for excess return. Risk factors, liquidity needs and costs are also considered. Wurts & Associates has dedicated considerable resources in establishing a reputation for quality research and becoming a thought leader in the areas of governance and risk allocation.

It is because of this that our clients have enjoyed success through portfolios with reduced risks, improved liquidity at lower costs without sacrificing return.

39. Please describe your firm's experience and capability in providing education and training to benefit fund trustees.

A key differentiator of Wurts & Associates is our research capability, and we leverage this competency towards the education of our clients to assist them in their fiduciary obligations. Wurts & Associates will provide educational presentations in the form and frequency preferred by the FELRA and UFCW Pension Funds. Additionally, we will distribute our market research through various media channels to the Committee on an ongoing basis.

To complement our Quarterly Research Report, Wurts & Associates hosts a Research Conference Call for our clients. During this call, we present our corresponding Quarterly Research Report which contains an overview of the economy, an analysis of the current capital market environment, macroeconomic conditions, and the opportunities and headwinds they present to institutional investors. The call is presented by our Chief Investment Officer, Jeffrey Scott, CFA and moderated by our CEO, Mr. Jeffrey MacLean. Following the presentation, the phone lines are open for a question and answer session in which listeners are encouraged to participate.

Lastly, Wurts & Associates will be holding our inaugural Client Summit in Seattle during July 2013, titled "Managing Financial Uncertainty in Difficult Times: How Governance & Modern Perspectives on Risk Can Improve Long Term Results". The Summit will serve as an educational forum for our clients and their fiduciaries. Our nationally recognized team as well as other financial industry luminaries will present thought-provoking research on the topics of Governance and Risk Management.

40. Please include an example of a special project you performed in the past for a jointly-trusted benefit fund client, for example, in the area of evaluating alternative investments.

Wurts & Associates conducted an ad-hoc Pension Fund Mission and Risk report in November of 2012 for a defined benefit client. Please refer to this project summary in **Tab XVII**.

LEGAL ISSUES AND POTENTIAL CONFLICTS

41. Is the firm, and/or its parent or affiliate, a registered investment advisor with the SEC under the Investment Advisers Act of 1940? If not, what are its fiduciary classifications? Please state whether the firm is or is not a fiduciary or QPAM (as those terms are defined by the Employee Retirement Income Security Act of 1974 (ERISA)).

Yes, Wurts & Associates is a registered investment advisor with the Securities & Exchange Commission under the Investment Advisers Act of 1940.

Wurts & Associates is also considered a fiduciary under ERISA with respect to the recommendations that we will provide to FELRA & UFCW Pension Funds.

42. Please provide a copy of the firm's most recently filed Form ADV, Parts I and II, with all schedules.

The firm's most recently filed Form ADV, Parts I and II, with all schedules, are provided in **Tab IV**.

43. Has the firm, the primary or secondary consultants, or another officer or principal been involved in any litigation, arbitration, mediation, or other legal proceedings, or government investigation, or regulatory proceedings, involving allegations of fraud, negligence, criminal activity or breach of fiduciary duty relating to benefit consulting activities? If so, identify and provide an explanation for each and indicate the current status.

No, neither the firm, nor the primary or secondary consultants, nor another officer or principal has been involved in any litigation, arbitration, mediation, or other legal proceedings, or government investigation, or regulatory proceedings, involving allegations of fraud, negligence, criminal activity or breach of fiduciary duty relating to benefit consulting activities.

44. Please describe the levels of coverage for errors and omissions insurance and any other fiduciary or professional liability insurance your firm carries, including a list of insurance carriers supplying the coverage.

Wurts & Associates carries \$10,000,000 in professional liability insurance with \$2,000,000 sublimit for Fiduciary Liability Insurance. The coverage is through Houston Casualty Company (HCC). HCC has an A.M. Best Rating of A+ (Superior) Stable Outlook and a Standard and Poor's rating of AA (Very Strong) Stable Outlook. This coverage

applies to the firm as a whole. For your reference, we have included a copy of our proof of insurance in **Tab XV** of this proposal.

45. Explain in detail any potential for conflict of interest that would be created by your firm's consultancy for the Board.

Wurts & Associates does not foresee having any potential conflicts of interest in providing investment consulting service to the FELRA and UFCW Pension Funds. We have carefully maintained an independent business model to prevent conflicts of interest as we only receive compensation in the form of annual retainer fees from our existing consulting relationships. Once again, we have no subsidiaries and we are not owned by a parent company.

46. Describe any relationship the firm or an affiliate of the firm enjoys with the Fund and/or any employee organization that represents the Fund or its employees and/or any employer that contributes to the Fund on behalf of its employees.

Wurts & Associates holds no relationship with the Fund or any employee organization that represents the Fund.

47. Does your firm or its parent or affiliate, manage money for clients or manage a fund-of fund for clients? How does your firm prevent conflicts of interest or appearance of conflicts?

No, Wurts & Associates is an investment advisor only, which allows for the prevention of conflicts of interest.

48. Is your firm, or its parent or affiliate, a broker/dealer? If so, does your firm trade for client accounts through this broker/dealer? How does your firm prevent conflicts of interests or the appearance of conflicts?

No, our firm is not a broker or dealer. We have carefully maintained an independent business model to prevent conflicts of interest as we only receive compensation in the form of annual retainer fees from our existing consulting relationships.

49. Does your firm charge direct or indirect fees for investment managers to be included in your firm's database or in any manager searches that you conduct on behalf of your clients or for attendance or participation in any conferences that your firm may conduct? If so, what are the fees? How does your firm prevent conflicts of interests or the appearance of conflict?

No, Wurts & Associates does not charge direct or indirect fees for investment managers to be included the firm's database or in any manager searches that we conduct on behalf of our clients. Our firm does not charge direct or indirect fees in relation to our annual conferences.

50. Does your firm sell database information and/or performance analytics to investment managers? Does your firm receive compensation directly or indirectly for such information? How does your firm prevent conflicts of interest or the appearance of conflict with the current investment managers of your clients?

No, our firm does not sell database information or performance analytics to investment managers. Because Wurts & Associates does not engage in any services outside of investment consulting, our firm is structured to avoid potential or perceived conflicts of interest.

51. In addition to the above, please describe any other circumstances under which the firm receives fees or other compensation from investment managers.

Under no circumstances does our firm receive fees or other compensation from investment managers.

52. Please attach your firm's written policies and procedures related to conflicts of interest, if any.

Wurts & Associates has adopted the CFA Institute's Code of Ethics and Standards of Professional Conduct which include provisions to limit conflicts of interest. Furthermore, we have worked diligently to maintain a business operation that is free of any conflicts of interest. The firm has no affiliates or business partners and does not receive any direct or indirect compensation from investment managers. Therefore, our advice is not compromised, persuaded, or biased by third-party compensation. A copy of Wurts & Associates' Code of Ethics has been included in **Tab XVI**.

In addition, Wurts & Associates' chief compliance officer monitors legislation and regulations that affect our business, and ensures that all employees remain in compliance with all regulations and recommended standards of ERISA. Wurts &

Associates has hired an outside firm, National Regulatory Services (www.nrsinc.com), to assist with this process and to ensure we are being kept apprised of all changes in regulations.

FEES

53. Please indicate your fee schedule.

Wurts & Associates proposes a full-retainer investment consulting relationship of \$250,000 for consulting services related to the Defined Benefit plan as detailed in 'Schedule A' below. This fee is guaranteed for a period of 3 years.

The 'Schedule A' displayed below covers the FELRA and UFCW Pension Funds scope of services as listed in this RFP.

Schedule A

- **Provide Quarterly Review of macro-economic and capital markets and provide insights and recommendations on the Plan's investment strategy in light of the review**
- **Provide Quarterly Plan performance report, including**
 - Quantitative historical return and risk analysis relative to appropriate benchmarks and/or peer groups
 - Manager watch list and recommendations on "watch" and "terminate" status
 - Manager fee analysis
 - Allocation by asset/strategy/manager
- **Attend quarterly (or agreed upon frequency) meetings**
- **Monitor Investment Managers for qualitative issues such as organizational change, personnel change or strategy philosophy/process change and notify Client of any material concerns.**
- **Assist with design & maintenance of Investment Policy Statement and assist on policy related topics such as**
 - Governance structure
 - Rebalancing
 - Benchmark selection
 - Operational items such as proxy voting, securities lending, etc.
 - Manager/investment guidelines
- **Provide asset allocation analysis, including**

- Periodic studies utilizing mean-variance optimization and related tools to compare the current portfolio against alternative portfolio structures
- Periodic recommendations on opportunistic/tactical tilts where appropriate/allowed by guidelines
- Consideration of new asset classes and strategies
- **Conduct Investment Manager searches and provide recommendations on manager selection**
 - Unlimited investment manager search reports featuring managers covered by Wurts & Associates' "Focus-List" (includes all traditional categories covered within our asset allocation advice as well as funds-of-funds and specialty niche alternatives). An additional fee for "custom" manager searches will apply; "custom" indicates searches driven by Client requests such as the inclusion of specific managers that are not covered by Wurts & Associates "Focus List" and/or mandates not central to our asset allocation advice.
 - Manager fee negotiation and implementation assistance
 - "Direct" hedge fund and private equity portfolio development and manager selection is addressed on Schedule B.
- **Deliver education on methods and strategies associated with improving the overall investment strategy of the Plan**
- **Conduct a custodial bank/directed trustee search**

54. Would you charge separately for travel expenses? If so, explain in detail your policy.

Yes, travel expenses would be reimbursed at cost.

55. What other costs or expenses might we incur with your firm?

The FELRA & UFCW Pension Funds will not be charged by Wurts & Associates for any expenses outside of the full-retainer annual fee, which encompasses all services listed under 'Schedule A'.

The following is a list of services and related fees that are not stipulated under this agreement.

Schedule B

Client agrees to pay Consultant provided that Client engages Consultant on such projects prior to the commencement of work and that Client approves in advance the additional expenditure.

- Provide a custom investment manager search, fee based on scope (\$10,000 minimum)

FELRA AND UFCW PENSION FUNDS

- Conduct Asset-Liability study (\$55,000)
- Attend and facilitate on-site investment manager due diligence with client (\$10,000 plus travel expenses)
- Conduct a custodial audit (\$30,000)
- Provide litigation support and other administrative services when authorized by Client for the following hourly rates:

Senior Consultant	\$400/hour
Consultant	\$300/hour
Associate	\$200/hour
Analyst	\$150/hour

Consultant shall furnish Client with appropriate hourly detail to justify bills submitted.



MR. WILLIAM WURTS

Mr. Wurts, *Chairman, Founder of Wurts & Associates*, has been in the investment consulting business for over 45 years. Prior to establishing Wurts & Associates he worked for 23 years as a vice president in the institutional division of Merrill Lynch. In this capacity, Mr. Wurts and his team had the responsibility of providing ongoing consulting to over 50 major clients in the Pacific Northwest. He established Wurts & Associates in Seattle in January 1986 and the Los Angeles office in 1990.

Mr. Wurts has been a featured speaker at numerous meetings of the Western Pension Conference and the International Foundation of Health, Welfare & Pension Plans on subjects relating to institutional investing. Over the years he has also taught a number of investment courses through the Seattle Community College system. Mr. Wurts has served as a past president and a member of the Board of Directors of the Western Pension Conference. He is presently on the Board of Directors for the Seattle Chamber of Commerce and is also a member of the International Foundation of Employee Benefit Plans, the Rotary Club of Seattle, and the Rainier Club. Mr. Wurts received his BA from Yale University.



MR. JEFFREY MACLEAN

Mr. MacLean, *Chief Executive Officer*, joined Wurts & Associates in 1992. Mr. MacLean is primarily responsible for managing the firm and providing investment advice to several clients. With over 23 years of investment experience, he has longstanding consulting experience with all asset classes working with corporate defined benefit plans and defined contribution plans, public institutions, multi-employer trusts, endowments, and foundations.

Mr. MacLean chairs the firm's Management Committee and serves on Wurts & Associates' Research Advisory Committee which provides strategic guidance to the firm's research staff on the important issues affecting clients and vetting the research department's initiatives. Mr. MacLean often speaks at various investment forums regarding the macro-economic environment, asset allocation, risk management, alternatives, and industry trends. Prior to joining Wurts & Associates, Mr. MacLean was Vice President of Shurgard Realty Group, a real estate advisory firm. He also worked as a consultant for Arthur Andersen & Company.

Mr. MacLean currently volunteers for Children's Hospital of Los Angeles. As a former Trustee of the Providence Little Company of Mary Foundation, he served as chairman of the Finance Committee and Vice Chairman of the Board. He is currently a member of the Young Presidents Organization and Past Chair of the Golden West Chapter.

Mr. MacLean holds a Masters Degree in Business Administration (MBA) from the Darden School of Business and a Bachelors Degree in Business Administration (BBA) from the University of Washington. He served as student body president his senior year at the University of Washington.



MS. SHELLY HEIER, CFA, CAIA

Ms. Heier, *President & Chief Operating Officer, Senior Consultant*, is primarily responsible for providing leading investment consulting services to a variety of clients, including charitable organizations, corporate retirement plans, and healthcare organizations. A shareholder of the firm since 2007, Ms. Heier is also an integral part of the firm's leadership, serving on the Wurts & Associates Management Committee and overseeing the firm's operations and Seattle-based consulting staff. Ms. Heier is a frequent speaker at industry conferences, where she has presented on a broad range of topics including capturing alpha from quantitative strategies and portfolio operational efficiencies.

As chair of Wurts & Associates' Research Advisory Committee, Ms. Heier provides strategic guidance to the firm's research staff on the important issues affecting clients and vetting the research department's initiatives. Ms. Heier joined Wurts & Associates in 2000 as a member of the Manager Research Group, and was responsible for investment manager and market research. She served as Director of Manager Research from 2002 to 2005. Prior to joining our firm, she worked as an analyst for a financial planning firm specializing in high net worth individuals.

Ms. Heier is active in numerous civic and industry groups, including the CFA Institute, CFA Society of Seattle, CAIA Association, Western Pension & Benefit Conference, and the Fred Hutchinson Cancer Research Center's Innovators Network. In 2012, the Puget Sound Business Journal recognized Ms. Heier's accomplishments by selecting her as a "40 Under 40" honoree.

Ms. Heier graduated from the University of Puget Sound with a Bachelor of Arts degree in Business and Public Administration with an emphasis in Finance and a minor in Economics. She received the Chartered Financial Analyst (CFA) designation in 2001 and the Chartered Alternative Investment Analyst (CAIA) designation in 2011.



MR. JEFFREY SCOTT, CFA

Jeffrey Scott, *Chief Investment Officer*, joined Wurts & Associates in 2011. Mr. Scott is head of the firm's discretionary asset management division. Prior to Wurts, Mr. Scott held the position of Chief Investment Officer for the Alaska Permanent Fund's \$40 billion investment portfolio. During his tenure he led the Fund in adopting a risk-factor approach to asset allocation, along with the development of risk-based investment policy. Alaska was awarded the aiCIO Industry Innovation Award for 2010 and Institutional Investor Magazine awarded Mr. Scott the 2011 Outstanding Industry Contribution Award for the Hedge Fund Industry.

As Assistant Treasurer at Microsoft Corporation he managed the capital market activities and a group of 30 professionals. Mr. Scott's management responsibilities included \$80 billion global investment portfolio, \$10 billion foreign exchange hedging program, and \$60 billion capital distribution plan. His team developed an extensive array of asset allocation and risk management models to set the strategic and tactical investment and hedging strategies, producing \$7 billion in value-add.

Mr. Scott holds a Masters Degree in Business Administration (MBA) from Central Michigan University and a Bachelors Degree in Finance from the University of Idaho. He holds the Chartered Financial Analyst (CFA) designation, is a member of the Long Term Investor Council of the World Economic Forum and a 2011-2012 Visiting Scholar for Stanford University's Collaboratory for Research on Global Projects.



MR. SCOTT WHALEN, CFA

Mr. Whalen, *Executive Vice President and Senior Consultant*, joined Wurts & Associates in 2002. Mr. Whalen serves primarily to provide high quality strategic investment advice and ensure his clients meet their long-term investment objectives. Mr. Whalen is a Wurts & Associates shareholder and a key member of the Wurts & Associates leadership team; he sits on the Management Committee and oversees the firm's consulting staff. Prior to joining Wurts & Associates, Mr. Whalen built a distinguished career in management consulting with McKinsey & Company and Ernst & Young, where he led corporate and public sector institutions to increase efficiency and improve operational performance. Through his vast experience working with multiple stakeholders across industries, Mr. Whalen has honed his ability to drive effective decision-making, often in challenging environments.

Mr. Whalen is a recognized speaker at industry conferences, where he has presented on a broad range of investment topics including asset allocation, alternative investing, investment manager oversight, attaining operational efficiencies in investment programs, the challenges and potential benefits of dynamic asset allocation, and the importance of maintaining a long-term perspective.

Mr. Whalen received a Bachelor of Arts degree in Economics from Wake Forest University and a Masters in Business Administration (MBA) from the University of Southern California. He is a recipient of the Chartered Financial Analyst (CFA) designation and a member of the CFA Institute and the CFA Society of Los Angeles.



MR. VICTOR LEE

Mr. Lee, *Senior Consultant*, serves his clients from Wurts & Associates' corporate headquarters located in Seattle, Washington. He joined Wurts & Associates in 1990 and has nearly twenty years of experience in the investment consulting industry. He currently works with a broad array of institutional clients, including corporate defined benefit and defined contribution plans, endowments and foundations, public funds, and Taft-Hartley funds. Mr. Lee is actively involved with his clients in the development of their strategic planning, including asset allocation and investment policy development, investment manager evaluation and selection, performance evaluation, continuing education, and the coordination of special projects.

Previously Mr. Lee was Wurts & Associates' Director of Manager Research. He was responsible for overseeing the evaluation and research of investment managers and coordinating the preparation of investment manager searches and the production of research reports. He originally joined the firm as an Analyst, but was promoted to Senior Analyst soon thereafter to manage the performance measurement group and the client reporting operations. Prior to joining Wurts & Associates, Mr. Lee was an associate supervisor in the operations group of the northwest subsidiary of Bank of America.

Mr. Lee is a graduate of Seattle University where he earned a Bachelor of Arts degree in Business Administration with an emphasis in Finance. He is a longstanding member of the Seattle Chapter of the Western Pension & Benefits Conference.



MS. ANNE WESTREICH, CFA

Ms. Westreich, *Senior Consultant*, provides a broad range of investment consulting services to clients to assist them in reaching their long-term investment goals. Prior to joining Wurts & Associates in 2006, Ms. Westreich was a Portfolio Manager/Analyst at Provident Investment Counsel and an Analyst at Hughes Investment Management Company. Her 20 years of institutional investment management experience, analytical skill, and deep knowledge of financial markets help our clients meet the difficult challenges of developing and implementing an effective investment policy. Ms. Westreich's background within a plan sponsor provides a level of understanding into our clients' needs, while her portfolio management experience provides a unique perspective when analyzing investment managers. In addition to being a shareholder of the firm, she also contributes to our research effort as a member of the Research Advisory Committee.

Ms. Westreich received her Bachelor of Science degree in Finance from California State University Fullerton. She received the Chartered Financial Analyst (CFA) designation in 1995.



MR. BRENT NELSON

For the past 10 years Mr. Nelson, *Senior Consultant*, has worked with both ERISA and Non-ERSIA plan Fiduciaries providing proactive guidance with respect to risk management, asset allocation, manager analysis and investment policy design. In addition to working with Taft-Hartley and Nonprofit clients Brent serves on the Wurts' 401(k) and Research Advisory Committees. As a member of the Firm's Research Advisory Committee Brent provides strategic direction to the Firm's research staff on important investment issues affecting client portfolios. Brent also serves as Wurts' consultant practice lead on custodial, transition management and alternative strategies such as commodities and hedge funds.

Mr. Nelson's work with institutional clients on Fiduciary constructs has provided him with the opportunity to speak at a wide array of industry conferences, where he has presented on a broad range of investment topics including asset allocation, alternative investing, active vs. passive investing, and the challenges and potential benefits of opportunistic investing.

Mr. Nelson holds a Bachelor of Science in Business Administration from the University of Montana. He is a member of the International Foundation, the Seattle Alternative Investment Association and the Western Benefits Pension & Benefits Conference.



MS. ANNIE TAYLOR, CFA

Ms. Taylor, *Senior Consultant*, joined Wurts & Associates in 2003 as a Performance Analyst in the Seattle office. She transitioned to the Los Angeles office in 2005, where she now provides a broad range of consulting services to Wurts & Associates' clientele. Her areas of specialization include asset allocation, investment policy development, and transition management. A shareholder of the firm since 2009, Ms. Taylor contributes to the continued development of Wurts & Associates as a member of the firm's 401k Committee, Marketing and Press Relations Committee, as well as assisting in new business development efforts.

Ms. Taylor is a frequent speaker at industry conferences, including the International Foundation, Made in America, and the National Benefits Forum, where she has presented on a broad range of investment topics.

Ms. Taylor graduated Cum Laude from Central Washington University with a Bachelor of Science degree in Finance and a minor in Economics. She received the Chartered Financial Analyst (CFA) designation in 2007 and is a member of the CFA Institute and the CFA Society of Los Angeles.



MR. P. BRADLEY NESS

Mr. Ness, *Senior Consultant*, joined the firm in 2009. In addition to providing strategic advice to clients, Mr. Ness has responsibility for business development efforts of Wurts & Associates. Prior to joining the firm, Mr. Ness had a distinguished 26 year career with Columbia Management where he held various positions with responsibilities focused on marketing and client service, including Senior Vice President, Institutional Client Service. His experience includes advising corporations, foundations, municipalities and Taft-Hartley accounts on asset allocation, benchmark selection, guideline enhancements and product selection.

Mr. Ness earned a Bachelor of Arts degree in Business Administration with an emphasis in Finance from Washington State University.



MR. JASON TAYLOR

Mr. Taylor, *Senior Consultant*, joined Wurts & Associates in 2010. He provides institutional clients with well-developed investment solutions and strategic advice built on his particular expertise in the areas of asset allocation and alternative investments. Prior to joining us, Mr. Taylor held positions as Chief Investment Officer and Managing Director for the Threshold Group in Gig Harbor, WA and New York, NY and as Managing Director and Client Advisor for Ashbridge Investment Management in Philadelphia, PA. As an investment professional and lead client advisor for the last 12 years, Jason has experience working with many foreign, public and philanthropic organizations, as well as private clients.

Mr. Taylor has significant experience working with foundations to integrate their mission into all areas of their investment portfolios. Mr. Taylor is the firm's subject matter expert on program-related investments (PRIs) and social responsible /ESG investing, having built a network of valuable contacts in this space, and having authored white papers and client educational sessions on these subjects. In his previous engagement with Threshold Group, Mr. Taylor worked closely with the Russell Family Foundation and a number of like-minded foundations in the region to collaborate on a new initiative to allocate a meaningful portion of their assets to PRIs. Mr. Taylor also has been a member of the Social Investment Forum since 2000.

Mr. Taylor attended Kingston University in London, England, graduating with honors in 1993. He earned a Bachelor of Arts in Economics and German and also studied a year in Konstanz, Germany while completing his degree.



MR. EDWARD HOFFMAN, CFA

Mr. Hoffman, *Senior Consultant*, joined Wurts & Associates in 2011. Mr. Hoffman has more than 15 years of experience providing a broad range of high quality services to institutional investors. Prior to joining Wurts & Associates, Mr. Hoffman served institutional clients at Causeway Capital Management and Legg Mason, Inc. In addition to his client service responsibilities at Legg Mason, Ed also served on the operating and valuation committees, led a variety of corporate development initiatives, and managed several mutual fund closures and launches. His background in retirement plan recordkeeping and administration provides an additional and valuable perspective on the needs of our Defined Contribution clients.

Mr. Hoffman earned a Bachelor of Science degree in Industrial Management with honors from Carnegie Mellon University and holds a Masters Degree in Business Administration (MBA) from the Harvard Business School. He holds the Chartered Financial Analyst (CFA) designation and is a member of the CFA Society of Los Angeles.



MS. LORELEI CHAO, CFA

Ms. Chao, *Consultant*, provides investment consulting services to a variety of clients, including corporate defined benefit and defined contribution plans, foundations, public funds and Taft-Hartley funds. Prior to joining Wurts & Associates in 2009, Ms. Chao was the Investment Officer at the Orange County Employees Retirement System, a \$6.5 billion public pension plan, where she had the opportunity to administer both the private and public markets portfolios during her five-year tenure. She started her career at William M. Mercer Investment Consulting, Inc. in Chicago as an Analyst and worked as an Investment Consultant with The Northern Trust Company prior to moving to Southern California. Ms. Chao's 14 years of experience in various aspects of institutional portfolio management provides a well rounded perspective in understanding our clients' needs.

Ms. Chao graduated from Loyola University Chicago with a Bachelor of Business Administration and received a Master in Business Administration (MBA) from DePaul University. She holds the Chartered Financial Analyst (CFA) designation and is a member of the CFA Institute and the CFA Society of Los Angeles.



MR. WARREN SPENCER

Mr. Warren Spencer, in-house contract counsel for Wurts & Associates beginning in 2012, has more than 20 years of legal experience relating to hedge funds, investment funds and investment banking.

Prior to Wurts, Mr. Spencer held the position of Chief Legal Officer for Ophrys, LLC, since its inception in 2006. During his tenure with Ophrys LLC, he provided legal and tax advice regarding investment funds, asset backed financing pools, financial asset purchase agreements, hedge fund agreements, equity subscriptions, and debt financing.

Mr. Spencer served as a legal and tax advisor regarding investment funds, investment banking and asset acquisitions from his offices in London, Brussels and Seattle prior to joining Ophrys, LLC. He also previously served as in-house legal counsel for Klesch & Company, Ltd, a private investment firm based in Geneva, London and Moscow. His responsibilities included legal and tax analysis regarding acquisitions, mergers, joint ventures and disposals, UK collective investment programs, and contractual agreements for the purchase and sale of corporate and sovereign debt.

Mr. Spencer is a Sloan Fellow of the London Business School, holds a Masters of Law in Tax (LLM) from the University of Florida, a Doctorate in Jurisprudence (JD) from Willamette University, and a Bachelor of Arts in Economics from the University of Washington, in Seattle Washington. He is a member of both the Washington State Bar Association and the Oregon State Bar Association.



MR. HERBERT NISHII

Mr. Nishii, *Senior Consulting Associate*, joined Wurts & Associates in 2006. Mr. Nishii manages the firm-wide proposal submission process as part of Wurts & Associates business development efforts. Additionally, he provides research, analysis, and consulting support to the Los Angeles based consulting staff. In this role, he provides expertise to a variety of value-adding projects including: asset allocation studies, spending policy analysis, and manager fee analysis. He also assists with reviewing and revising investment policy statements.

Mr. Nishii began his career in the industry as an Analyst for the Choy Kinney Wo Institutional Consulting Group at Morgan Stanley. Prior to joining Wurts & Associates, Mr. Nishii worked as an Investment Specialist for the State of Hawaii Employees' Retirement System.

Mr. Nishii graduated from the University of Hawaii where he earned a Bachelor of Business Administration in Finance and Management Information Systems. He is currently a Masters of Business Administration (MBA) candidate at the University of Southern California, Marshall School of Business.



MR. VINCENT FRANCOM, CFA, CAIA

Mr. Francom, *Senior Consulting Associate*, joined Wurts & Associates in 2011. He is responsible for providing in-depth research, analysis, and consulting support to the Seattle-based consulting team. He works with defined benefit plans, defined contribution plans, endowments and foundations, providing asset allocation studies, spending policy analysis and specialized research projects.

Mr. Francom has over 15 years of institutional investment management experience in various roles as both an equity analyst and a portfolio manager. Prior to joining Wurts & Associates, Mr. Francom was a Senior Equity Analyst & Co-Portfolio Manager with Safeco Insurance and later held a similar role with a startup investment management boutique. He began his investment career at First Interstate Bank (now Wells Fargo) as an equity research analyst.

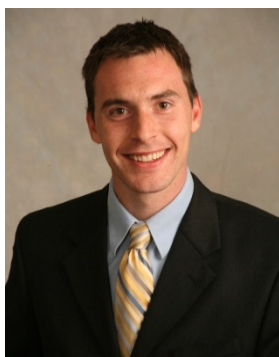
Mr. Francom graduated from the University of Washington with a Bachelors of Arts degree in Business Administration with an emphasis in Finance. He holds the Chartered Financial Analyst (CFA) designation and the Chartered Alternative Investment Analyst (CAIA) designation, and is a member of the CFA Institute and the CFA Society of Seattle.



MR. MICHAEL KAMELL, CFA, CPA

Mr. Kamell, *Senior Consulting Associate*, joined the firm in 2010 to support the Los Angeles based consulting staff. Mr. Kamell incorporates Wurts' proprietary research in delivering exceptional service to our clients operating in the corporate, non-profit, and public spaces. Prior to joining Wurts & Associates, Mr. Kamell began his career in assurance services at PriceWaterhouseCoopers in San Francisco. As a Senior Associate at PwC, Mr. Kamell provided assurance over financial reporting for a wide variety of investment management clients ranging from mutual funds and fixed income managers to hedge and private equity funds. Additionally, Mr. Kamell has extensive experience with performance reporting in accordance with Global Investment Performance Standards (GIPS®).

Mr. Kamell graduated from the University of California at Santa Barbara with a Bachelor of Arts in Business Economics with an emphasis in Accounting. He holds the Certified Public Accountant (CPA) license and the Chartered Financial Analyst (CFA) designation, and is a member of the CFA Institute and the CFA Society of Los Angeles.



MR. BRYANT PIERCE

Mr. Pierce, *Consulting Associate*, joined Wurts & Associates in 2005 as an Analyst and now serves as a Consulting Associate supporting the Seattle based consulting team. In his current role, Mr. Pierce provides in-depth research and quantitative analysis including: asset allocation studies, transition management, custom glide path analysis, manager fee analysis, investment policy development, securities lending, and custodial searches. He currently works with a broad array of institutional clients, including corporate defined benefit and defined contribution plans, endowment & foundations, public funds and Taft-Hartley funds.

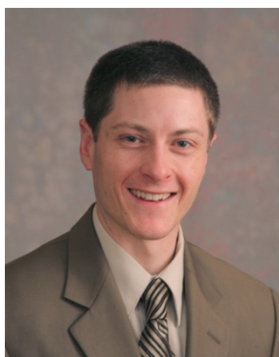
Mr. Pierce graduated from the University of Washington with a Bachelor of Arts degree in Economics. He is currently a Level I candidate in the Chartered Financial Analyst (CFA) Program.



MR. THOMAS WINKLER, CAIA

Mr. Winkler, *Consulting Associate*, joined Wurts & Associates in 2010. He is responsible for tracking the performance of the firms' institutional clients, producing client deliverables, assisting with macroeconomic and manager-specific research, and providing consultant support. Prior to joining Wurts & Associates, Mr. Winkler worked as a Financial Advisor for John Hancock Financial Network where he helped small businesses and individuals achieve their long-term financial goals and insurance needs.

Mr. Winkler is a member of the Phi Beta Kappa Honor Society, holds a Master's Degree in Business Administration (MBA) with Distinction in International Business from the Hawaii Pacific University, and a Bachelor of Arts with Distinction in Economics from the University of Hawaii. He received the Chartered Alternative Investment Analyst (CAIA) designation in 2012.



MR. KEVIN TJERNBERG

Mr. Tjernberg, *Consulting Associate*, joined Wurts & Associates in 2011. Mr. Tjernberg is responsible for providing manager commentary, producing client deliverables, assisting with manager-specific research, and providing consultant support. Prior to joining Wurts & Associates, Mr. Tjernberg worked as an Auditor for Northwest Administrators.

Mr. Tjernberg graduated from the University of Washington and holds a Bachelor of Arts (BA) in Business Administration with a Concentration in Finance. He is currently a level II candidate in the Chartered Financial Analyst (CFA) program.



MR. RILEY DINNISON

Mr. Dinnison, *Consulting Associate*, joined Wurts & Associates in 2011. Mr. Dinnison is primarily responsible for tracking financial performance of the firms' institutional clients, producing client performance reports, providing consultant support and supplementing capital market research. Prior to joining Wurts & Associates, Mr. Dinnison worked for Morgan Stanley Smith Barney assisting financial advisors with client service support, portfolio management, and equity research.

Mr. Dinnison graduated magna cum laude from Whitworth University in 2010 and holds a Bachelor of Arts (BA) in Economics.



MR. THOMAS GARRETT

Mr. Garrett, *Business Development Associate*, joined Wurts & Associates in 2013 to assist the investment consulting team with the development and delivery of investment consulting proposals. Mr. Garrett holds 4 years of experience in the life insurance industry where he served as underwriting manager, and in 2012 was voted 'Manager of the Year' by his firm. Mr. Garrett earned a Bachelor of Arts degree from the University of Washington with a dual concentration in Finance and Marketing, with honors. Mr. Garrett will be completing a Master of Business Administration (MBA) from Seattle University in 2013. He is a level II CFA candidate and is expecting to complete the CFA level II exam in June 2013.



MR. MAX GIOLITTI

Mr. Giolitti, *Director of Risk Allocation*, joined Wurts & Associates in 2011 and has more than 15 years experience in the financial industry. Prior to joining the firm, Mr. Giolitti was Director of Asset Allocation and Risk at the Alaska Permanent Fund Corporation and was also responsible for the External CIO program, the Absolute Return Portfolio and the Multi Asset Allocation Managers. Before Alaska Permanent, Mr. Giolitti worked in several roles in the Financial and Technology industries, including Chief Risk Officer of Tahoma Capital, Director of Quantitative Analysis and Group Risk Manager at Microsoft Corporation, Head of Research at Money Management Group, and Head of Product Management at GL Trade/FNX.

Mr. Giolitti is a frequent speaker at industry conferences, where he has presented on a broad range of topics from risk management to asset allocation.

Mr. Giolitti graduated from the University of California at Berkeley with a Bachelor of Arts with a double major of Physics and Mathematics. He also has a Master of Science in Applied Mathematics from the University of Washington.



MR. SCOTT DAY, CFA

Mr. Day, *Director of Risk Management, Fixed Income, and Capital Markets*, joined Wurts & Associates in 2011. He has over 18 years of investment experience, most recently serving as Director of Fixed Income for Employees' Retirement System of Texas (ERST) managing the \$8 billion global fixed income portfolio. During his leadership at ERST, the fixed income portfolio, consistently outperformed the benchmark over 1, 2, and 3 year timeframes. Prior to ERST, Mr. Day was on the fixed income investment team at Janus Capital and was the Director of Fixed Income for Tahoma Capital.

The foundation of Mr. Day's fixed income portfolio management experience was cultivated at the Microsoft Corporation (MSFT). While at Microsoft, he led the global fixed income team in the management of \$20 billion fixed income portfolio. Mr. Day designed the fundamental and economic research efforts and spear-headed the implementation of multiple front office risk related systems and processes and was a recipient of the Microsoft Gold Star Award, as a recognition from senior management for his outstanding accomplishments. Prior to Microsoft, he spent four years in mortgage and asset-backed securities with Price Waterhouse and KPMG. Mr. Day is currently a Fixed Income instructor for a master's program at the University of Washington.

Mr. Day graduated from George Mason University with a Bachelor of Science in Accounting and received the Chartered Financial Analyst (CFA) designation in 2001.



MR. OMERTAREEN, CFA

Mr. Tareen, *Director of Risk Management*, joined Wurts & Associates in 2012 and has more than 12 years of investment management experience. Prior to joining the firm, Mr. Tareen was Chief Investment Officer of Samba Capital, a bank headquartered in Riyadh Saudi Arabia where he was responsible for the team that managed \$9 billion in client assets across global equities, fixed income and real estate. Under his leadership, the bank restructured the asset management team, rationalized their investment solutions, upgraded risk management, and substantially improved performance.

Prior to working at Samba Capital, Mr. Tareen was a Group Portfolio Manager and Market Risk Manager at Microsoft. He was a member of the team responsible for the implementation of cross asset class overlay and tail risk hedging strategies on \$40-70 billion investment portfolio with exposures to global fixed income, global equities, currencies and commodities. He led the technological initiative to design and implement a risk and portfolio monitoring system which captured factor risk as well as risk originating from non-linear derivative instruments. Microsoft awarded Mr. Tareen the distinguished Microsoft Gold Award for the successful implementation of these initiatives. Prior to Microsoft Corporation, he spent 3 years with Engro Chemical (formerly Exxon) and British American Tobacco.

Mr. Tareen graduated from University of California at Berkeley with Master of Financial Engineering. He also holds a Master of Business Administration in Finance from Lahore University of Management Sciences in Pakistan and a Bachelor of Engineering degree from the National University of Sciences and Technology in Pakistan. He also has the Chartered Financial Analyst (CFA) designation.



MR. PETER WILAMOSKI, PH.D.

Mr. Wilamoski, Ph.D., *Director of Capital Markets Research*, joined Wurts & Associates in 2011. He joined Wurts from The Threshold Group where he served as the Director of Research. There he led all aspects of the research department, including qualitative and quantitative driven manager discovery, selection, and due diligence across traditional and alternative asset classes for high net worth families and foundations with over \$3 billion under advisement. In addition to leading research, Mr. Wilamoski oversaw a number of client relationships and prepared market commentary and white papers. Prior to The Threshold Group, Mr. Wilamoski served as Director of Manager Research for Greycourt & Company. Previously Mr. Wilamoski worked with the Russell Investment Group in both their capital markets with Russell's 20/20 group and manager research groups. Within Russell's manager research group he focused on evaluating US Equity managers and specifically those employing quantitative stock selection models. He began his career as an Assistant Professor of Economics in the Albers School of Business at Seattle University where he taught international trade and finance as well as macroeconomics to both undergraduates and MBA students.

Mr. Wilamoski graduated from California State University at Sacramento with a Bachelor of Arts in Economics and University of Oregon with a PhD in economics.



MR. BRIAN ROWE, CFA, CAIA

Mr. Rowe, *Director of Manager Research*, joined Wurts & Associates in 2010 and leads the firm's analysis and evaluation of a broad mix of investment managers and strategies. Mr. Rowe began his career at Weyerhaeuser Realty Investors underwriting mezzanine debt and joint venture equity investments in third-party real estate deals. He held various positions over a ten year career, helping to grow the company's national presence from \$200 million assets under management to over \$2 billion.

Mr. Rowe graduated from the University of California, Irvine (UCI) with both a Bachelor of Science in Biological Sciences (Phi Beta Kappa) and a Masters Degree in Business Administration (MBA). He holds the Chartered Financial Analyst (CFA) designation and the Chartered Alternative Investment Analyst (CAIA) designation. Mr. Rowe is an active member of the CFA Institute and CFA Society of Seattle, and was recently elected as President of the CFA Society of Seattle.



MR. JOHN WASNOCK

Mr. Wasnock, *Senior Research Associate*, joined Wurts & Associates Inc. in 1997. Currently, he is a member of the Manager Research Group, which is responsible for in-depth evaluation and analysis of investment management organizations around the world. Previously, he served as a performance analyst providing quantitative analysis of client portfolios.

Mr. Wasnock is a graduate of the University of Washington, where he earned a Bachelor of Arts degree in Business Administration with an emphasis in Finance.

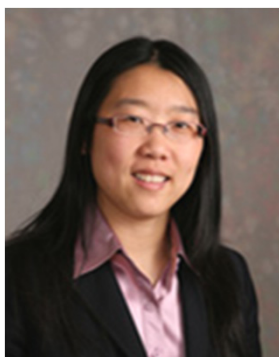


MR. EYAL BILGRAI, CFA, CAIA

Mr. Bilgrai, *Senior Research Associate*, joined Wurts & Associates in 2012. He is a member of the Manager Research Group, applying manager search, due diligence and selection research methodologies, as well as designing predictive models for identifying the most suitable investment managers and incorporating them into clients' overall asset allocation strategies.

Mr. Bilgrai was formerly head of research at Alan Biller and Associates where he led the research group responsible for asset allocation modeling and manager due diligence. He began his career as an attorney in the Military Advocate General Unit of the Israel Defense Forces, first as a District Defense Counsel, and later as Senior Assistant to the Chief Military Prosecutor where he was awarded the unit's top honor: the outstanding officer citation.

Mr. Bilgrai holds a Master in Business Administration from Stanford Graduate School of Business, a Master in Business Law, *summa cum laude*, from Bar-Ilan University, and a Bachelor of Law (Juris Doctor Equivalent) from The Hebrew University of Jerusalem. He is also a Chartered Alternative Investment Analyst (CAIA) and a Chartered Financial Analyst (CFA).



MS. LING ZHANG, PH. D.

Ms. Zhang, *Senior Research Analyst*, joined Wurts & Associates as Analyst in 2010. Her active responsibilities include macroeconomics and capital markets research, strategic asset allocation study and risk dashboard development.

Ms. Zhang holds a MS in Statistics from Columbia University as well as a Doctoral degree in Physical Chemistry from University of Minnesota. She passed all three levels of Chartered Financial Analyst (CFA) exams and is an active member of CFA Society of Seattle.



MR. MATT BRADY

Mr. Brady, *Research Associate*, joined Wurts and Associates in 2010. Mr. Brady is primarily responsible for assisting the Manager Research Group in evaluating investment managers across various asset classes and strategies, as well as contributing to capital markets research. Prior to joining Wurts & Associates, he worked as a Financial Associate at Thrivent Financial, where he focused on the management of individual retirement portfolios and mutual fund research.

Mr. Brady holds a Master of Science in Finance from Seattle University and a Bachelor of Science in Business Administration with a minor in economics from Central Washington University. He passed all three levels of Chartered Financial Analyst (CFA) exam.



MS. ELENA SOLOVYEVA, CFA

Ms. Solovyeva, *Research Associate*, joined Wurts and Associates in 2010. Her primary responsibilities include generating quantitative analysis for client portfolios and supporting the consulting staff. Elena has over nine years of experience in finance, credit risk, and marketing.

Prior to Wurts, Ms. Solovyeva held Finance Manager positions at Consumer Division of Citibank and Jordan Industries Russia (JIR) where she coordinated planning and budgeting processes, designed financial models to forecast performance of new products, reviewed and analyzed trends of key business drivers, completed scenario analyses and conducted performance reports for regional subsidiaries. Before these roles, she worked as a Senior Credit Risk Analyst in Conseco Finance to which she was primarily responsible for strategy design and ongoing evaluation of private label credit card and mortgage portfolios. Ms. Solovyeva started her career as a Research Analyst in the Business Intelligence department with Fingerhut.

Ms. Solovyeva has a Masters degree in Applied Mathematics from Moscow State University, Moscow, Russia and a Masters Degree in Business Administration (MBA) with Honors from North Dakota State University with emphases in Finance and Accounting. She is a recipient of the Chartered Financial Analyst (CFA) designation and is a member of the CFA Institute and the CFA Society of Seattle.



MR. JONATHAN HENDERSON

Mr. Henderson, *Investment Operations Specialist*, joined the firm in 2010. His primary responsibilities include developing, overseeing, and managing the operational and administrative aspect of the firm's discretionary and implemented consulting relationships. Prior to joining our firm, Mr. Henderson worked in the investment services field first with Banc of America Investment Services where he held positions involving many aspects of brokerage services including advisory sales, securities trading and operations. He then worked for Washington First International Bank providing corporate trust and investment management services to the bank's clientele. Mr. Henderson was instrumental in developing the trust and advisory platform and with the ongoing management of the accounts, including securities trading, portfolio modeling and relationship management.

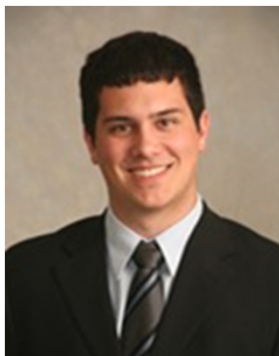
Mr. Henderson graduated from the University of Washington with a Bachelor of Arts degree in Economics.



MS. JESSICA MAGSTADT

Ms. Magstadt, *Operations Coordinator*, joined Wurts & Associates in 2011. She works alongside the discretionary asset management division and the manager research group. She provides support through special projects, presentation materials and administrative detail. She also assists in coordinating operations for the firm's discretionary and implemented consulting relationships.

Ms. Magstadt graduated cum laude from Washington State University with a Bachelor of Arts degree in Business Administration with a concentration in Finance.



MR. JUSTIN HATLEY

Mr. Hatley, *Director of Analytics*, joined Wurts & Associates in 2004 and held roles in analytics and consulting in the firm prior to being promoted to head the analytics group. His primary responsibilities include providing leadership and resources to ensure efficient and high quality performance reporting, mentoring analysts to advance their knowledge and skills, and acting as a liaison to management and consultants to continually enhance the analytics function and client experience.

Mr. Hatley received a Bachelor of Science degree in Finance from the University of Idaho and holds a Masters Degree in Business Administration (MBA) from Seattle University. He has served as a member of the Nordstrom Scholarship Committee since 2008.



MR. MATT LOWE, CFA

Mr. Lowe, *Analyst*, joined Wurts & Associates in 2010. Mr. Lowe is primarily responsible for creating client performance reports. He is also responsible for assisting in consultant support, manager research and ad hoc projects related to capital market forecasts. Prior to joining Wurts & Associates, Matt worked as an assistant bond trader for Umpqua Investments, where he facilitated bond trades across all fixed income sectors and executed fixed income strategies for retail clients of the firm.

Mr. Lowe holds a Bachelor of Science (BS) in Finance from Linfield College. He received the Chartered Financial Analyst (CFA) designation in 2012.



MR. DANNY SULLIVAN

Mr. Sullivan, *Analyst*, joined Wurts & Associates in 2011 and is primarily responsible for creating client performance reports and providing consultant support. He also assists in capital market research projects and manager search reporting.

Mr. Sullivan holds a Masters of Business Administration (MBA) from Seattle University and a Bachelor of Science (BS) Degree in Economics from the University of Washington. He is currently a Level I candidate in the Chartered Financial Analyst Program (CFA).



MR. STEFAN MYERS

Mr. Myers, *Analyst*, joined Wurts & Associates in 2011. He is primarily responsible for tracking client investment performance and producing investment performance reports. He also assists in capital market research and manager search reporting.

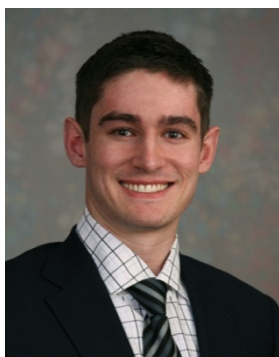
Mr. Myers holds a Bachelor of Science degree in Economics and a Bachelor of Arts (BA) degree in International Studies from the University of Washington. He is currently a level II candidate in the Chartered Financial Analyst (CFA) Program.



MR. RYAN ROSS

Mr. Ross, *Analyst*, joined Wurts & Associates in 2011. Prior to joining Wurts and Associates, Mr. Ross was an Account Representative at CAPCO Financial. He is primarily responsible for tracking the performance of the firm's institutional clients, creating client performance reports, manager research and contributing to capital market research projects. Ryan is a volunteer for the Washington State University College of Business.

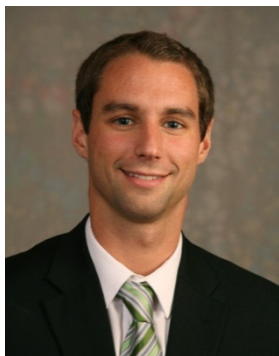
Mr. Ross graduated from Washington State University with a degree in Economics with a specialization in Financial Markets. He is currently a Level I candidate in the Chartered Financial Analyst (CFA) program.



MR. TREVOR PARMELEE

Mr. Parmelee, *Analyst*, joined Wurts & Associates in 2012. He is primarily responsible for tracking and monitoring client portfolio performance and producing investment reports. He also provides consultant support and supplemental capital market research.

Mr. Parmelee graduated cum laude from Arizona State University with a Bachelor of Sciences degree in Finance. He is currently a Level III candidate in the Chartered Financial Analyst (CFA) Program.



MR. CRAIG SHUBIN

Mr. Shubin, *Analyst*, joined Wurts & Associates in 2012. He is responsible for tracking and monitoring client portfolio performance and producing investment reports. He also provides consultant support and supplemental capital market research.

Mr. Shubin graduated from the University of Washington and holds a Bachelor of Arts in Business specializing in Finance.



MR. ROBERT MEUSSNER

Mr. Meussner, *Analyst*, joined Wurts & Associates in 2012. Mr. Meussner is primarily responsible for creating client performance reports, manager research, and contributing to capital market research projects. Prior to joining Wurts & Associates, Rob worked as an Analyst at Sparta Asset Management, where he researched small cap growth companies, provided operations support for trading execution and trade settlement procedures, assisted with performance reporting, and compliance.

Mr. Meussner graduated from the University of Washington and holds a degree in Business Administration with a focus in Finance. He is currently a Level I candidate in the Chartered Financial Analyst (CFA) program.

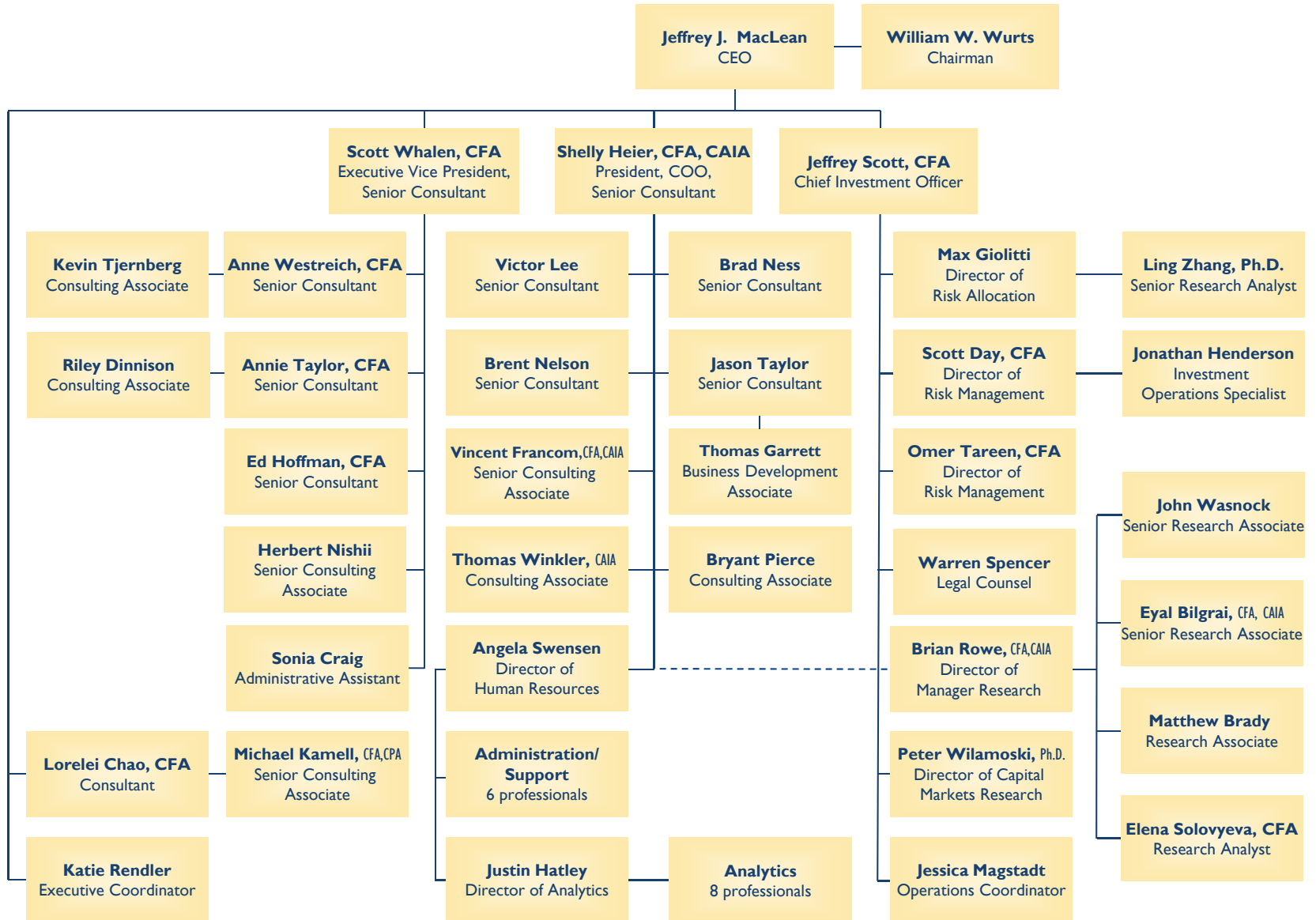


MR. ERIC CROWDER

Mr. Crowder, *Analyst*, joined Wurts & Associates in 2013. He is primarily responsible for tracking client portfolio performance, manager research, and providing consultant support. He is also responsible for producing investment performance reports and supplemental capital market research.

Mr. Crowder graduated from Washington State University with a Bachelor of Arts (BA) degree in Finance and a minor in Economics. He is currently a Level I candidate in the Chartered Financial Analyst (CFA) Program.

ORGANIZATION CHART



Sample Client

Asset-Liability Study

Jeffrey J. MacLean
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Executive Summary - Study Overview

- Working with data provided by, Wurts & Associates conducted a study to measure the relationship between the assets and liabilities of the Sample Client in light of different economic scenarios. The Jan. 1, 2008 valuation report was used with the Plan's market value of assets as of Dec. 31, 2008. The goal is to help Sample Client optimize the relationship between the plan's asset allocation and funding strategies.
- Three different scenarios were run for the study:
 1. Current Scenario - Uses the 3-segment funding interest rate and all other assumptions described in the Jan. 1, 2008 valuation report.
 2. Yield Curve based Funding Interest Rate Scenario - Uses a yield curve as of the valuation date as provided by the IRS. (Full yield curve shown in Appendix)
 3. Freeze Plan beginning in 2009 Scenario.
- Wurts & Associates also modeled a Liability Driven Investing ("LDI") alternative by increasing duration and increasing the fixed income allocation. This was done by creating a hedge for the PPA Funding Target Liability (Not-At-Risk Funding Liability).
- The current asset allocation is projected to have an investment return of 7.79% as compared to an actuarial expected return on Plan assets of 8.50%.
- Assumed a -25.9% investment return on Plan Assets for 2008, based on preliminary data. Also assumed a 0.01% rate of Inflation for 2008.
- On Dec. 11th, 2008 The Senate passed The Worker, Retiree, and Employer Recovery Act of 2008. We were not able to incorporate this law and its effects as the update to our modeling software was not available until only recently.
- This Recovery Act should help to drop required contributions over the short term, especially in 2009. Under current law, the funding target under the Pension Protection Act of 2006 (PPA) is phased in over three years. For those plans that fall below the set target funding percentage for a particular year, the provision would require these plans to fund up to the specified funding percentage for that year, instead of 100%.



Executive Summary - Initial Findings

- Moving from the 3-segment to full yield curve would reduce contributions in the near term
 - Contributions would likely be higher in future years under the full yield curve scenario, and the volatility of contributions would also increase given the greater variability in discount methods.
 - Net Periodic Cost would be modestly higher under the full yield curve.
 - Funded ratio (as measured by AFTAP) would be slightly better under the 3-segment curve.
- Increasing portfolio risk modestly would improve the funded status in the “most probable” expectation by a roughly 2% margin in 2015; over 3% in 2018.
 - Additionally, the “worst case” funded status expectation does not become commensurately worse.
 - As expected, contributions would fall as well, but Net Periodic Cost experiences more volatility in the “worst case” scenarios.
- Adding liability-driven investments on an unlevered basis can reduce surplus volatility. However, a higher allocation than the current fixed income allocation needs to be devoted to the hedge to see significant decreases in volatility of funded status and contributions.



I. Introduction



Introduction

- The asset assumptions were developed using the building block method.
 - Please refer to the Appendix for a thorough review on how our asset class assumptions were developed.
- Using a multi-factor model, Wurts & Associates modeled four different efficient portfolios using the current asset classes as well as liability hedges.
- The actuarial assumptions used were taken from the actuarial valuation report as of January 1, 2008 with the December 31, 2008 market value of assets.
- Wurts & Associates evaluated funded ratios and total contributions of the Plan using a variety of stochastic cases and a deterministic case:
 - In a deterministic case we assume we know what will happen in the future. We make our assumption, using the actuary's 8.5% expected return and 3.0% inflation, and project that scenario.
 - In a stochastic case we make assumptions about input parameters and vary them projecting many scenarios (in this case, 2,000 scenarios) and then summarizing the results by looking at the distribution (percentiles) of the results. The projection is from 2008-2018 (fiscal years).

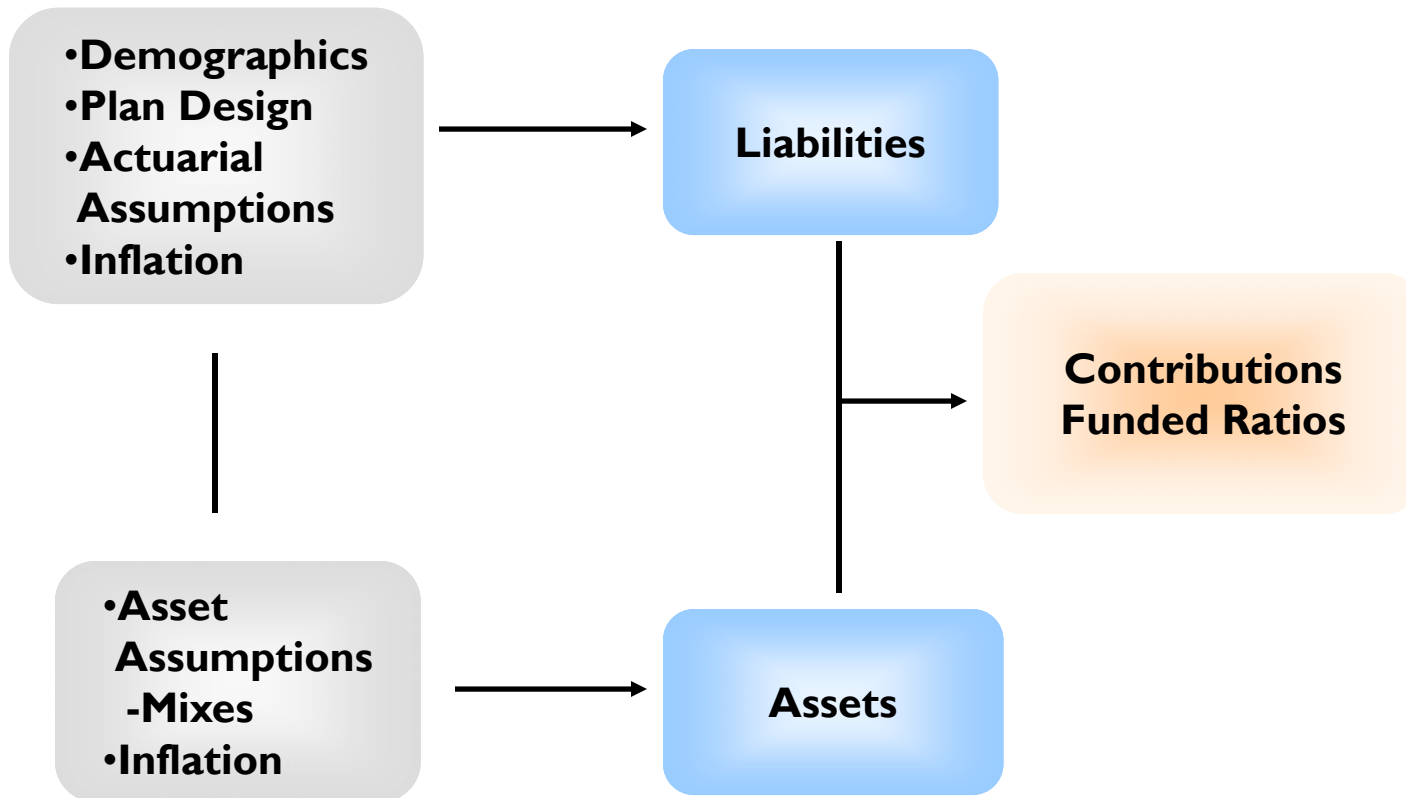


Asset Allocation Decision Framework

1. Establish the overall financial priorities for the plan
(i.e. AFTAP, Employer Contributions, Net Periodic Cost). This provides a quantitative framework to evaluate the potential asset allocation mixes.
2. Consider the tradeoff between expected outcomes and the worst case scenarios for these funding objectives.
3. Make a qualitative judgment regarding the risk tolerance of the Plan Sponsor and the Plan's beneficiaries.
4. Consider the ramifications of failing with a less conventional allocation by including alternative asset classes or a liability driven strategy.



Asset-Liability Modeling Process



After inputting the plan's liability information and return assumptions the modeling tool projects 2,000 independent scenarios.

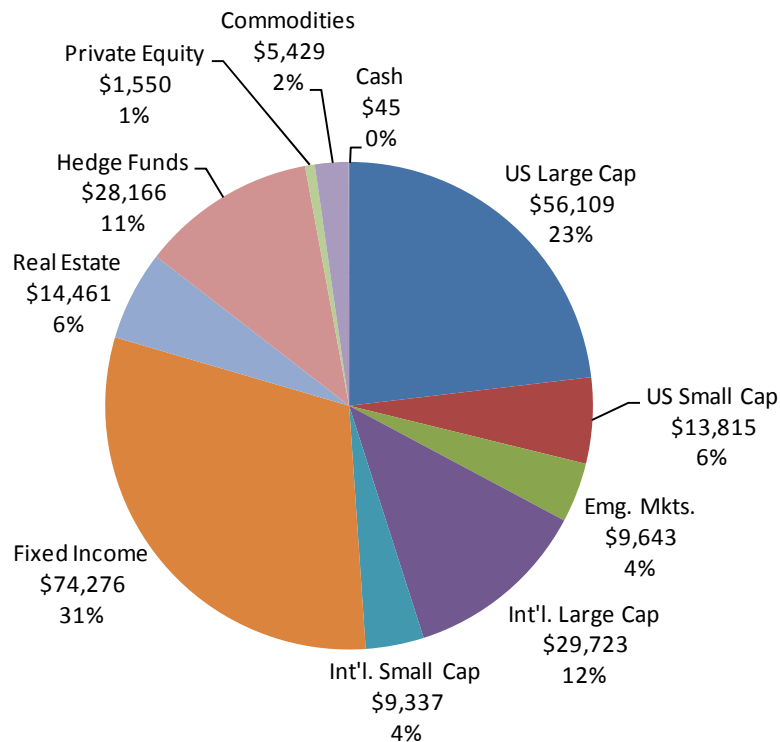


II. Plan Information



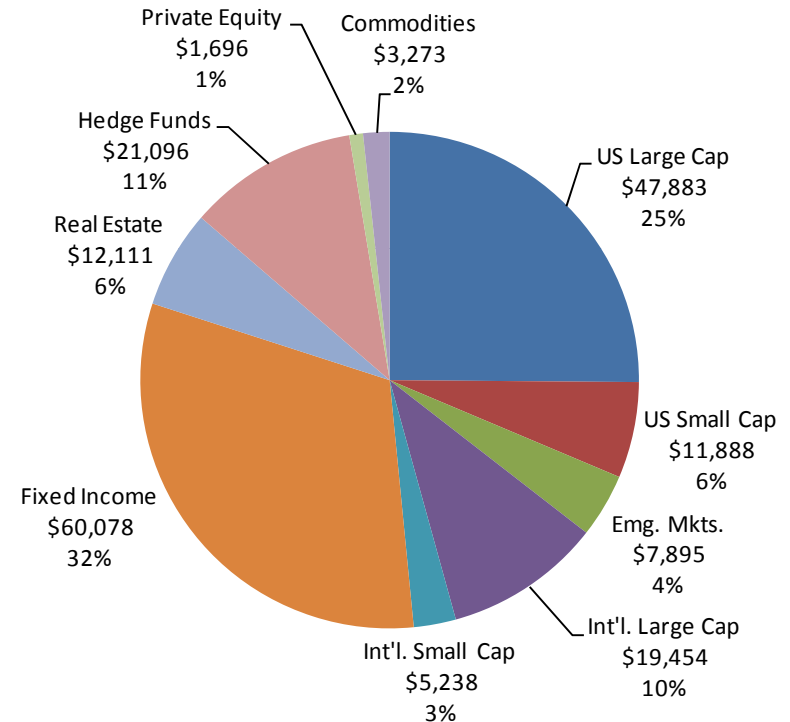
Asset Values & Allocations

12/31/07 Allocation



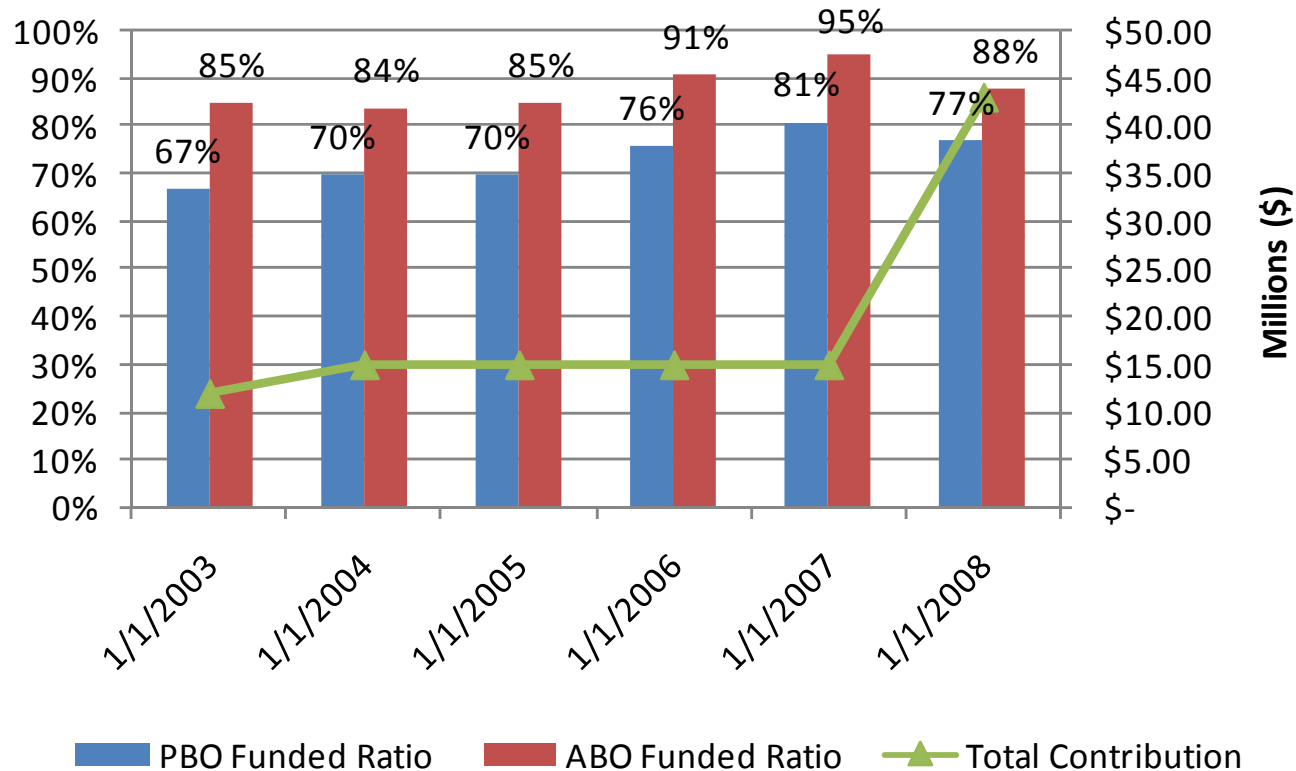
Market Value (\$000's):
\$242,553

12/31/08 Allocation



Market Value (\$000's):
\$190,612

Historical Funded Status

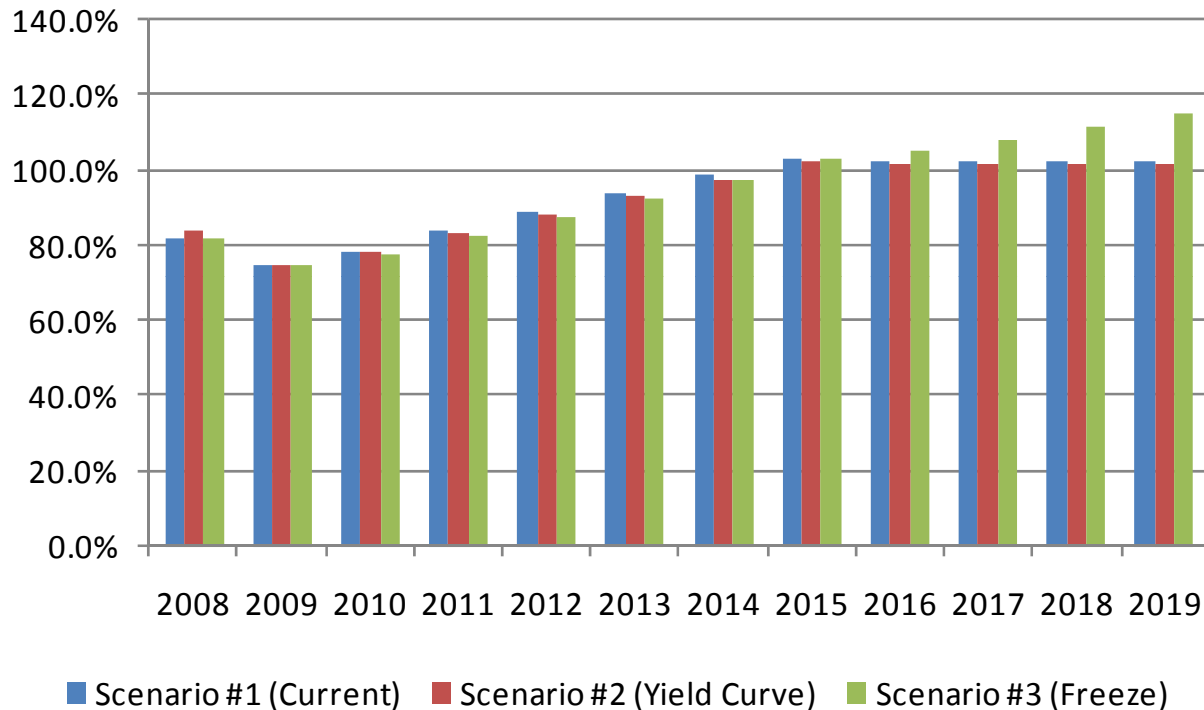


III. Deterministic Projection



Deterministic Projection

Funded Ratio (AFTAP)



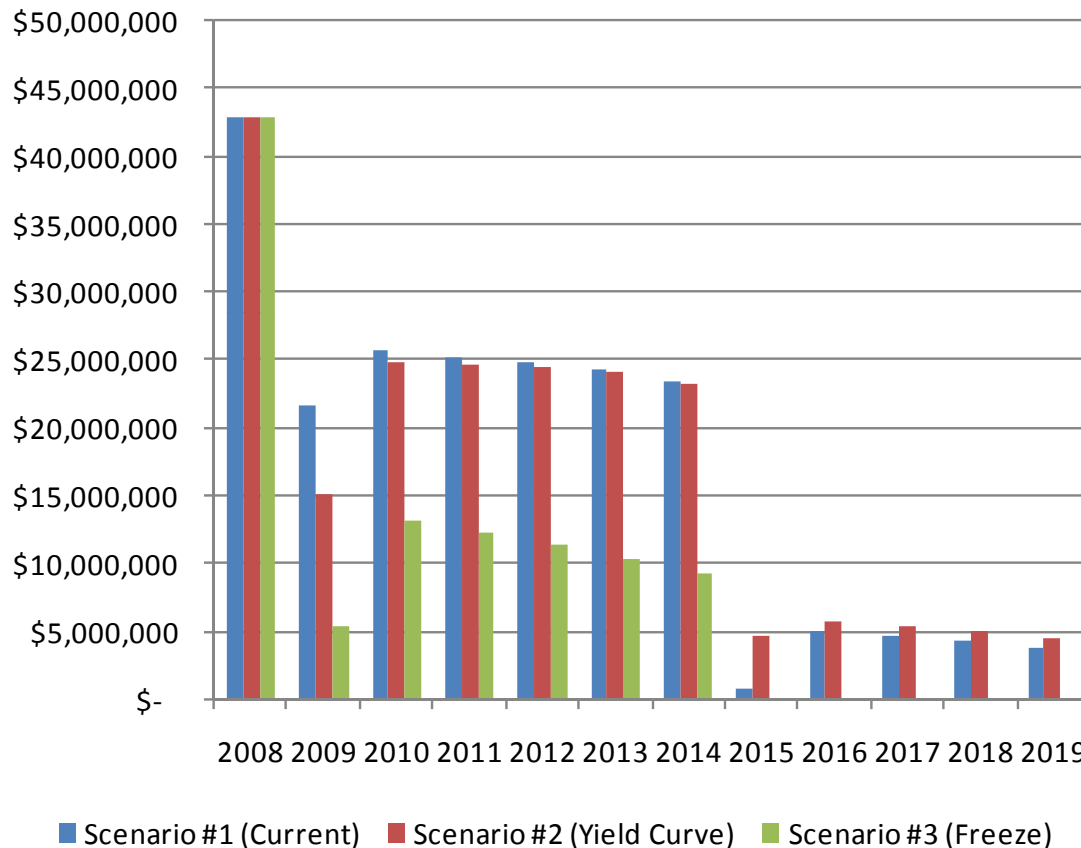
In this scenario:

- Assuming the 8.5% expected return is achieved every year, AFTAP steadily rises after the effects of the 2008 market environment.
- AFTAP is modestly higher in Scenario #1 than Scenario #2.

In the deterministic case, we assume we know what will happen in the future. We assume the actuary's 8.5% expected return and 3.0% inflation.

Deterministic Projection

Employer Contributions



In this scenario:

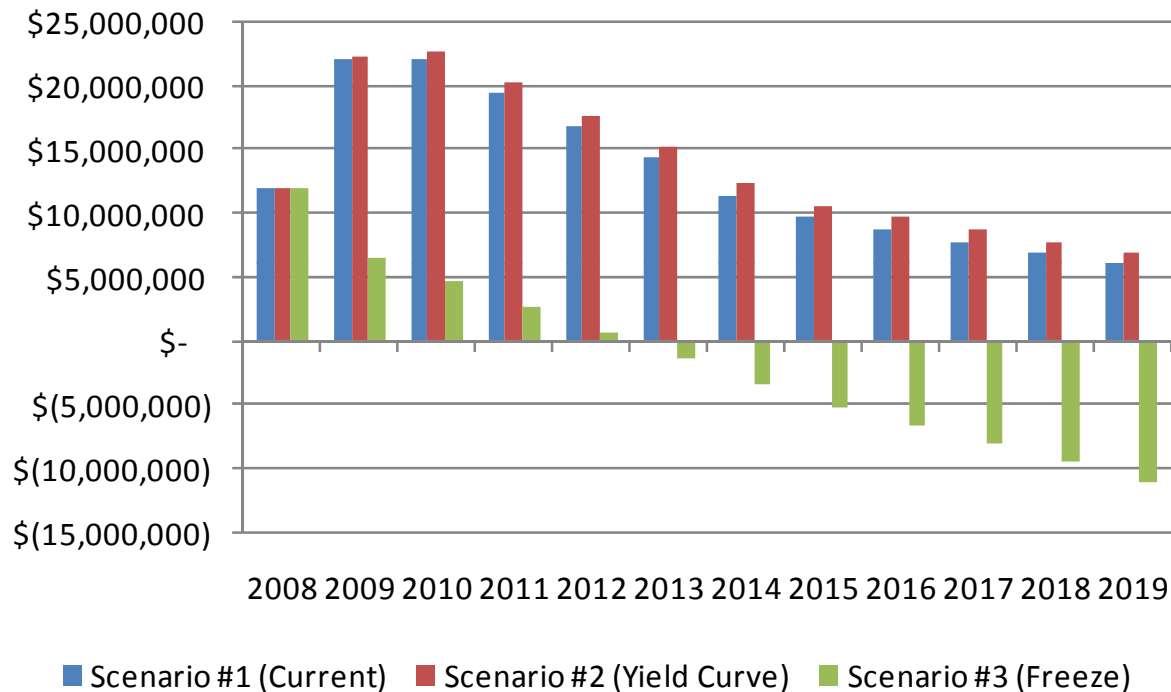
- Contributions for Scenario #1 and Scenario #2 are about double that of Scenario #3 from 2010-2014.
- The benefit of switching to the full yield curve discount rate is high in 2009, but diminishes rapidly as the higher volatility of this discount rate methodology is incorporated.
- Contributions for 2009 will be lower under the December Recovery Act.

In the deterministic case, we assume we know what will happen in the future. We assume the actuary's 8.5% expected return and 3.0% inflation.



Deterministic Projection

Net Periodic Cost



In this scenario:

- Net Periodic Cost starts to fall in 2011 in both Scenario #1 and Scenario #2 as the return on assets more than pays for the benefits accrued each year.
- Net Periodic Cost is slightly higher in Scenario #2.
- If we freeze the plan in 2009, Contributions (following '08 and '09 planned contributions) are expected to cease in 2013.

In the deterministic case, we assume we know what will happen in the future. We assume the actuary's 8.5% expected return and 3.0% inflation.



IV. Efficient Portfolio Mixes



Asset Class Selection

<u>Asset Class</u>	<u>Return Enhancement</u>	<u>Risk* Reduction</u>
Large Cap U.S. Equity	●	○
Small / Mid Cap U.S. Equity	●	○
International Large Equity	●	◐
International Small Equity	●	○
Emerging Markets	●	○
U.S. Core Plus Fixed Income	○	●
High Yield Fixed Income	●	○
TIPs	○	◐
Real Estate	◐	●
Liquid Alternatives / Hedge Funds	◐	●
Private Equity / Venture Capital	●	○
Commodities	◐	◐

- High Impact
- ◐ Moderate Impact
- Low Impact

Efficient Frontier Constraints

Constraint	Minimum	Maximum
Total Int'l. Equity Allocation of Total Equity Allocation	0%	25%
Emerging Markets of Total Int'l. Allocation	0%	20%
Int'l. Small of Total Int'l. Allocation	0%	20%
Small Cap U.S. of Total Domestic Allocation	10%	20%
TIPS of Total Fixed Income	0%	15%
High Yield of Total Fixed Income	0%	15%
Real Estate of Total Plan Allocation	0%	5%
Liquid Alts/Hedge Funds of Total Plan Allocation	0%	10%
Private Equity/Venture Capital of Total Plan Allocation	0%	1%
Commodities of Total Plan Allocation	0%	2%

- Constraints are placed upon the Mean-Variance model in order to create asset mixes that are acceptable from a qualitative perspective



Summary of Expectations

Asset Class	Index Proxy	2008 Ten Year Forecast	2009 Ten Year Return Forecast	2009 Ten Year Standard Deviation Forecast	Change in Return Expectations '08-'09
<u>Equities</u>					
US Large	S&P 500	8.20	9.25	16.0	1.05
US Small	Russell 2000	8.50	8.25	22.0	-0.25
International Developed	MSCI EAFE	8.70	9.50	19.0	0.80
International Small	MSCI EAFE Small Cap	8.90	9.00	23.0	0.10
Emerging Markets	MSCI EMF	9.50	10.50	28.0	1.00
Private Equity	Cambridge Private Equity	11.75	12.25	22.0	0.50
<u>Fixed Income</u>					
Cash	30 Day T-Bills	4.00	3.00	1.0	-1.00
US TIPS	Barclays US TIPS Index	4.80	5.00	8.0	0.20
Agency Mortgages	Barclays US Agency Index	-	2.25	5.0	-
Core Fixed Income	Barclays US Aggregate Bond	5.00	3.90	6.0	-1.10
Investment Grade Corp. Credit	Barclays Corporate Credit	-	6.60	7.0	-
High Yield Corp. Credit	Barclays High Yield	6.5	12.00	10.0	5.50
<u>Other</u>					
Commodities	Dow Jones AIG	6.50	7.00	17.0	0.50
Hedge Funds	HFR Fund of Funds	7.50	7.25	10.0	-0.25
Core Real Estate/REITs	NCREIF Real Estate	6.5/6.75	6.1/6.35	9.0/17.0	-0.40
<u>Inflation</u>					
	US Consumer Price Index	2.70	3.00	1.0	0.30

¹ Historic standard deviations are based on historic annual return standard deviations over the last 20 years.

Further detail on Wurts' Capital Market Assumptions can be provided upon request.

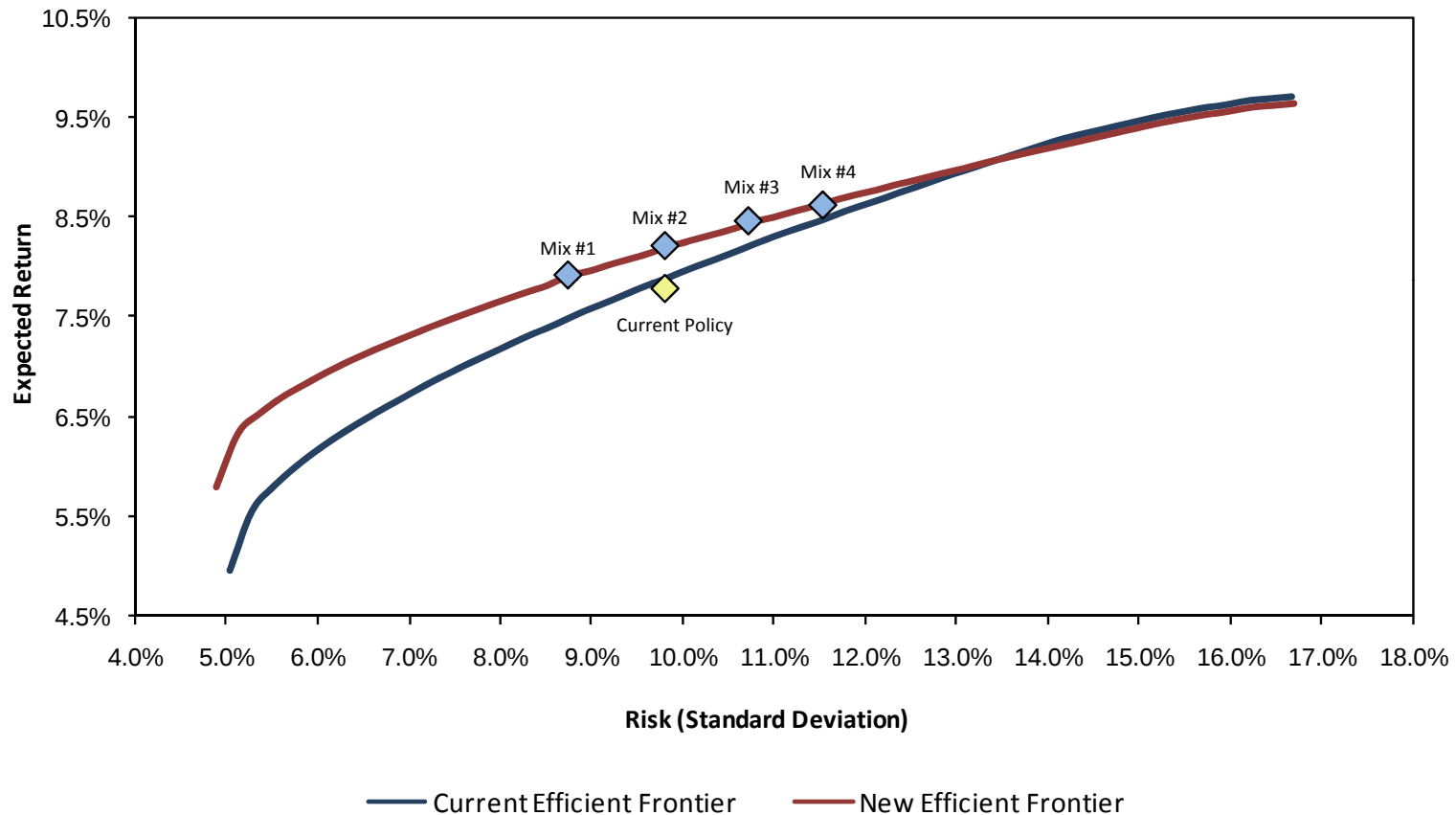


Efficient Portfolio Mixes

	Current	Mix 1	Mix 2	Mix 3	Mix 4
Large Cap US Equity	24.0	28.0	31.0	35.0	36.0
Small/Mid Cap US Equity	6.0	3.0	4.0	4.0	5.0
International Large Equity	12.0	10.0	12.0	13.0	14.0
International Small Equity	4.0	0.0	0.0	2.0	4.0
Emerging Markets	4.0	3.0	4.0	4.0	4.0
US Core Fixed Income	30.0	26.0	21.0	18.0	15.0
High Yield Fixed Income	0.0	6.0	5.0	4.0	3.0
TIPS	0.0	6.0	5.0	4.0	3.0
Real Estate	5.0	5.0	5.0	5.0	5.0
Liquid Alt./ Hedge Funds	12.0	10.0	10.0	8.0	8.0
Private Equity/Venture Capital	1.0	1.0	1.0	1.0	1.0
Commodities	2.0	2.0	2.0	2.0	2.0
Expected Return	7.79%	7.92%	8.23%	8.44%	8.61%
Standard Deviation	9.81%	8.75%	9.81%	10.72%	11.52%



Efficient Frontier - Asset Only Space



V. *Stochastic Projections*

In the stochastic case, we make assumptions about input parameters and vary them projecting many scenarios (2,000) then summarize the results by looking at the distribution (percentiles) of the results.



Scenario #1 - Current Scenario:

Funded Ratio (AFTAP)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current Mix											
5th - Worst Case	92.2	75.8	57.7	60.1	63.3	67.1	68.4	71.4	72.9	73.7	74.8
25th - Pessimistic	92.2	75.8	67.8	72.1	77.1	80.9	83.7	86.1	88.1	89.9	90.7
50th - Most Probable	92.2	75.8	75.9	81.9	87.1	91.4	95.0	97.8	100.2	101.6	104.4
75th - Optimistic	92.2	75.8	83.9	91.9	98.2	103.3	107.4	111.1	113.8	116.8	119.1
95th - Best Case	92.2	75.8	96.9	107.6	115.6	121.5	126.1	132.9	139.6	143.9	151.2
Mix #1											
5th - Worst Case	92.2	75.8	58.5	61.1	64.7	68.9	70.4	73.3	75.5	76.2	77.5
25th - Pessimistic	92.2	75.8	68.1	72.7	78.0	81.9	84.7	87.2	89.7	91.3	92.0
50th - Most Probable	92.2	75.8	75.9	81.6	87.3	91.7	95.2	98.4	100.4	102.3	104.5
75th - Optimistic	92.2	75.8	83.7	91.4	97.7	102.9	106.8	110.8	113.1	115.9	118.1
95th - Best Case	92.2	75.8	95.5	105.9	114.2	119.3	124.1	130.5	136.2	139.7	147.0
Mix #2											
5th - Worst Case	92.2	75.8	57.9	60.6	63.6	67.5	69.4	72.0	74.1	74.6	75.9
25th - Pessimistic	92.2	75.8	68.1	72.5	77.8	81.7	84.6	87.1	89.5	91.4	92.4
50th - Most Probable	92.2	75.8	76.2	82.4	88.0	92.5	96.2	99.3	101.7	103.5	106.2
75th - Optimistic	92.2	75.8	84.3	93.0	99.3	104.6	109.1	112.8	115.9	119.3	121.8
95th - Best Case	92.2	75.8	97.2	108.6	117.4	123.1	128.7	136.4	142.8	148.6	156.1
Mix #3											
5th - Worst Case	92.2	75.8	57.3	59.9	62.8	66.3	68.3	71.1	73.1	73.7	74.8
25th - Pessimistic	92.2	75.8	68.0	72.3	77.7	81.5	84.1	86.9	89.6	91.7	92.6
50th - Most Probable	92.2	75.8	76.4	83.0	88.6	93.1	96.9	99.8	102.8	104.6	107.7
75th - Optimistic	92.2	75.8	85.0	94.0	100.6	106.1	110.6	114.6	118.4	122.2	125.6
95th - Best Case	92.2	75.8	98.3	110.6	119.7	127.2	132.9	141.5	149.2	155.9	163.8
Mix #4											
5th - Worst Case	92.2	75.8	56.7	59.2	62.0	65.7	67.3	70.4	71.9	73.0	74.3
25th - Pessimistic	92.2	75.8	68.0	72.2	77.6	81.3	83.8	86.9	89.3	91.7	92.5
50th - Most Probable	92.2	75.8	76.6	83.5	88.9	93.5	97.5	100.5	103.3	105.8	108.9
75th - Optimistic	92.2	75.8	85.8	94.9	101.8	107.5	112.5	116.2	120.3	124.6	128.6
95th - Best Case	92.2	75.8	99.6	112.7	121.9	129.7	136.3	145.8	154.0	160.9	170.7



Scenario #1 - Current Scenario:

Employer Contributions (\$MM)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current Mix											
5th - Worst Case	43.0	21.7	45.7	53.2	57.3	62.3	65.7	64.7	55.6	53.8	50.8
25th - Pessimistic	43.0	21.7	34.8	36.6	38.2	39.3	39.0	37.2	29.2	27.0	26.7
50th - Most Probable	43.0	21.7	27.4	27.2	26.0	24.9	21.4	16.4	10.6	7.9	0.0
75th - Optimistic	43.0	21.7	20.7	17.7	14.4	0.0	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	21.7	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mix #1											
5th - Worst Case	43.0	21.7	45.4	52.6	56.5	62.1	64.2	63.8	53.0	51.4	48.4
25th - Pessimistic	43.0	21.7	34.7	36.7	38.3	38.9	38.0	36.3	27.4	25.6	25.1
50th - Most Probable	43.0	21.7	27.4	27.1	26.1	24.9	20.6	15.5	10.1	3.5	0.0
75th - Optimistic	43.0	21.7	21.0	18.0	15.0	0.6	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	21.7	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mix #2											
5th - Worst Case	43.0	21.7	45.5	53.0	57.0	62.3	65.0	64.2	54.7	52.2	48.9
25th - Pessimistic	43.0	21.7	34.6	36.5	37.9	38.6	38.0	35.5	27.6	25.4	24.3
50th - Most Probable	43.0	21.7	27.2	26.7	25.4	23.9	19.1	14.4	6.5	0.0	0.0
75th - Optimistic	43.0	21.7	20.6	17.2	12.6	0.0	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	21.7	11.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mix #3											
5th - Worst Case	43.0	21.7	45.9	53.4	57.5	62.9	66.3	65.2	55.9	54.0	50.3
25th - Pessimistic	43.0	21.7	34.6	36.3	37.8	38.6	37.9	35.4	28.1	25.4	24.2
50th - Most Probable	43.0	21.7	27.1	26.4	25.0	22.9	18.1	13.4	2.1	0.0	0.0
75th - Optimistic	43.0	21.7	20.3	16.7	9.2	0.0	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	21.7	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mix #4											
5th - Worst Case	43.0	21.7	46.0	53.8	57.7	63.2	66.6	65.9	56.6	56.1	51.6
25th - Pessimistic	43.0	21.7	34.5	36.3	37.7	38.5	37.8	35.1	28.2	25.4	24.3
50th - Most Probable	43.0	21.7	27.0	25.9	24.6	22.1	16.7	11.2	0.3	0.0	0.0
75th - Optimistic	43.0	21.7	19.9	16.0	6.2	0.0	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	21.7	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Scenario #1 - Current Scenario:

Net Periodic Cost (\$MM)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current Mix											
5th - Worst Case	12.0	22.1	32.1	31.8	30.5	29.5	28.2	26.8	26.6	26.5	25.6
25th - Pessimistic	12.0	22.1	26.3	24.4	22.0	20.6	19.0	17.4	16.6	15.4	14.7
50th - Most Probable	12.0	22.1	22.3	19.2	16.7	14.5	12.6	10.9	9.7	8.3	6.5
75th - Optimistic	12.0	22.1	18.7	14.6	11.6	9.1	6.3	4.5	2.2	0.4	-1.8
95th - Best Case	12.0	22.1	13.8	8.7	4.8	1.0	-1.4	-4.4	-8.5	-11.7	-16.2
Mix #1											
5th - Worst Case	12.0	22.1	31.7	31.1	29.6	28.4	27.0	25.6	24.8	24.8	23.9
25th - Pessimistic	12.0	22.1	26.1	24.2	21.8	20.0	18.3	16.4	15.6	14.2	13.7
50th - Most Probable	12.0	22.1	22.4	19.2	16.5	14.4	12.4	10.7	9.3	8.1	6.1
75th - Optimistic	12.0	22.1	18.9	14.9	12.0	9.5	6.8	4.7	2.6	1.0	-1.4
95th - Best Case	12.0	22.1	14.2	9.4	5.8	2.3	-0.2	-3.3	-7.0	-10.0	-13.8
Mix #2											
5th - Worst Case	12.0	22.1	32.0	31.6	30.3	29.2	27.9	26.3	25.7	25.5	24.9
25th - Pessimistic	12.0	22.1	26.2	24.1	21.7	20.1	18.4	16.4	15.5	14.1	13.6
50th - Most Probable	12.0	22.1	22.2	18.9	16.2	14.0	11.8	10.0	8.5	7.0	4.9
75th - Optimistic	12.0	22.1	18.5	14.2	11.0	8.4	5.4	3.2	0.8	-1.2	-3.4
95th - Best Case	12.0	22.1	13.6	8.2	4.3	0.5	-2.2	-5.5	-9.7	-13.0	-17.9
Mix #3											
5th - Worst Case	12.0	22.1	32.4	32.0	30.9	29.8	28.7	26.9	26.7	26.5	25.5
25th - Pessimistic	12.0	22.1	26.2	24.3	21.7	20.2	18.5	16.5	15.7	14.1	13.4
50th - Most Probable	12.0	22.1	22.1	18.7	15.8	13.5	11.4	9.5	7.7	6.2	4.1
75th - Optimistic	12.0	22.1	18.2	13.7	10.3	7.5	4.3	2.1	-0.7	-2.9	-5.3
95th - Best Case	12.0	22.1	13.1	7.2	2.8	-1.0	-3.7	-7.3	-12.2	-15.8	-21.0
Mix #4											
5th - Worst Case	12.0	22.1	32.7	32.4	31.4	30.3	29.3	27.6	27.4	27.0	26.4
25th - Pessimistic	12.0	22.1	26.2	24.4	21.7	20.2	18.6	16.8	15.8	14.1	13.3
50th - Most Probable	12.0	22.1	21.9	18.5	15.6	13.2	11.2	9.1	7.4	5.7	3.2
75th - Optimistic	12.0	22.1	18.0	13.2	9.7	6.7	3.3	1.0	-1.8	-4.3	-6.8
95th - Best Case	12.0	22.1	12.8	6.3	1.7	-2.1	-5.2	-9.2	-14.7	-18.1	-25.4



Scenario #1 - Current Scenario:

Present Value of Contributions (\$MM)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current Mix											
5th - Worst Case	79.6	99.0	136.7	174.1	212.4	251.1	283.1	310.9	329.6	341.6	352.2
25th - Pessimistic	79.6	99.0	127.7	154.7	181.3	204.0	223.0	241.2	251.0	258.3	266.5
50th - Most Probable	79.6	99.0	121.6	142.7	160.6	174.6	186.7	198.1	205.4	212.2	217.2
75th - Optimistic	79.6	99.0	116.1	129.8	139.6	146.9	154.1	160.9	166.7	171.4	176.6
95th - Best Case	79.6	99.0	108.8	111.9	115.8	119.3	123.1	126.7	129.5	133.5	136.8
Mix #1											
5th - Worst Case	79.6	99.0	136.4	173.5	211.5	250.0	281.9	307.1	324.2	336.7	347.9
25th - Pessimistic	79.6	99.0	127.6	154.7	180.7	204.0	222.7	238.7	248.6	257.2	264.4
50th - Most Probable	79.6	99.0	121.6	142.8	160.6	174.9	186.2	197.4	204.8	210.9	216.3
75th - Optimistic	79.6	99.0	116.3	130.2	140.3	147.6	153.5	160.7	166.2	171.6	175.6
95th - Best Case	79.6	99.0	109.3	112.9	116.9	120.7	124.6	127.0	129.5	133.5	137.1
Mix #2											
5th - Worst Case	79.6	99.0	136.5	174.0	212.2	252.2	282.2	309.3	325.2	336.9	348.8
25th - Pessimistic	79.6	99.0	127.6	154.5	180.6	202.7	221.3	238.1	247.0	255.0	263.3
50th - Most Probable	79.6	99.0	121.4	142.2	159.6	172.7	183.9	194.2	201.5	207.6	212.2
75th - Optimistic	79.6	99.0	116.0	128.9	138.1	144.5	151.3	157.0	162.3	167.1	170.7
95th - Best Case	79.6	99.0	108.7	111.4	115.0	117.3	120.8	123.5	126.1	129.5	131.8
Mix #3											
5th - Worst Case	79.6	99.0	136.8	174.6	213.0	252.9	282.8	311.1	327.7	338.9	352.7
25th - Pessimistic	79.6	99.0	127.6	154.4	180.4	202.2	220.6	236.9	246.7	254.4	262.7
50th - Most Probable	79.6	99.0	121.4	141.7	158.6	171.1	182.1	191.8	199.0	205.6	210.0
75th - Optimistic	79.6	99.0	115.7	127.9	136.0	142.2	148.9	153.8	159.2	164.0	167.5
95th - Best Case	79.6	99.0	108.1	110.5	113.6	116.1	118.7	120.8	122.3	125.9	128.5
Mix #4											
5th - Worst Case	79.6	99.0	137.0	175.2	213.5	253.1	284.2	310.2	328.3	339.3	353.7
25th - Pessimistic	79.6	99.0	127.5	154.5	179.5	202.1	219.6	235.7	244.8	252.4	259.9
50th - Most Probable	79.6	99.0	121.3	141.3	157.6	169.9	180.3	190.0	197.2	203.8	207.8
75th - Optimistic	79.6	99.0	115.4	127.0	134.3	140.9	147.5	152.5	157.6	162.4	165.8
95th - Best Case	79.6	99.0	107.2	109.9	112.8	114.6	117.3	119.4	121.1	123.7	125.9



Scenario #2 - Yield Curve Scenario: Funded Ratio (AFTAP)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current Mix											
5th - Worst Case	92.2	77.7	57.8	60.0	63.0	66.8	68.1	71.2	72.5	73.5	74.4
25th - Pessimistic	92.2	77.7	67.7	71.8	76.5	80.5	83.2	85.6	87.5	89.3	90.0
50th - Most Probable	92.2	77.7	75.7	81.5	86.3	90.6	94.2	97.0	99.6	100.7	103.5
75th - Optimistic	92.2	77.7	83.6	91.3	97.5	102.3	106.1	110.1	112.8	115.5	117.6
95th - Best Case	92.2	77.7	96.3	106.7	114.3	120.3	125.0	131.2	137.7	141.6	148.5
Mix #1											
5th - Worst Case	92.2	77.7	58.6	61.1	64.5	68.4	70.0	72.9	75.1	75.9	76.9
25th - Pessimistic	92.2	77.7	68.1	72.4	77.4	81.3	84.1	86.7	89.0	90.7	91.2
50th - Most Probable	92.2	77.7	75.7	81.3	86.7	91.1	94.5	97.7	99.7	101.4	103.6
75th - Optimistic	92.2	77.7	83.4	90.9	97.0	101.9	105.8	109.6	112.0	114.4	116.7
95th - Best Case	92.2	77.7	95.1	104.9	113.0	118.3	123.0	128.7	134.1	137.5	144.2
Mix #2											
5th - Worst Case	92.2	77.7	57.9	60.4	63.3	67.2	69.1	71.6	73.5	74.4	75.6
25th - Pessimistic	92.2	77.7	68.0	72.2	77.3	81.2	84.0	86.6	88.9	90.8	91.6
50th - Most Probable	92.2	77.7	76.0	82.1	87.3	91.7	95.4	98.5	100.9	102.5	105.3
75th - Optimistic	92.2	77.7	84.1	92.6	98.6	103.8	107.9	111.5	114.8	117.9	120.3
95th - Best Case	92.2	77.7	96.8	107.7	116.3	121.8	127.5	134.4	140.7	145.4	153.0
Mix #3											
5th - Worst Case	92.2	77.7	57.3	59.7	62.5	66.0	68.1	70.7	72.6	73.2	74.5
25th - Pessimistic	92.2	77.7	68.0	72.0	77.1	80.8	83.6	86.5	89.0	91.0	91.9
50th - Most Probable	92.2	77.7	76.2	82.6	87.9	92.5	96.0	99.2	102.0	103.6	106.8
75th - Optimistic	92.2	77.7	84.8	93.4	99.7	105.2	109.7	113.5	117.2	120.6	123.7
95th - Best Case	92.2	77.7	97.8	109.9	118.7	125.8	130.9	139.6	146.6	153.3	160.9
Mix #4											
5th - Worst Case	92.2	77.7	56.8	59.2	62.0	65.3	67.1	69.8	71.7	72.4	73.5
25th - Pessimistic	92.2	77.7	67.9	72.0	77.1	80.8	83.3	86.4	88.7	90.9	91.9
50th - Most Probable	92.2	77.7	76.5	82.9	88.3	92.9	96.6	99.8	102.6	104.7	107.8
75th - Optimistic	92.2	77.7	85.4	94.3	100.9	106.5	111.3	115.3	119.1	123.0	126.7
95th - Best Case	92.2	77.7	99.3	111.9	120.7	128.4	134.2	143.7	151.9	158.0	167.0



Scenario #2 - Yield Curve Scenario: Employer Contributions (\$MM)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current Mix											
5th - Worst Case	43.0	15.2	43.7	51.2	55.4	60.7	64.4	63.1	54.6	52.5	49.9
25th - Pessimistic	43.0	15.2	33.4	35.4	37.3	38.6	38.5	37.1	28.8	27.0	26.6
50th - Most Probable	43.0	15.2	26.4	26.6	25.8	24.9	21.9	17.7	11.7	9.7	0.0
75th - Optimistic	43.0	15.2	20.2	17.4	15.1	2.2	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	15.2	11.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mix #1											
5th - Worst Case	43.0	15.2	43.5	50.5	54.6	60.4	62.5	62.0	51.6	50.0	47.0
25th - Pessimistic	43.0	15.2	33.2	35.6	37.3	38.2	37.5	36.2	27.0	25.4	25.0
50th - Most Probable	43.0	15.2	26.5	26.5	25.8	24.8	21.4	16.2	10.8	7.1	0.0
75th - Optimistic	43.0	15.2	20.4	17.8	15.2	3.4	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	15.2	12.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mix #2											
5th - Worst Case	43.0	15.2	43.5	50.9	55.1	60.6	63.6	62.7	53.5	51.0	48.4
25th - Pessimistic	43.0	15.2	33.3	35.4	36.9	38.0	37.3	35.2	27.3	25.5	24.4
50th - Most Probable	43.0	15.2	26.2	26.1	25.0	23.7	19.8	15.2	8.3	3.3	0.0
75th - Optimistic	43.0	15.2	20.0	17.0	13.7	0.0	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	15.2	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mix #3											
5th - Worst Case	43.0	15.2	43.9	51.4	55.6	61.1	64.4	63.8	54.6	52.0	49.2
25th - Pessimistic	43.0	15.2	33.3	35.3	36.8	37.8	37.2	35.4	28.0	25.2	24.3
50th - Most Probable	43.0	15.2	26.2	25.8	24.7	23.0	18.4	14.2	5.3	0.0	0.0
75th - Optimistic	43.0	15.2	19.6	16.4	11.0	0.0	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	15.2	10.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mix #4											
5th - Worst Case	43.0	15.2	44.1	51.8	55.8	61.2	64.8	64.5	55.5	53.8	50.8
25th - Pessimistic	43.0	15.2	33.2	35.2	36.8	37.8	37.3	35.0	27.8	25.3	24.4
50th - Most Probable	43.0	15.2	26.1	25.3	24.3	22.2	18.0	13.0	3.1	0.0	0.0
75th - Optimistic	43.0	15.2	19.3	15.9	8.6	0.0	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	15.2	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Scenario #2 - Yield Curve Scenario:

Net Periodic Cost (\$MM)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current Mix											
5th - Worst Case	12.0	22.4	32.6	32.6	31.2	30.2	29.2	27.8	27.3	27.4	26.4
25th - Pessimistic	12.0	22.4	26.9	25.1	22.7	21.4	19.8	18.2	17.3	16.2	15.7
50th - Most Probable	12.0	22.4	22.9	20.0	17.5	15.4	13.5	11.8	10.5	9.5	7.6
75th - Optimistic	12.0	22.4	19.3	15.3	12.4	10.0	7.4	5.6	3.3	1.8	-0.3
95th - Best Case	12.0	22.4	14.4	9.4	5.9	2.3	0.0	-3.0	-6.7	-9.9	-14.1
Mix #1											
5th - Worst Case	12.0	22.4	32.3	31.9	30.5	29.1	27.9	26.6	25.7	25.7	25.1
25th - Pessimistic	12.0	22.4	26.7	24.9	22.6	20.8	19.2	17.2	16.4	15.1	14.6
50th - Most Probable	12.0	22.4	23.0	19.9	17.3	15.3	13.2	11.8	10.3	9.1	7.3
75th - Optimistic	12.0	22.4	19.5	15.6	12.7	10.4	7.7	5.9	3.9	2.4	0.1
95th - Best Case	12.0	22.4	14.8	10.1	6.7	3.4	1.0	-1.8	-5.4	-8.2	-11.7
Mix #2											
5th - Worst Case	12.0	22.4	32.6	32.4	31.1	30.0	28.7	27.2	26.3	26.5	26.1
25th - Pessimistic	12.0	22.4	26.8	24.9	22.5	20.9	19.3	17.3	16.5	15.0	14.4
50th - Most Probable	12.0	22.4	22.8	19.6	17.0	14.9	12.7	11.1	9.4	8.2	6.2
75th - Optimistic	12.0	22.4	19.1	15.0	11.8	9.4	6.5	4.4	2.1	0.3	-1.8
95th - Best Case	12.0	22.4	14.2	9.0	5.3	1.7	-1.0	-4.1	-8.0	-11.0	-15.5
Mix #3											
5th - Worst Case	12.0	22.4	33.0	32.8	31.7	30.5	29.3	28.0	27.5	27.4	26.5
25th - Pessimistic	12.0	22.4	26.8	25.0	22.5	21.1	19.4	17.4	16.6	15.1	14.3
50th - Most Probable	12.0	22.4	22.7	19.4	16.7	14.4	12.2	10.6	8.8	7.5	5.3
75th - Optimistic	12.0	22.4	18.8	14.4	11.2	8.5	5.4	3.3	0.8	-1.2	-3.7
95th - Best Case	12.0	22.4	13.7	7.9	3.8	0.2	-2.4	-6.0	-10.4	-13.7	-19.0
Mix #4											
5th - Worst Case	12.0	22.4	33.2	33.1	32.1	31.0	30.0	28.3	28.0	27.9	27.0
25th - Pessimistic	12.0	22.4	26.9	25.1	22.5	21.1	19.5	17.7	16.8	14.9	14.3
50th - Most Probable	12.0	22.4	22.6	19.2	16.5	14.1	12.0	10.1	8.4	6.8	4.7
75th - Optimistic	12.0	22.4	18.6	14.0	10.6	7.8	4.6	2.3	-0.4	-2.6	-5.3
95th - Best Case	12.0	22.4	13.4	7.1	2.6	-1.0	-3.7	-7.7	-13.0	-16.1	-22.7



Scenario #2 - Yield Curve Scenario:

Present Value of Contributions

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current Mix											
5th - Worst Case	79.6	93.2	129.3	165.4	202.3	240.5	272.3	299.1	317.5	330.3	341.4
25th - Pessimistic	79.6	93.2	120.8	146.9	173.1	195.5	214.7	232.8	242.8	250.5	258.8
50th - Most Probable	79.6	93.2	115.0	135.6	153.5	167.5	180.2	191.2	198.4	205.4	210.9
75th - Optimistic	79.6	93.2	109.8	123.3	133.3	140.4	148.1	155.0	160.6	165.7	170.8
95th - Best Case	79.6	93.2	102.9	106.2	110.3	113.9	117.8	121.1	123.5	127.8	130.7
Mix #1											
5th - Worst Case	79.6	93.2	129.1	164.7	201.4	239.4	270.9	296.0	312.7	325.5	336.1
25th - Pessimistic	79.6	93.2	120.6	146.9	172.2	195.4	214.3	230.1	240.9	248.6	256.1
50th - Most Probable	79.6	93.2	115.1	135.8	153.5	167.6	179.3	190.7	197.4	203.6	209.6
75th - Optimistic	79.6	93.2	110.0	123.7	134.0	141.8	148.4	155.2	160.6	165.1	170.1
95th - Best Case	79.6	93.2	103.4	107.2	111.4	114.8	119.3	121.7	124.1	128.5	132.1
Mix #2											
5th - Worst Case	79.6	93.2	129.1	165.3	202.2	240.7	270.9	298.0	314.8	324.0	337.6
25th - Pessimistic	79.6	93.2	120.7	146.8	172.2	194.4	213.1	229.4	239.1	246.3	254.5
50th - Most Probable	79.6	93.2	114.8	135.1	152.3	165.8	176.5	187.8	194.3	200.8	205.5
75th - Optimistic	79.6	93.2	109.7	122.5	131.9	138.7	145.0	151.2	156.8	161.6	164.9
95th - Best Case	79.6	93.2	102.8	105.5	109.0	112.0	115.4	118.4	121.1	124.3	126.9
Mix #3											
5th - Worst Case	79.6	93.2	129.4	165.9	202.9	242.2	272.5	298.9	315.9	327.6	340.2
25th - Pessimistic	79.6	93.2	120.7	146.8	172.2	194.0	212.5	229.3	238.4	245.7	254.1
50th - Most Probable	79.6	93.2	114.8	134.6	151.3	164.3	175.2	185.5	192.3	198.6	202.6
75th - Optimistic	79.6	93.2	109.4	121.7	129.9	136.3	142.9	148.8	153.7	158.8	161.6
95th - Best Case	79.6	93.2	102.2	104.7	107.6	110.2	113.3	115.3	117.2	121.0	123.2
Mix #4											
5th - Worst Case	79.6	93.2	129.6	166.2	203.5	242.4	273.4	299.5	317.6	329.7	342.1
25th - Pessimistic	79.6	93.2	120.6	146.6	171.4	193.6	211.3	227.5	237.8	244.6	252.1
50th - Most Probable	79.6	93.2	114.7	134.3	150.4	162.7	173.3	182.9	190.5	196.5	201.0
75th - Optimistic	79.6	93.2	109.1	120.8	128.2	134.9	141.4	147.0	151.3	156.5	160.0
95th - Best Case	79.6	93.2	101.4	103.8	107.0	109.0	111.7	113.7	115.0	118.4	120.7



Scenario #3 - Freeze Plan Scenario:

Funded Ratio (AFTAP)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current Mix											
5th - Worst Case	92.2	77.4	57.4	59.0	61.4	65.5	68.2	72.0	74.9	75.9	77.3
25th - Pessimistic	92.2	77.4	67.3	70.8	75.2	79.6	82.8	86.7	90.5	93.1	94.8
50th - Most Probable	92.2	77.4	75.1	80.5	85.3	90.0	94.4	98.9	103.4	106.7	110.7
75th - Optimistic	92.2	77.4	82.9	90.5	96.7	102.1	107.7	113.0	118.6	124.0	130.5
95th - Best Case	92.2	77.4	95.6	105.6	114.2	121.5	129.1	138.4	147.6	153.3	166.9
Mix #1											
5th - Worst Case	92.2	77.4	58.3	60.1	63.2	67.1	70.1	74.1	77.5	78.4	79.3
25th - Pessimistic	92.2	77.4	67.6	71.3	75.8	80.2	83.9	88.1	91.8	95.0	96.6
50th - Most Probable	92.2	77.4	75.2	80.3	85.4	90.3	94.8	99.1	104.1	107.7	111.5
75th - Optimistic	92.2	77.4	82.7	89.9	95.8	101.7	106.9	112.4	117.8	122.7	129.0
95th - Best Case	92.2	77.4	94.4	103.9	112.3	119.2	126.8	135.3	144.1	150.7	163.8
Mix #2											
5th - Worst Case	92.2	77.4	57.4	59.3	62.0	65.9	68.9	72.7	75.9	77.1	78.5
25th - Pessimistic	92.2	77.4	67.6	71.1	75.7	80.4	83.6	87.8	91.9	95.2	97.5
50th - Most Probable	92.2	77.4	75.3	81.1	86.4	91.1	96.1	100.4	105.3	109.4	113.9
75th - Optimistic	92.2	77.4	83.4	91.4	97.8	103.7	109.7	115.6	121.4	127.2	134.5
95th - Best Case	92.2	77.4	96.0	106.5	116.0	124.2	132.3	142.5	153.4	159.8	174.8
Mix #3											
5th - Worst Case	92.2	77.4	56.8	58.4	61.1	64.9	67.6	71.6	75.0	76.3	77.7
25th - Pessimistic	92.2	77.4	67.5	71.0	75.5	80.2	83.3	87.5	91.7	95.4	97.9
50th - Most Probable	92.2	77.4	75.7	81.6	87.0	91.9	97.0	101.1	106.6	111.0	115.7
75th - Optimistic	92.2	77.4	84.3	92.5	99.3	105.4	112.1	118.3	124.7	130.9	139.4
95th - Best Case	92.2	77.4	97.1	109.3	119.0	128.6	137.6	148.7	161.3	168.1	187.5
Mix #4											
5th - Worst Case	92.2	77.4	56.5	57.7	60.2	64.2	67.0	70.7	73.9	75.5	76.5
25th - Pessimistic	92.2	77.4	67.4	70.8	75.6	80.1	83.2	87.7	91.7	95.6	98.3
50th - Most Probable	92.2	77.4	76.0	82.1	87.5	92.7	97.6	102.0	107.7	112.4	117.1
75th - Optimistic	92.2	77.4	84.8	93.3	100.8	106.8	113.8	120.2	127.4	134.4	143.1
95th - Best Case	92.2	77.4	98.5	111.3	121.9	132.3	141.9	154.5	168.5	175.1	196.7



Scenario #3 - Freeze Plan Scenario:

Employer Contributions (\$MM)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current Mix											
5th - Worst Case	43.0	5.5	27.4	31.4	33.0	35.8	36.9	36.4	23.6	20.2	19.6
25th - Pessimistic	43.0	5.5	20.0	21.5	21.8	21.8	21.2	20.2	8.7	5.8	4.1
50th - Most Probable	43.0	5.5	14.8	14.6	13.4	12.6	10.3	1.6	0.0	0.0	0.0
75th - Optimistic	43.0	5.5	10.2	8.1	6.0	0.0	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	5.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mix #1											
5th - Worst Case	43.0	5.5	27.1	30.9	32.4	34.7	35.7	34.7	21.5	17.7	16.9
25th - Pessimistic	43.0	5.5	19.9	21.1	21.5	21.3	20.5	19.7	7.4	4.4	2.8
50th - Most Probable	43.0	5.5	14.8	14.6	13.5	12.6	10.1	1.2	0.0	0.0	0.0
75th - Optimistic	43.0	5.5	10.3	8.4	6.4	0.0	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	5.5	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mix #2											
5th - Worst Case	43.0	5.5	27.3	31.2	32.9	35.2	36.6	35.2	22.7	18.8	18.4
25th - Pessimistic	43.0	5.5	19.9	21.3	21.3	21.2	20.4	18.7	7.6	4.3	2.1
50th - Most Probable	43.0	5.5	14.7	14.1	12.9	11.6	8.2	0.0	0.0	0.0	0.0
75th - Optimistic	43.0	5.5	9.9	7.7	5.1	0.0	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	5.5	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mix #3											
5th - Worst Case	43.0	5.5	27.7	31.5	33.4	36.0	37.3	36.1	23.8	20.2	19.4
25th - Pessimistic	43.0	5.5	20.0	21.2	21.4	21.1	20.4	18.5	8.0	4.0	1.8
50th - Most Probable	43.0	5.5	14.5	13.9	12.4	10.9	6.3	0.0	0.0	0.0	0.0
75th - Optimistic	43.0	5.5	9.5	7.1	2.9	0.0	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	5.5	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mix #4											
5th - Worst Case	43.0	5.5	27.9	32.0	33.9	36.5	37.8	36.3	24.6	21.3	20.3
25th - Pessimistic	43.0	5.5	20.0	21.3	21.4	21.0	20.3	18.0	7.8	3.9	1.6
50th - Most Probable	43.0	5.5	14.4	13.6	12.0	10.3	4.4	0.0	0.0	0.0	0.0
75th - Optimistic	43.0	5.5	9.3	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	5.5	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Scenario #3 - Freeze Plan Scenario:

Net Periodic Cost (\$MM)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current Mix											
5th - Worst Case	12.0	6.6	11.2	11.3	11.0	10.5	10.3	9.4	9.2	9.7	9.6
25th - Pessimistic	12.0	6.6	7.3	6.4	5.2	4.2	3.3	2.2	1.6	0.7	0.2
50th - Most Probable	12.0	6.6	5.0	3.0	1.4	-0.1	-1.9	-3.4	-5.1	-6.0	-7.2
75th - Optimistic	12.0	6.6	2.8	-0.2	-2.7	-5.1	-7.3	-9.9	-12.4	-14.5	-16.8
95th - Best Case	12.0	6.6	-0.4	-5.0	-8.9	-12.6	-16.0	-19.2	-23.0	-25.8	-29.2
Mix #1											
5th - Worst Case	12.0	6.6	10.5	10.3	9.8	9.2	8.8	7.5	7.3	7.5	7.5
25th - Pessimistic	12.0	6.6	7.1	6.2	4.7	3.5	2.5	1.3	0.3	-0.5	-1.1
50th - Most Probable	12.0	6.6	5.1	3.0	1.3	-0.3	-2.0	-3.7	-5.4	-6.3	-7.8
75th - Optimistic	12.0	6.6	3.0	0.2	-2.3	-4.5	-6.9	-9.3	-11.7	-13.9	-15.9
95th - Best Case	12.0	6.6	0.1	-4.1	-7.6	-11.3	-14.5	-17.2	-20.8	-23.9	-27.1
Mix #2											
5th - Worst Case	12.0	6.6	11.1	11.0	10.6	10.0	9.4	8.6	8.2	8.4	8.3
25th - Pessimistic	12.0	6.6	7.2	6.2	4.7	3.5	2.7	1.3	0.4	-0.7	-1.3
50th - Most Probable	12.0	6.6	4.9	2.8	0.9	-0.8	-2.7	-4.5	-6.2	-7.5	-9.1
75th - Optimistic	12.0	6.6	2.6	-0.5	-3.2	-5.8	-8.3	-11.1	-13.7	-16.1	-18.4
95th - Best Case	12.0	6.6	-0.6	-5.4	-9.6	-13.4	-16.7	-19.9	-24.0	-26.9	-30.8
Mix #3											
5th - Worst Case	12.0	6.6	11.6	11.6	11.1	10.5	10.2	9.3	9.0	9.3	9.0
25th - Pessimistic	12.0	6.6	7.3	6.3	4.9	3.5	2.7	1.5	0.4	-1.0	-1.6
50th - Most Probable	12.0	6.6	4.7	2.5	0.6	-1.1	-3.3	-5.0	-6.8	-8.5	-10.1
75th - Optimistic	12.0	6.6	2.3	-1.2	-4.0	-6.7	-9.5	-12.4	-15.2	-17.9	-20.4
95th - Best Case	12.0	6.6	-1.1	-6.5	-11.1	-15.0	-18.5	-21.8	-26.8	-29.4	-33.7
Mix #4											
5th - Worst Case	12.0	6.6	11.9	12.0	11.7	11.1	11.0	10.0	10.0	10.1	10.0
25th - Pessimistic	12.0	6.6	7.4	6.4	5.0	3.7	2.9	1.6	0.6	-0.8	-1.6
50th - Most Probable	12.0	6.6	4.5	2.3	0.4	-1.5	-3.7	-5.4	-7.4	-9.2	-10.9
75th - Optimistic	12.0	6.6	2.0	-1.7	-4.8	-7.7	-10.6	-13.5	-16.6	-19.5	-22.1
95th - Best Case	12.0	6.6	-1.6	-7.5	-12.6	-16.5	-20.2	-23.7	-28.6	-31.8	-36.6



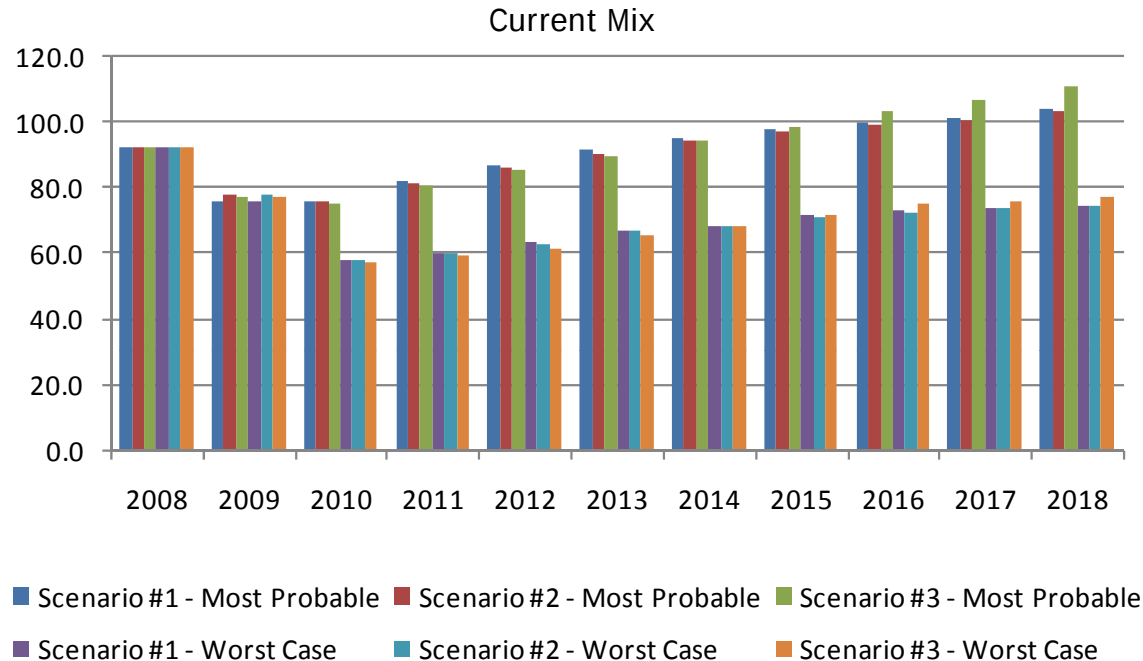
Scenario #3 - Freeze Plan Scenario:

Present Value of Contributions (\$MM)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current Mix											
5th - Worst Case	79.6	84.6	107.2	129.5	151.2	173.4	192.2	208.7	215.7	219.6	221.9
25th - Pessimistic	79.6	84.6	101.1	116.7	131.4	144.4	155.3	165.0	167.0	169.0	170.9
50th - Most Probable	79.6	84.6	96.8	108.4	117.3	124.8	131.1	135.9	137.9	139.7	141.6
75th - Optimistic	79.6	84.6	92.9	99.4	104.2	107.3	110.3	112.4	113.6	115.6	116.8
95th - Best Case	79.6	84.6	87.5	89.4	91.0	91.6	92.4	93.3	93.4	94.0	95.0
Mix #1											
5th - Worst Case	79.6	84.6	106.9	128.7	150.2	171.4	190.2	207.2	213.6	215.7	217.7
25th - Pessimistic	79.6	84.6	101.0	116.4	130.9	144.0	154.6	163.6	165.9	167.7	169.5
50th - Most Probable	79.6	84.6	96.7	108.4	117.4	124.5	130.6	135.1	137.1	138.8	139.6
75th - Optimistic	79.6	84.6	93.0	99.6	104.3	108.0	110.1	112.3	113.9	115.5	116.0
95th - Best Case	79.6	84.6	88.0	89.9	91.6	92.1	93.2	93.6	93.9	94.4	94.7
Mix #2											
5th - Worst Case	79.6	84.6	107.1	129.0	150.9	172.3	190.8	207.1	214.4	218.1	220.9
25th - Pessimistic	79.6	84.6	100.9	116.3	130.8	143.5	153.6	162.6	165.1	166.6	168.4
50th - Most Probable	79.6	84.6	96.7	107.9	116.5	123.4	128.8	132.9	134.8	136.6	137.9
75th - Optimistic	79.6	84.6	92.7	98.8	102.9	105.9	108.4	110.2	111.7	112.5	113.4
95th - Best Case	79.6	84.6	87.3	89.1	90.5	91.2	91.8	92.1	92.3	92.8	93.0
Mix #3											
5th - Worst Case	79.6	84.6	107.4	129.8	151.7	173.2	192.0	209.2	216.4	219.9	222.9
25th - Pessimistic	79.6	84.6	101.0	116.5	130.9	143.5	153.9	161.8	164.3	166.4	168.1
50th - Most Probable	79.6	84.6	96.5	107.4	115.7	122.5	127.2	131.1	133.0	134.6	136.5
75th - Optimistic	79.6	84.6	92.4	98.0	101.6	104.6	106.9	109.1	110.3	111.2	112.0
95th - Best Case	79.6	84.6	86.9	88.1	89.7	90.5	90.9	91.2	91.5	91.6	91.7
Mix #4											
5th - Worst Case	79.6	84.6	107.6	130.3	152.3	173.6	193.2	210.0	216.5	220.6	225.2
25th - Pessimistic	79.6	84.6	101.1	116.6	130.7	142.9	152.7	161.2	163.5	165.4	167.1
50th - Most Probable	79.6	84.6	96.5	106.9	115.0	121.7	125.9	129.5	131.9	133.7	135.8
75th - Optimistic	79.6	84.6	92.2	97.5	101.0	103.4	105.5	108.0	109.1	110.2	111.0
95th - Best Case	79.6	84.6	86.4	87.8	89.1	89.6	90.1	90.5	90.9	90.9	91.1



Comparisons - Funded Ratios (AFTAP)

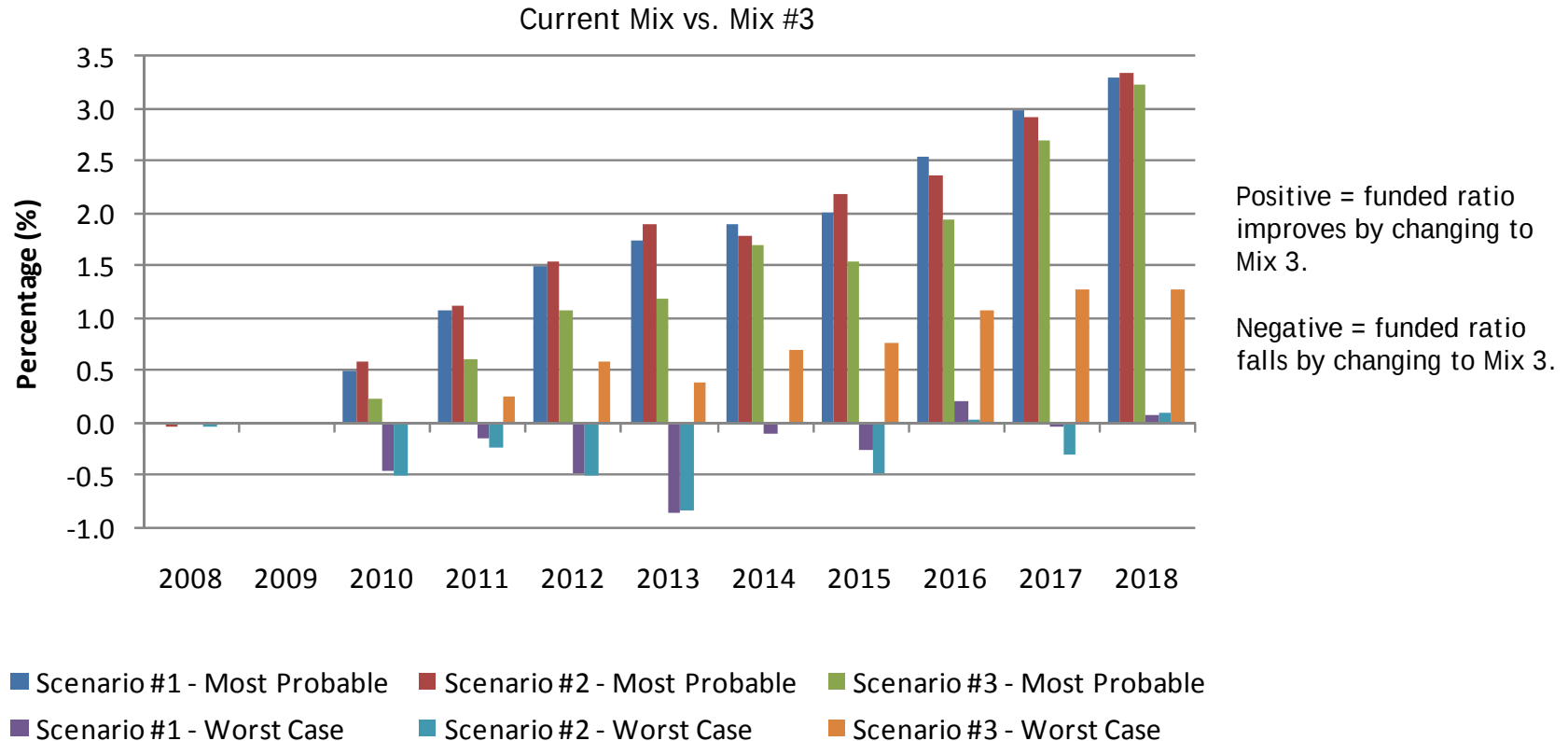


Stochastic analysis shows:

- Funded ratios are marginally better under the 3-segment curve beginning in 2011.
- Scenarios #1 & #2 achieve over an 80% AFTAP starting in 2011.
- The effects of freezing the plan in Scenario #3 are seen in later years.

Comparisons - Current vs. Mix #3

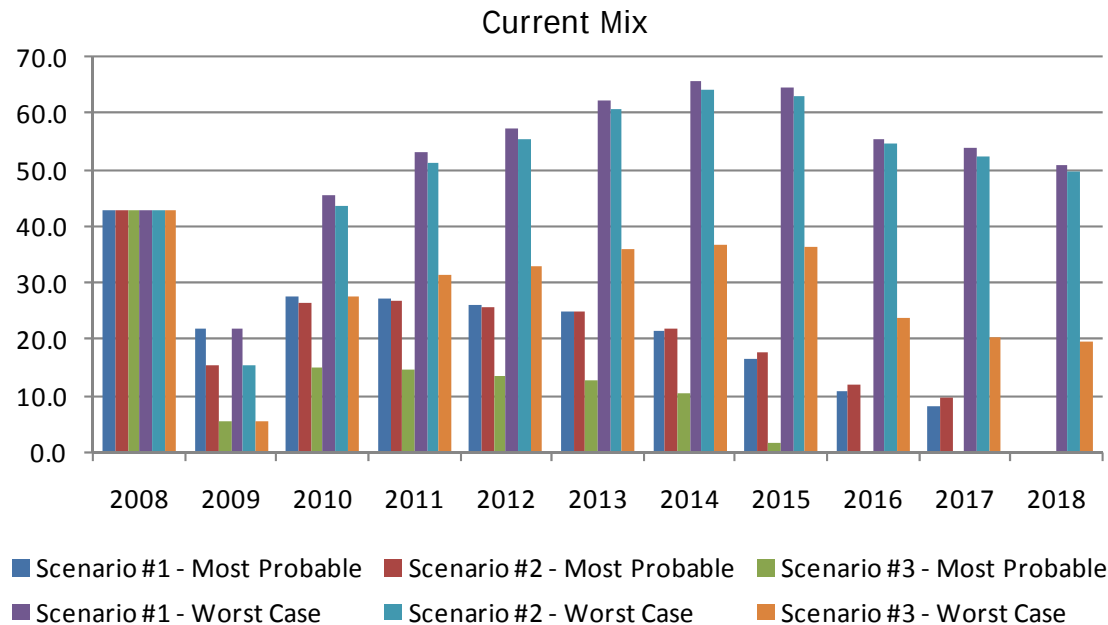
Net Difference - Funded Ratios (AFTAP)



Stochastic analysis shows:

- Increasing portfolio returns/risk projects higher Funded Ratios because of Mix #3's higher expected rate of return.
- The benefit of the full yield curve is less evident.

Comparisons - Employer Contributions (\$MM)



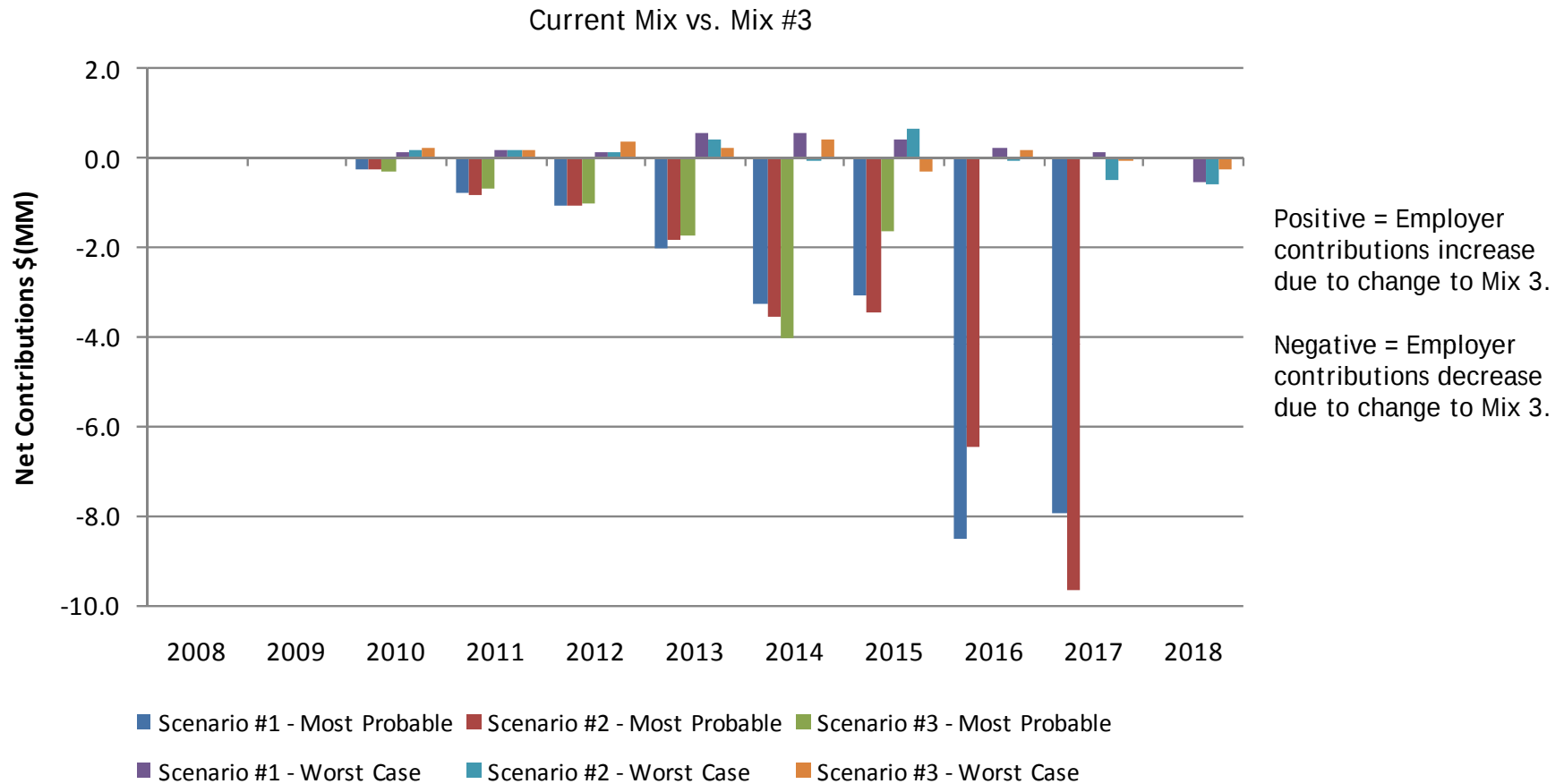
Stochastic analysis shows:

- Switching to the full yield curve reduces contributions in worst-case scenarios.
- Freezing the plan reduces contributions significantly.



Comparisons - Current vs. Mix #3

Net Difference - Employer Contributions (\$MM)

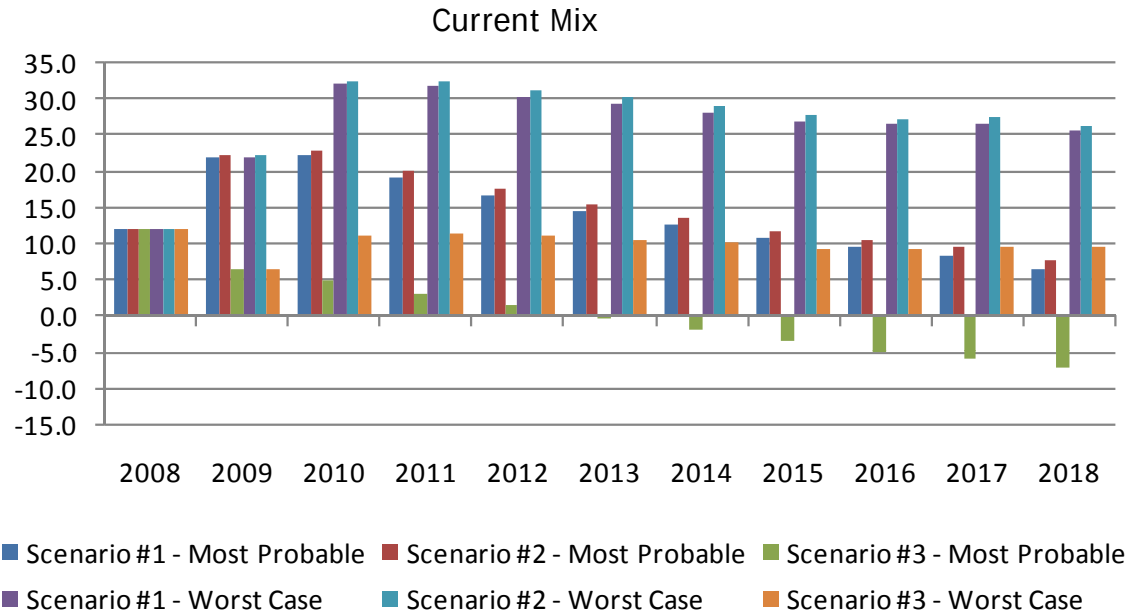


Stochastic analysis shows:

- Increasing portfolio return and risk is expected to reduce contributions in the most probable scenarios from 2010-2017
- The Current Mix only modestly protects against the worst case scenarios until 2017.



Comparisons - Net Periodic Cost (\$MM)



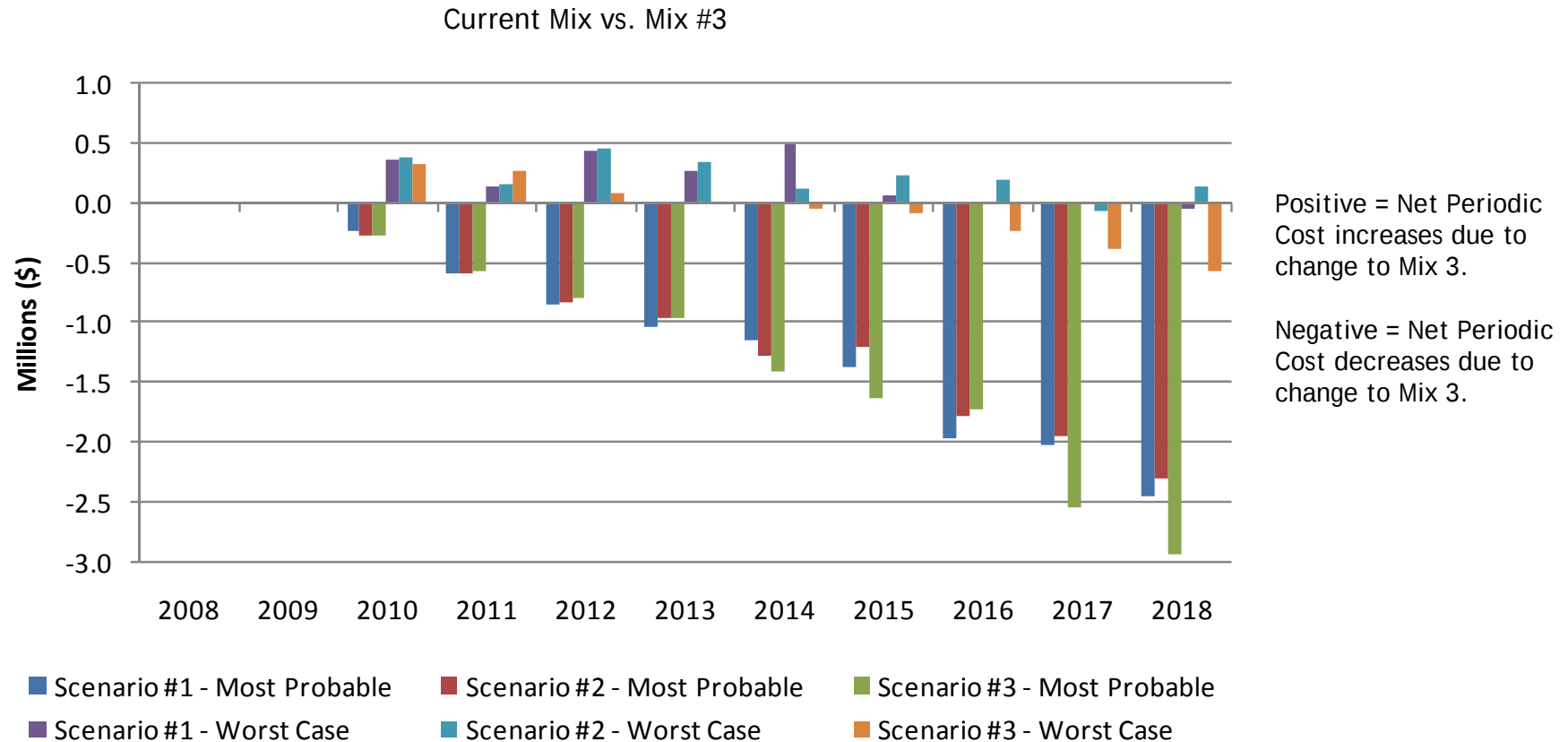
Stochastic analysis shows:

- Switching to the full yield curve modestly increases pension cost in the Most Probable case, but Worst Case doesn't differ significantly
- Freezing the plan in 2009, as expected, drastically decreases pension expense.



Comparisons - Current vs. Mix #3

Net Difference - Net Periodic Cost



Stochastic analysis shows:

- Net Periodic Cost tells the same story, while the Current Mix provides minimal downside protection, Mix #3 is projected to save Sample Client more in terms of pension expense.



VI. *Liability Driven Investing*



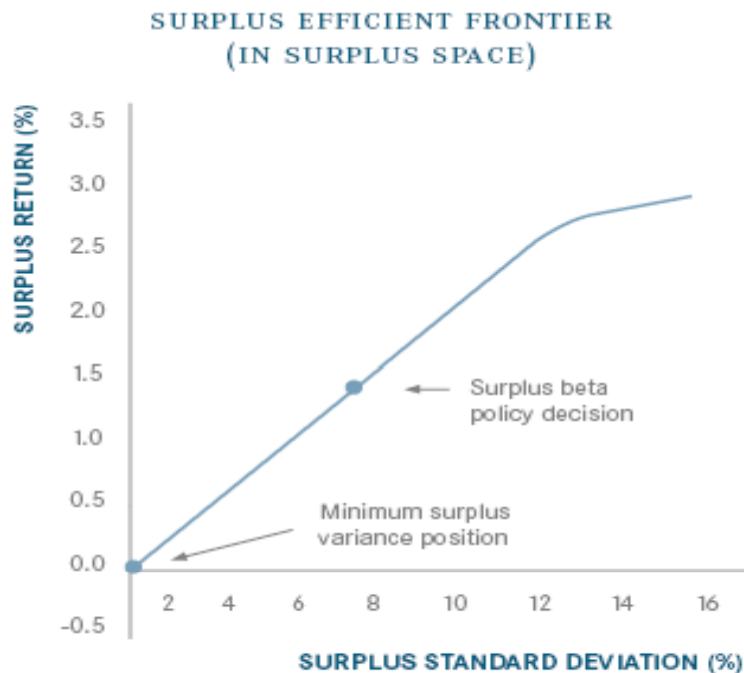
Executive Summary - LDI

- Liability-driven investing (LDI) looks at the expected cash flows a plan will need to pay out into the future and constructs a portfolio to meet and/or potentially outperform them.
- Focus on the funding surplus (deficit) and maximizing the growth of the surplus (shrinking the deficit).
- Reduces or eliminates the interest rate risk embedded in the liabilities, an uncompensated risk in the portfolio.

The surplus (deficit if the value is negative) is the difference between the value of the assets and liabilities

$$\text{Surplus (Deficit)} = \text{Plan Assets} - \text{Plan Liabilities}$$

The surplus (deficit) can be determined by the current funded ratio.



- A framework that emphasizes the growth of the surplus (assets-liabilities) instead of the total return of the assets.
- Defines risk as the variability of the surplus instead of the volatility of the assets.
- The minimum surplus variance position would involve a 100% hedge of the liabilities by implementing long duration bonds.
- Higher expected returns typically involves assets (equities) that do not hedge the liabilities, creates surplus volatility.
- Efficient portfolios defined in an asset only framework are typically not optimal in an LDI framework.



LDI Implementation Options

- **Conventional Bonds (Cash)**

- Increase duration of fixed income securities to match the duration of the PPA Funding Target Liability.
- Actuary calculates term structure and duration of liabilities and fixed income manager duration matches the liabilities with Treasuries, Zero Coupon Bonds, and other longer term fixed income securities.

- **Derivatives**

- Same as above, but manager implements long duration portfolio using SWAPs and Futures. These securities provide full duration exposure while allowing for only a portion of the contract value to be held in cash collateral.
- Creates leverage in portfolio as fewer dollars are required to gain target duration, enabling portfolio to invest in other higher returning asset classes.

- **LDI Funds**

- Same as above, but target duration is achieved through the a series of pre-existing LDI Funds.
- Leverages core competency of manager focused on structuring LDI solutions.

Investment Managers will achieve varying returns in comparison to the “perfect hedge” created for this study and more volatility would be experienced in actual implementation as a result.



LDI Strategies

Risk Management Options

In this case, we will evaluate these two strategies below

	Status Quo	Plan Design Changes	Increase Duration of Fixed Income	Increase Duration and Allocation to Fixed Income	Use Derivatives to Increase Duration	Shifts Risk to Third Party via Plan Transfer	Buy Annuities from Insurance Company
Limits Exposure to Increased Liabilities	No Change	Yes	No	No	No	No	No
Expected Investment Return	Little to Modest Change	No Change	No Change to Small Increase or Decrease	Decreases as Allocation Increases	No Change, Small Decrease, Small Increase. Will Vary w/ Managers Retained	Not Applicable	Not Applicable
Expected Cost of Settling all Liabilities	No Change	Reduced b/c of Reduced Liabilities	Reduced b/c of Reduced Surplus Risk	Reduced b/c of Reduced Surplus Risk	Reduced b/c of Reduced Surplus Risk	Reduced	Increased
Effectiveness of Interest Rate Hedge	No Change	No Change	Depends on Fixed Income Allocation	Increases w/ Increase in Allocation	Probably Maximum Effectiveness is 90-95%	100% as Liabilities are Expected to be Settled	100% as Liabilities are Settled
Exposure to Credit or Counterparty Risk	No Change	No Change	No Change	No Change	Increase. Will Vary w/ Managers Retained	Increase. Will Vary w/ Third Party	Minimal as Companies will be Rated A+ or Better
Derivatives Required	No Change	No	No	No	Yes	No	No



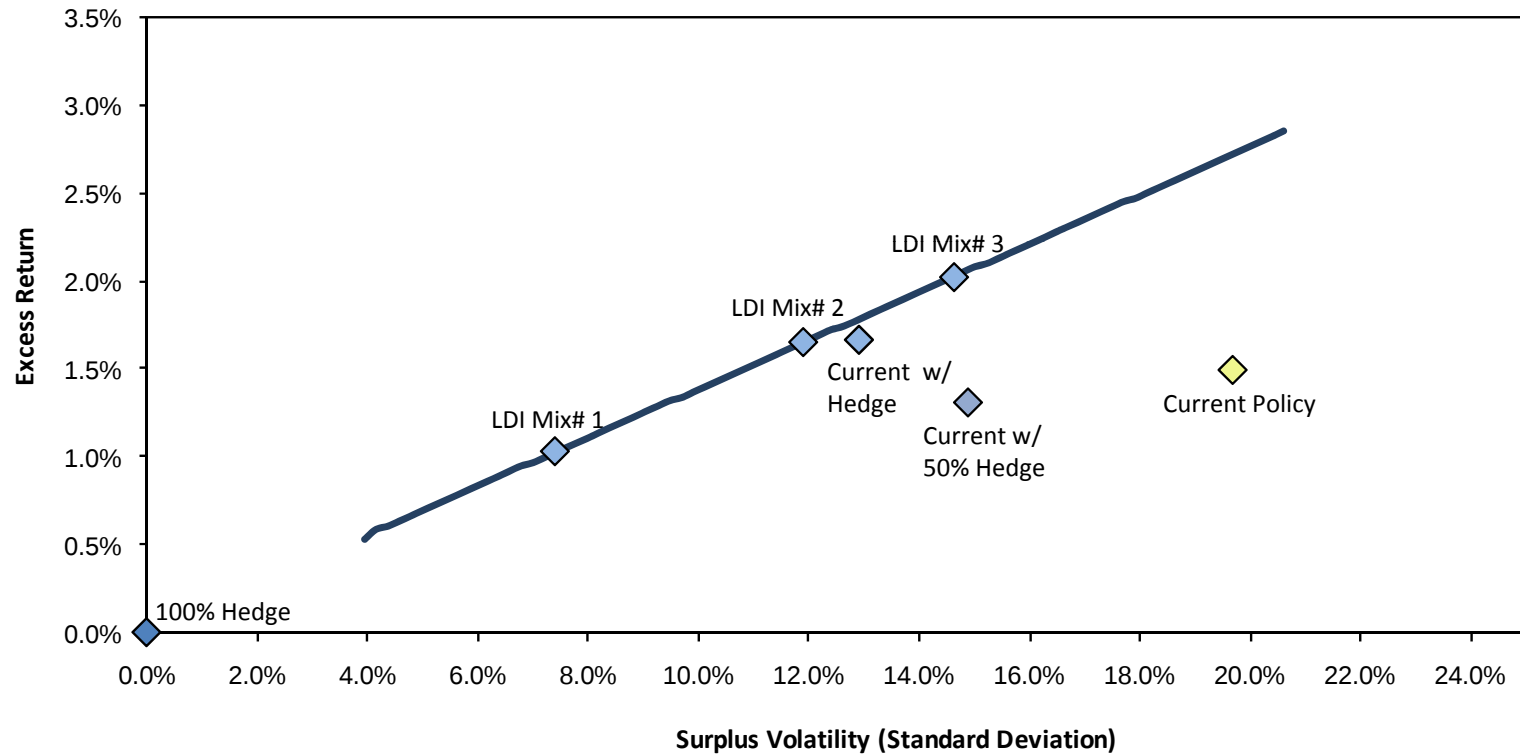
Surplus Mixes

	Current	100% Hedge	Current w/ Hedge	Current w/ 50% Hedge	LDI Mix #1	LDI Mix #2	LDI Mix #3
Large Cap US Equity	24	0	24.0	24.0	22.8	38.8	47.8
Small/Mid Cap US Equity	6.0	0	6.0	6.0	3.4	4.4	5.4
International Large Equity	12.0	0	12.0	12.0	7.8	11.8	13.8
International Small Equity	4.0	0	4.0	4.0	0.0	0.0	0.0
Emerging Markets	4.0	0	4.0	4.0	1.0	2.0	3.0
US Core Fixed Income	30	0	0.0	15.0	0.0	0.0	0.0
High Yield Fixed Income	0	0	0.0	0.0	0.0	0.0	0.0
TIPs	0	0	0.0	0.0	0.0	0.0	0.0
Real Estate	5.0	0	5.0	5.0	0.0	0.0	0.0
Hedge Funds	12.0	0	12.0	12.0	0.0	0.0	0.0
Private Equity/Venture Capital	1.0	0	1.0	1.0	1.0	1.0	1.0
Commodities	2.0	0	2.0	2.0	0.0	0.0	0.0
NAR Liability Hedge	0	100	30.0	15.0	64.0	42.0	29.0
Expected Return	7.79%	6.29%	7.96%	7.60%	7.38%	8.05%	8.44%
Standard Deviation	9.81%	10.51%	9.16%	9.11%	7.56%	9.07%	10.89%
Excess Return	1.50%	0.00%	1.67%	1.31%	1.09%	1.76%	2.15%
Surplus Volatility	19.67%	0.00%	12.9%	14.9%	7.39%	11.91%	14.61%

The PPA Funding Liability Hedge has a nominal return of 6.29% and a standard deviation of 10.51%.



Efficient Frontier - Surplus Space



Scenario #1- Current Scenario:

Funded Ratios (AFTAP)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current Mix											
5th - Worst Case	92.2	75.8	57.7	60.1	63.3	67.1	68.4	71.4	72.9	73.7	74.8
25th - Pessimistic	92.2	75.8	67.8	72.1	77.1	80.9	83.7	86.1	88.1	89.9	90.7
50th - Most Probable	92.2	75.8	75.9	81.9	87.1	91.4	95.0	97.8	100.2	101.6	104.4
75th - Optimistic	92.2	75.8	83.9	91.9	98.2	103.3	107.4	111.1	113.8	116.8	119.1
95th - Best Case	92.2	75.8	96.9	107.6	115.6	121.5	126.1	132.9	139.6	143.9	151.2
100% Hedge											
5th - Worst Case	92.2	75.8	61.8	68.2	74.8	81.4	87.7	92.8	97.2	98.8	99.2
25th - Pessimistic	92.2	75.8	68.0	73.4	79.0	84.9	89.7	94.4	98.7	99.6	99.7
50th - Most Probable	92.2	75.8	72.9	77.5	82.4	87.0	91.2	95.5	99.6	100.0	99.9
75th - Optimistic	92.2	75.8	78.4	82.2	85.9	89.4	93.0	96.6	100.4	100.3	100.0
95th - Best Case	92.2	75.8	85.7	88.4	91.0	93.6	96.1	98.6	101.7	101.3	100.2
Current w/ 50% Hedge											
5th - Worst Case	92.2	75.8	58.2	61.1	64.6	68.5	70.1	73.0	74.4	75.4	75.9
25th - Pessimistic	92.2	75.8	68.2	72.8	78.0	81.9	84.8	87.4	89.2	91.0	91.9
50th - Most Probable	92.2	75.8	75.9	82.1	87.5	92.0	95.6	98.7	101.0	102.6	105.4
75th - Optimistic	92.2	75.8	83.7	91.8	98.1	103.5	107.3	111.5	114.2	116.8	119.1
95th - Best Case	92.2	75.8	95.9	106.6	114.4	120.3	125.3	132.2	137.9	142.2	149.7
Current w/ Hedge											
5th - Worst Case	92.2	75.8	58.9	61.7	65.9	69.5	72.0	74.8	76.0	76.3	77.1
25th - Pessimistic	92.2	75.8	68.6	73.2	79.0	82.8	85.8	88.6	90.4	92.2	93.1
50th - Most Probable	92.2	75.8	76.0	82.5	88.0	92.8	96.3	99.5	102.0	103.5	105.9
75th - Optimistic	92.2	75.8	83.6	92.1	98.1	103.5	107.6	111.6	114.4	117.1	120.1
95th - Best Case	92.2	75.8	95.1	105.8	113.5	119.7	124.6	131.4	137.6	141.5	149.4



Scenario #1- Current Scenario:

Funded Ratios (AFTAP) (Cont'd)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
LDI Mix #1											
5th - Worst Case	92.2	75.8	61.4	65.4	70.8	75.8	79.4	82.7	84.9	86.0	86.0
25th - Pessimistic	92.2	75.8	68.9	74.1	79.6	84.3	88.2	91.9	94.0	94.8	95.4
50th - Most Probable	92.2	75.8	74.4	80.5	85.8	90.7	94.7	97.8	100.1	101.0	101.7
75th - Optimistic	92.2	75.8	80.7	86.8	92.1	97.1	101.0	104.2	106.5	107.4	108.7
95th - Best Case	92.2	75.8	89.5	95.9	101.7	105.5	109.2	112.9	116.0	118.2	120.3
LDI Mix #2											
5th - Worst Case	92.2	75.8	59.2	61.6	65.9	70.1	72.8	76.4	78.1	79.3	80.0
25th - Pessimistic	92.2	75.8	68.6	73.1	78.4	82.8	86.0	89.6	91.5	93.7	94.7
50th - Most Probable	92.2	75.8	75.5	82.0	87.8	92.7	96.6	99.2	102.3	104.3	106.1
75th - Optimistic	92.2	75.8	83.3	91.3	97.2	102.9	106.7	110.9	114.3	117.0	119.9
95th - Best Case	92.2	75.8	94.3	104.5	112.4	118.5	122.8	131.0	136.2	139.4	146.0
LDI Mix #3											
5th - Worst Case	92.2	75.8	57.6	59.4	63.3	66.6	69.2	73.0	75.0	75.5	76.6
25th - Pessimistic	92.2	75.8	68.1	72.4	77.6	82.0	84.7	88.7	90.6	93.5	94.8
50th - Most Probable	92.2	75.8	76.0	82.9	88.7	94.0	98.0	100.7	104.7	107.3	109.6
75th - Optimistic	92.2	75.8	85.0	94.2	100.7	106.8	111.6	116.4	120.1	124.0	128.8
95th - Best Case	92.2	75.8	97.9	110.7	119.3	128.2	134.3	145.7	152.6	156.3	168.7



Scenario #1- Current Scenario

Employer Contributions \$MM

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current Mix											
5th - Worst Case	43.0	21.7	45.7	53.2	57.3	62.3	65.7	64.7	55.6	53.8	50.8
25th - Pessimistic	43.0	21.7	34.8	36.6	38.2	39.3	39.0	37.2	29.2	27.0	26.7
50th - Most Probable	43.0	21.7	27.4	27.2	26.0	24.9	21.4	16.4	10.6	7.9	0.0
75th - Optimistic	43.0	21.7	20.7	17.7	14.4	0.0	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	21.7	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100% Hedge											
5th - Worst Case	43.0	21.7	43.0	46.1	49.2	50.5	48.8	49.6	38.3	30.3	29.8
25th - Pessimistic	43.0	21.7	34.3	36.0	37.9	36.8	36.7	37.5	24.8	18.5	18.8
50th - Most Probable	43.0	21.7	29.0	30.1	30.4	29.7	30.1	30.7	17.0	13.0	14.1
75th - Optimistic	43.0	21.7	24.2	24.1	23.8	24.1	24.4	24.7	9.3	9.7	10.9
95th - Best Case	43.0	21.7	17.9	17.2	17.5	17.9	17.9	17.9	2.7	6.1	7.5
Current w/ 50% Hedge											
5th - Worst Case	43.0	21.7	45.4	52.3	56.2	61.3	63.7	63.1	53.0	51.2	48.4
25th - Pessimistic	43.0	21.7	34.5	36.1	37.4	38.3	37.8	35.7	27.7	25.5	24.9
50th - Most Probable	43.0	21.7	27.4	27.1	25.9	24.3	20.3	15.1	8.5	2.8	0.0
75th - Optimistic	43.0	21.7	20.9	17.7	14.8	0.0	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	21.7	12.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Current w/ Hedge											
5th - Worst Case	43.0	21.7	44.8	51.2	55.1	60.0	61.7	60.4	50.5	48.9	46.4
25th - Pessimistic	43.0	21.7	34.2	35.9	36.9	37.2	36.6	33.9	25.9	24.0	23.4
50th - Most Probable	43.0	21.7	27.4	26.8	25.6	23.7	19.0	13.6	5.1	0.0	0.0
75th - Optimistic	43.0	21.7	20.8	18.0	14.9	0.0	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	21.7	12.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Scenario #1- Current Scenario

Employer Contributions \$MM (Cont'd.)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
LDI Mix #1											
5th - Worst Case	43.0	21.7	43.7	48.3	52.1	56.0	55.5	55.6	43.0	39.2	38.3
25th - Pessimistic	43.0	21.7	34.2	36.1	37.7	36.8	36.6	35.3	22.9	21.1	21.1
50th - Most Probable	43.0	21.7	28.2	28.3	27.7	26.7	26.2	18.6	10.6	8.8	6.4
75th - Optimistic	43.0	21.7	22.6	20.6	19.5	18.1	7.4	0.0	0.0	0.0	0.0
95th - Best Case	43.0	21.7	15.6	12.7	3.0	0.0	0.0	0.0	0.0	0.0	0.0
LDI Mix #2											
5th - Worst Case	43.0	21.7	44.7	51.0	55.2	60.8	62.7	62.2	49.6	48.3	45.5
25th - Pessimistic	43.0	21.7	34.2	36.2	37.3	37.8	37.0	34.7	25.7	22.8	22.7
50th - Most Probable	43.0	21.7	27.6	27.1	25.8	24.3	19.5	13.8	3.2	0.0	0.0
75th - Optimistic	43.0	21.7	21.1	18.3	15.3	1.1	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	21.7	13.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LDI Mix #3											
5th - Worst Case	43.0	21.7	45.6	52.6	57.4	62.8	66.2	65.9	54.6	52.4	50.1
25th - Pessimistic	43.0	21.7	34.3	36.6	37.4	37.9	37.4	34.5	27.1	23.4	22.5
50th - Most Probable	43.0	21.7	27.2	26.3	25.0	22.2	16.3	10.0	0.0	0.0	0.0
75th - Optimistic	43.0	21.7	20.3	16.4	9.5	0.0	0.0	0.0	0.0	0.0	0.0
95th - Best Case	43.0	21.7	11.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Scenario #1- Current Scenario

Net Periodic Cost (\$MM)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current Mix											
5th - Worst Case	12.0	22.1	32.1	31.8	30.5	29.5	28.2	26.8	26.6	26.5	25.6
25th - Pessimistic	12.0	22.1	26.3	24.4	22.0	20.6	19.0	17.4	16.6	15.4	14.7
50th - Most Probable	12.0	22.1	22.3	19.2	16.7	14.5	12.6	10.9	9.7	8.3	6.5
75th - Optimistic	12.0	22.1	18.7	14.6	11.6	9.1	6.3	4.5	2.2	0.4	-1.8
95th - Best Case	12.0	22.1	13.8	8.7	4.8	1.0	-1.4	-4.4	-8.5	-11.7	-16.2
100% Hedge											
5th - Worst Case	12.0	22.1	30.2	27.4	24.8	22.6	20.4	18.5	17.7	17.6	18.3
25th - Pessimistic	12.0	22.1	26.4	23.9	21.6	19.5	17.2	15.4	14.2	14.0	13.8
50th - Most Probable	12.0	22.1	23.7	21.5	19.2	17.4	15.0	13.2	11.7	11.3	11.1
75th - Optimistic	12.0	22.1	21.0	19.0	17.1	15.1	12.7	10.6	9.0	8.4	7.8
95th - Best Case	12.0	22.1	17.7	15.5	13.5	11.4	8.4	5.5	3.9	2.5	2.4
Current w/ 50% Hedge											
5th - Worst Case	12.0	22.1	31.9	31.4	29.8	28.7	27.3	25.7	25.7	25.1	24.8
25th - Pessimistic	12.0	22.1	26.1	24.2	21.5	19.9	18.3	16.5	15.8	14.5	13.9
50th - Most Probable	12.0	22.1	22.3	19.1	16.4	14.2	12.2	10.2	8.9	7.6	5.8
75th - Optimistic	12.0	22.1	18.7	14.6	11.5	9.0	6.2	4.2	1.5	-0.3	-2.2
95th - Best Case	12.0	22.1	14.1	8.9	5.2	1.2	-1.5	-4.7	-8.8	-11.9	-16.1
Current w/ Hedge											
5th - Worst Case	12.0	22.1	31.8	31.2	29.3	28.0	26.4	24.8	24.6	24.2	23.7
25th - Pessimistic	12.0	22.1	25.9	23.8	21.0	19.4	17.6	15.8	14.9	13.7	12.8
50th - Most Probable	12.0	22.1	22.3	18.9	16.2	13.9	11.7	9.8	8.3	7.0	5.2
75th - Optimistic	12.0	22.1	18.8	14.7	11.5	8.7	5.9	3.7	1.1	-0.8	-3.0
95th - Best Case	12.0	22.1	14.3	9.4	5.3	1.6	-1.6	-4.8	-8.8	-12.9	-16.8



Scenario #1- Current Scenario

Net Periodic Cost (\$MM) - (Cont'd.)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
LDI Mix #1											
5th - Worst Case	12.0	22.1	30.6	28.6	26.0	24.5	22.2	20.4	19.3	19.0	18.6
25th - Pessimistic	12.0	22.1	25.9	23.6	20.8	18.9	16.4	14.5	13.6	12.9	12.3
50th - Most Probable	12.0	22.1	23.0	20.0	17.5	15.3	12.9	11.1	9.9	9.1	8.2
75th - Optimistic	12.0	22.1	20.1	17.1	14.4	12.1	9.9	8.0	6.3	5.2	3.9
95th - Best Case	12.0	22.1	16.5	13.2	10.6	8.3	5.4	3.2	1.0	-1.1	-2.6
LDI Mix #2											
5th - Worst Case	12.0	22.1	31.8	31.0	28.8	27.7	26.2	24.6	23.7	23.7	22.6
25th - Pessimistic	12.0	22.1	26.1	23.8	21.3	19.5	17.4	15.5	14.5	13.1	12.0
50th - Most Probable	12.0	22.1	22.5	19.1	16.4	13.9	11.8	9.6	7.9	6.6	5.0
75th - Optimistic	12.0	22.1	18.9	14.9	11.8	8.9	6.2	3.8	1.6	-0.6	-2.5
95th - Best Case	12.0	22.1	14.7	9.7	5.6	2.3	-0.9	-3.3	-6.5	-10.5	-13.6
LDI Mix #3											
5th - Worst Case	12.0	22.1	32.7	32.4	30.6	29.7	28.3	27.1	26.6	26.3	25.1
25th - Pessimistic	12.0	22.1	26.1	24.2	21.8	20.1	18.1	15.9	15.1	13.3	11.8
50th - Most Probable	12.0	22.1	22.1	18.7	15.7	13.2	10.9	8.6	6.4	5.0	2.9
75th - Optimistic	12.0	22.1	18.2	13.6	10.0	6.8	3.5	1.1	-1.6	-4.6	-7.0
95th - Best Case	12.0	22.1	13.4	7.1	2.3	-1.3	-4.9	-8.2	-13.9	-17.7	-23.8



Scenario #1- Current Scenario

Present Value of Contributions (\$MM)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current Mix											
5th - Worst Case	79.6	99.0	136.7	174.1	212.4	251.1	283.1	310.9	329.6	341.6	352.2
25th - Pessimistic	79.6	99.0	127.7	154.7	181.3	204.0	223.0	241.2	251.0	258.3	266.5
50th - Most Probable	79.6	99.0	121.6	142.7	160.6	174.6	186.7	198.1	205.4	212.2	217.2
75th - Optimistic	79.6	99.0	116.1	129.8	139.6	146.9	154.1	160.9	166.7	171.4	176.6
95th - Best Case	79.6	99.0	108.8	111.9	115.8	119.3	123.1	126.7	129.5	133.5	136.8
100% Hedge											
5th - Worst Case	79.6	99.0	134.4	169.0	203.0	235.2	264.2	291.3	309.6	319.0	330.6
25th - Pessimistic	79.6	99.0	127.3	154.6	181.2	204.6	226.6	247.9	260.4	268.7	276.9
50th - Most Probable	79.6	99.0	123.0	146.1	168.0	187.8	206.0	223.4	232.1	239.1	245.4
75th - Optimistic	79.6	99.0	118.9	137.3	154.3	170.3	185.4	199.7	205.0	211.4	216.7
95th - Best Case	79.6	99.0	113.8	127.0	139.4	151.4	163.0	174.1	177.6	181.8	186.4
Current w/ 50% Hedge											
5th - Worst Case	79.6	99.0	136.4	173.2	211.1	248.8	280.0	305.2	322.9	333.5	344.3
25th - Pessimistic	79.6	99.0	127.4	154.4	180.3	202.4	221.3	237.2	246.8	254.1	263.2
50th - Most Probable	79.6	99.0	121.6	142.4	160.2	174.4	185.8	195.8	202.9	209.1	214.2
75th - Optimistic	79.6	99.0	116.2	129.6	139.8	147.0	153.9	159.9	165.5	170.7	174.5
95th - Best Case	79.6	99.0	109.2	112.6	116.3	119.0	123.6	126.8	128.6	132.3	134.3
Current w/ Hedge											
5th - Worst Case	79.6	99.0	136.0	172.7	210.2	246.7	276.2	299.7	316.7	327.1	336.9
25th - Pessimistic	79.6	99.0	127.2	154.1	179.2	200.4	219.5	234.1	242.7	250.5	257.3
50th - Most Probable	79.6	99.0	121.6	142.1	160.0	173.7	184.4	192.8	199.5	206.2	210.4
75th - Optimistic	79.6	99.0	116.2	130.0	139.6	147.1	153.9	159.2	164.1	169.0	172.9
95th - Best Case	79.6	99.0	109.6	113.1	115.9	119.6	123.0	126.2	128.8	131.4	133.2



Scenario #1- Current Scenario

Present Value of Contributions (\$MM) - (Cont'd.)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
LDI Mix #1											
5th - Worst Case	79.6	99.0	135.0	170.4	205.2	240.8	271.6	298.5	311.7	322.8	331.1
25th - Pessimistic	79.6	99.0	127.2	154.3	181.0	203.8	223.6	238.7	248.3	255.2	262.1
50th - Most Probable	79.6	99.0	122.2	144.0	163.3	180.4	194.8	205.0	210.7	215.8	220.8
75th - Optimistic	79.6	99.0	117.6	133.5	148.1	159.5	168.3	173.6	177.7	183.1	187.6
95th - Best Case	79.6	99.0	111.8	122.1	128.3	132.8	137.2	140.4	144.1	146.1	149.1
LDI Mix #2											
5th - Worst Case	79.6	99.0	135.9	172.9	211.4	247.5	280.5	306.3	323.3	333.2	343.8
25th - Pessimistic	79.6	99.0	127.2	154.3	180.4	202.9	221.3	237.6	246.5	253.9	262.0
50th - Most Probable	79.6	99.0	121.7	142.5	160.7	174.9	186.1	195.2	201.6	206.5	211.0
75th - Optimistic	79.6	99.0	116.4	130.9	140.4	148.0	153.8	159.3	162.8	167.1	170.5
95th - Best Case	79.6	99.0	110.0	113.8	116.9	120.2	123.4	124.6	126.8	127.9	130.4
LDI Mix #3											
5th - Worst Case	79.6	99.0	136.6	174.2	213.8	251.5	285.0	312.7	330.7	340.4	355.0
25th - Pessimistic	79.6	99.0	127.3	154.4	180.2	201.6	220.7	236.8	245.9	254.5	262.1
50th - Most Probable	79.6	99.0	121.4	141.6	158.2	170.9	181.2	190.0	196.6	201.6	206.0
75th - Optimistic	79.6	99.0	115.8	128.3	135.3	141.8	147.2	151.7	156.2	159.4	162.4
95th - Best Case	79.6	99.0	108.4	111.0	112.9	114.1	116.9	118.3	120.1	121.3	122.7



Initial LDI Observations

- Surplus volatility is reduced by adding an allocation to a liability-hedged portfolio.
- Reducing equity will still cause contributions to increase and funded ratios to fall
 - Current corporate yield spreads and the steep yield curve environment offer an attractive opportunity for corporate plan sponsors
- Scenario #2 would produce similar results to what we see under Scenario #1 in terms of using an LDI strategy. The volatility in contributions and funded ratios would decrease as more assets are allocated to the hedge.



VII. Appendix



Actuarial Assumptions Used

All assumptions made in regard to the liabilities were taken from the valuation report as of Jan. 1, 2008.

- The interest rates to determine funding target liability are based on the 3-segment rates in effect for the month prior to the valuation date. For the January 1, 2008 valuation, the three segment rates are 5.31% for the first 5 years, 5.90% for year 6 through year 20, and 6.41% thereafter.
- The mortality table used to determine funding target liability are the prescribed static tables with separate mortality rates for annuitants and non-annuitants. For the January 1, 2007 valuation, the RP-2000 mortality tables for males and females were used for funding liability and the statutory optional combined mortality table was used for current liability.
- The assumptions used to determine the value of the lump sum option were changed from the RR 2001-62 mortality table with 60/0 interest rate for funding and 5.78% for current liability, to the PPA Unisex Combined Optional mortality table and a five year phase-in of the November 2007 3-segment rates with the GATT fixed rate.

Other than the prescribed changes in the discount rate and mortality, the following other changes in assumptions were made as part of this valuation:

- The retirement and termination assumptions were updated to reflect plan experience. .

Appendix B outlines the principal provisions of the plan being valued. As of January 1, 2008 the IRC § 401 (a)(17) plan compensation limit increased from \$225,000 to \$230,000. There have been no other changes in plan provisions from last year's valuation.

Inclusion date

- The valuation date coincident with or next following the enrollment date on which the employee becomes a participant. Mortality The prescribed mortality assumption under Section 430(h)(3)(A) of the Internal Revenue Code using static tables with separate mortality rates for annuitants and non-annuitants.
- Assumed cost of living None adjustments : None

Future increases in Maximum Benefits and Plan Compensation Limitations:

- Accrued benefits projected to be paid in future years are limited to the maximum presently allowed under IRC Section 415. Plan compensation is limited to the maximum presently allowed under IRC Section 401 (a)(17). No provision is made for future increases in the maximum annual benefit or compensation limit.

Calculation of Lump Sum:

It is assumed that 50% of non-retirement-eligible participants elect a lump sum benefit and 50% elect an annuity benefit payable in the normal form. Among retirement eligible participants, it is assumed that 5% elect a lump sum and 95% elect an annuity payable in the normal form. Lump sums were valued using the general rule under Proposed IRC §1.430(d)-1 (f)(4) with recognition of the phase-in of IRC §417(e)(3) assumptions.



Additional Assumptions & Glossary

Funding standard carryover balance - The plan's credit balance as of plan year ending 2007, adjusted each year for actual investment experience, amounts used to satisfy minimum contribution requirements and voluntary or involuntary reductions.

Funding Target - If the plan is not "at-risk" as of the beginning of the plan year, the funding target will be equal to the Funding Target (disregarding at-risk assumptions). If the plan is at-risk as of the beginning of the plan year, the funding target will be a "phased-in" percentage of the Funding Target (disregarding at-risk assumptions) and Funding Target (at-risk assumptions).

AFTAP (Adjusted Funding Target Attainment Percentage) - Actuarial value of the plan's assets minus credit balances divided by The plan's funding target (ignoring at-risk calculations)

Funding Target Liability (not-at-risk assumptions) - Present value of benefits accrued under the plan as of the beginning of the plan year, determined under ongoing or "not-at-risk" assumptions.

Benefit restrictions - Plan may not provide benefit improvements and may face restrictions on accelerated payment forms, if valuation assets (reduced by credit balances) are less than 80%, but more than 60%, of funding target (disregarding at-risk assumptions).

Benefit restrictions exemption - Plan is exempt from benefit restrictions if valuation assets for the current year unreduced by credit balances exceed 100% of funding target (disregarding at-risk assumptions).

Benefit restrictions -shutdown benefits restricted, accruals frozen no accelerated benefit distributions - Plan shutdown benefits are restricted, accruals are frozen, and plan is prevented from making accelerated benefit distributions if valuation assets (reduced by all credit balances) are less than 60% of funding target (disregarding at-risk assumptions).

Credit balance use test - Credit balances may be used to reduce minimum contribution requirement if valuation assets reduced by the prefunding balance exceed 80% of the plan's funding target (disregarding at-risk assumptions) for the previous plan year.

IRS Published Yield Curve used for Funding Interest Rate based on valuation date of Jan. 1, 2008:

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
4.93%	4.72%	4.75%	4.95%	5.19%	5.41%	5.60%	5.75%	5.87%	5.98%
Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
6.07%	6.15%	6.21%	6.27%	6.32%	6.36%	6.39%	6.42%	6.45%	6.48%



Wurts' 2009 Correlation Assumptions

	Large Cap US Equity	Small/Mid Cap US Equity	Int'l Large	Int'l Small	Emg Mkts	US Core Fixed Income	TIPS	High Yield Fixed Income	Real Estate	Liquid Alts/Hedge Funds	Private Equity/VC	Commodities	Cash	US Inflation
Large Cap US Equity	1	0.809	0.787	0.639	0.68	0.035	-0.121	0.469	0.086	0.587	0.682	0.098	0.052	-0.111
Small/Mid Cap US Equity	0.809	1	0.683	0.641	0.681	-0.045	-0.133	0.469	-0.043	0.595	0.584	0.189	-0.07	-0.189
International Large	0.787	0.683	1	0.877	0.737	-0.042	-0.048	0.379	0	0.647	0.563	0.189	-0.126	-0.2
International Small	0.639	0.641	0.877	1	0.781	-0.058	0.023	0.429	0.089	0.655	0.454	0.3	-0.136	-0.049
Emerging Markets	0.68	0.681	0.737	0.781	1	-0.079	-0.093	0.369	-0.101	0.724	0.473	0.35	-0.096	-0.099
US Core Fixed Income	0.035	-0.045	-0.042	-0.058	-0.079	1	0.58	0.196	0.049	0.058	-0.185	0.064	0.604	-0.112
TIPS	-0.121	-0.133	-0.048	0.023	-0.093	0.58	1	0.185	0.097	0.089	0.107	0.191	-0.056	0.024
High Yield Fixed Income	0.469	0.469	0.379	0.429	0.369	0.196	0.185	1	0.181	-0.003	0.053	0.198	-0.073	-0.011
Real Estate	0.086	-0.043	0	0.089	-0.101	0.049	0.097	0.181	1	-0.107	0.175	0.001	0.314	0.111
Liquid Alts/Hedge Funds	0.587	0.595	0.647	0.655	0.724	0.058	0.089	-0.003	-0.107	1	0.641	0.336	0.027	-0.041
Private Equity/VC	0.682	0.584	0.563	0.454	0.473	-0.185	0.107	0.053	0.175	0.641	1	0.033	-0.026	-0.086
Commodities	0.098	0.189	0.189	0.3	0.35	0.064	0.191	0.198	0.001	0.336	0.033	1	-0.015	0.201
Cash	0.052	-0.07	-0.126	-0.136	-0.096	0.604	-0.056	-0.073	0.314	0.027	-0.026	-0.015	1	0.064
US Inflation	-0.111	-0.189	-0.2	-0.049	-0.099	-0.112	0.024	-0.011	0.111	-0.041	-0.086	0.201	0.064	1

Note: Correlation assumptions are based on both historical observations and Wurts estimate of future correlation trends.



Stochastic Projections All Scenarios: Nominal Returns

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Current Mix											
5th - Worst Case	-25.94%	-7.75%	-7.73%	-7.49%	-8.12%	-8.77%	-7.61%	-8.73%	-7.65%	-7.43%	-8.30%
25th - Pessimistic	-25.94%	1.96%	2.00%	1.94%	1.50%	1.13%	2.02%	2.05%	1.40%	1.93%	1.73%
50th - Most Probable	-25.94%	8.71%	8.07%	7.45%	7.70%	7.25%	8.25%	8.20%	7.81%	7.89%	7.78%
75th - Optimistic	-25.94%	13.99%	14.01%	13.40%	13.60%	13.41%	13.73%	14.10%	13.89%	14.25%	14.06%
95th - Best Case	-25.94%	21.76%	21.94%	22.06%	22.19%	22.04%	21.36%	21.74%	22.35%	23.08%	22.90%
Mix #1											
5th - Worst Case	-25.94%	-6.08%	-5.96%	-5.42%	-5.93%	-6.44%	-5.49%	-6.27%	-5.41%	-5.65%	-5.88%
25th - Pessimistic	-25.94%	2.51%	2.68%	2.50%	2.21%	1.96%	2.86%	2.89%	2.23%	2.80%	2.41%
50th - Most Probable	-25.94%	8.35%	8.10%	7.55%	7.89%	7.44%	8.12%	8.26%	8.08%	8.02%	7.92%
75th - Optimistic	-25.94%	13.14%	13.37%	12.82%	13.03%	12.91%	13.08%	13.40%	13.31%	13.64%	13.59%
95th - Best Case	-25.94%	20.03%	20.09%	20.61%	20.31%	20.23%	19.83%	20.42%	20.67%	21.80%	21.27%
Mix #2											
5th - Worst Case	-25.94%	-7.76%	-7.53%	-6.93%	-7.50%	-8.08%	-6.75%	-7.73%	-6.70%	-6.97%	-7.42%
25th - Pessimistic	-25.94%	2.40%	2.42%	2.23%	2.00%	1.40%	2.67%	2.45%	1.75%	2.52%	2.12%
50th - Most Probable	-25.94%	9.07%	8.59%	7.99%	8.26%	7.79%	8.55%	8.63%	8.46%	8.33%	8.23%
75th - Optimistic	-25.94%	14.40%	14.58%	13.69%	14.02%	14.04%	14.29%	14.71%	14.42%	14.79%	14.59%
95th - Best Case	-25.94%	22.25%	22.38%	22.74%	22.45%	22.37%	21.81%	22.52%	22.88%	23.92%	23.45%
Mix #3											
5th - Worst Case	-25.94%	-8.92%	-8.74%	-8.09%	-8.85%	-9.54%	-8.22%	-9.28%	-8.08%	-8.30%	-8.46%
25th - Pessimistic	-25.94%	2.10%	2.11%	2.02%	1.61%	1.01%	2.30%	2.18%	1.44%	2.28%	1.85%
50th - Most Probable	-25.94%	9.48%	8.96%	8.25%	8.51%	8.05%	8.83%	8.92%	8.73%	8.57%	8.44%
75th - Optimistic	-25.94%	15.45%	15.43%	14.69%	14.98%	14.94%	15.32%	15.67%	15.41%	15.79%	15.51%
95th - Best Case	-25.94%	24.02%	24.19%	24.30%	24.38%	24.02%	23.67%	24.11%	24.78%	25.72%	25.39%
Mix #4											
5th - Worst Case	-25.94%	-9.80%	-10.13%	-9.08%	-10.35%	-10.88%	-9.32%	-10.49%	-9.17%	-9.48%	-9.83%
25th - Pessimistic	-25.94%	1.84%	2.00%	1.89%	1.29%	0.66%	1.82%	1.98%	1.24%	1.74%	1.50%
50th - Most Probable	-25.94%	9.85%	9.32%	8.35%	8.77%	8.25%	9.07%	8.71%	8.87%	8.90%	8.61%
75th - Optimistic	-25.94%	16.41%	16.33%	15.42%	15.65%	15.74%	16.08%	16.58%	16.22%	16.54%	16.25%
95th - Best Case	-25.94%	25.62%	25.93%	25.78%	25.94%	25.64%	25.24%	25.56%	26.49%	27.30%	26.93%



The Worker, Retiree, and Employer Recovery Act of 2008

H.R. 7327 was passed by the House on Dec. 11, 2008 by unanimous consent. H.R. 7327 is virtually identical to the pension package the Senate hotlined on Thursday, November 20th, except H.R. 7327 does not include three provisions – provisions relating to (1) bonus depreciation, (2) small business expensing, and (3) Indian tribal government pension plans. H.R. 7327 made very minor non-substantive, technical changes to the Senate version per the Joint Committee on Taxation's review of the legislative language. A summary of the major provisions of H.R. 7327 are below (note, the following summary is virtually identical to the summary sent to Senate offices on Thursday, November 20th).

Pension Recovery Provisions

- The provision places a one year moratorium on required minimum distributions from individual retirement accounts and defined contribution plans for 2009. This proposal is estimated to cost \$3.6 billion over ten years.
- Under current law, the funding target under the Pension Protection Act of 2006 (PPA) is phased in over three years. For those plans that fall below the set target funding percentage for a particular year, the provision would require these plans to fund up to the specified funding percentage for that year, instead of 100%. This provision is effective as if included in the Pension Protection Act. The proposal is estimated to raise \$43 million over ten years.
- For plan years starting between October 1, 2008 and October 1, 2009, the provision would permit multi-employer plans to elect to freeze their current funding certification for one year based on the previous year's level. This proposal is estimated to raise \$10 million over ten years.
- The provision extends the current funding improvement or rehabilitation period for multi-employer plans that have funding improvement and rehabilitation plans in place in 2008 and 2009 by 3 years, from 10 to 13 years. This proposal is estimated to raise \$52 million over ten years.

Worker Protections:

- Under current law, a single-employer pension plan that is less than 60% funded must freeze all benefit accruals for plan participants. The provision would allow plans to lookback to the plan's funding status during the previous plan year (if that level was greater) for purposes of determining whether the restriction on benefit accruals would apply. This provision would apply for plan years beginning on or after October 1, 2008 and before October 1, 2009 only. For plan years beginning January 1, 2009, that means a look-back to January 1, 2008 conditions. This provision has a negligible revenue effect.

Pension Protection Act Technical Correction Provisions:

- The 2008 transition rule for determining at-risk status applies to both the 70% and 80% prongs.
- Lump sums of \$5,000 or less can be paid, even if an underfunded plan is otherwise prohibited from paying lump sums.
- For applicable defined benefit (hybrid) plans:
 - The new vesting rules for hybrid plans are effective on the basis of plan years and apply to participants with an hour of service after the applicable effective date for the plan.
 - The new interest crediting rules for hybrid plans in existence on June 29, 2005 apply to years beginning after December 31, 2007, unless the sponsor elects to apply the rules earlier.
 - The vesting and interest crediting rules that apply to collectively bargained plans do not apply to plan years beginning before the earlier of:
 - (1) (a) the later of January 1, 2008 or (b) the termination of the collective bargaining agreement; or (2) January 1, 2010.

***Most Applicable to Sample Client Corp.'s Plan.**



The Worker, Retiree, and Employer Recovery Act of 2008

(Cont'd.)

- The combined plan deduction limit for defined benefit and defined contribution plans does not apply to the defined benefit plan if contributions to the defined contribution plan are no more than 6% of compensation. If these contributions are more than 6% of compensation, only contributions in excess of 6% count toward the deduction limit.
- All plans must permit rollovers out of the plan for non-spousal beneficiaries.
- The exclusion for up to \$3,000 of health insurance premiums for retired public safety officers applies to self-funded arrangements. To be excluded, the amounts must be distributed from a public safety officer's former employer's retirement plan.
- Plan expenses expected to be paid out of plan assets must be included in calculating the plan's target normal cost.
- The Secretary of Treasury is given authority to prescribe special rules for small defined benefit plans that have a valuation date other than the first day of the plan year for purposes of, among others, quarterly contributions and determining the application of the benefit restriction rules.
- Rollovers from a Roth 401(k) or 403(b) plan to a Roth IRA are not subject to the Roth IRA contribution AGI limits.

Non-Technical Retirement Security Provisions

- Airline workers whose defined benefit pension plan was terminated or frozen as a result of bankruptcy (filed after September 11, 2001, and prior to January 1, 2007) would be allowed to roll-over bankruptcy payments intended to replace lost retirement income to a Roth individual retirement account ("Roth IRA"). This provision is estimated to cost \$82 million over 10 years.
- Small defined benefit plans would be required to determine the value of lump sum distributions not in excess of the Code section 415 limit using a fixed 5.5% interest rate, instead of the greater of the 5.5% rate or 105% of the corporate bond yield curve rate. This provision is estimated to cost \$59 million over 10 years.
- Governmental retirement plans that credit a plan participant's account balance with a specified interest rate would be permitted to use a rate that exceeded the "market rate of return" (as defined by the Treasury Department), provided the governmental plans' interest rate was set by Federal, State, or local law. This provision has a negligible revenue effect.
- A plan established by a State or local government to reimburse certain medical care expenses incurred by State or local government employees on a tax-free basis shall not lose this favorable tax treatment merely because the plan provides for reimbursements of medical care expenses incurred by a deceased plan participant's non-spouse/non-dependent beneficiary. This provision is estimated to raise \$3 million over 10 years.
- The penalty that is in effect for the failure to file an S corporation tax return shall be increased by \$4. This provision is estimated to raise \$38 million over 10 years.
- The penalty that is in effect for the failure to file a partnership tax return shall be increased by \$4. This provision is estimated to raise \$42 million over 10 years.
- The value of a plan's assets may be adjusted for contributions, distributions, and expected earnings with a cap on expected earnings equal to the 3rd segment rate of the yield curve. This provision is estimated to raise \$70 million over 10 years.



CAPITAL MARKETS UPDATE

March 2013



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March started off with President Obama signing in the budget sequestration, which will cause cuts totaling \$1.1 trillion by 2023. The equity market shrugged off concerns over the sequestration and its effect on GDP growth; the S&P 500 is up over 10% for the first quarter. The rise in equity markets appears to be in line with continuing improving fundamentals in the economy. The U.S. economy continues to show signs of improvement with falling unemployment and a strengthening housing market. Later in the month, global financial markets shifted focus to the small island nation of Cyprus, which is at risk of a financial collapse after large investments in Greek Debt failed.

There were a number of positive economic figures during the month. Nonfarm payrolls increased more than expected, with pervasive gains across the private sector. Personal spending posted solid growth in February and income was up 1.1 percent. The manufacturing sector appears to be improving; durable goods orders rose 5.7 percent on the back of stronger transportation orders and January orders were revised higher. The unemployment rate fell to 7.7 percent from 7.9 percent in January, driven mainly by stronger household employment and a drop in the labor force. The ISM non-manufacturing index posted another strong reading in February, rising to 56, with gains across most categories. The Consumer Price Index (CPI) rose 0.7 percent in February, mainly due to increases in energy prices.

Housing indicators released during the month suggests the recovery in real estate continues. Single-family housing starts rose 618,000, which is the fastest rate since June 2008, while building permits issued are up 30 percent over the same period. Existing home sales increased to 4.98 million and inventories rose 9.6 percent. The S&P/Case-Shiller index also showed home values across 20 major markets rising 1.0 percent in January and are up 8.0 percent from a year ago.

The Cypriot parliament rejected a €10 billion bailout deal with the EU and the IMF. The details of this deal entailed deposits of less than €100,000 to be taxed at 6.75 percent and deposits of greater than €100,000 to be taxed at 9.9 percent. The fallout from this proposed policy caused bond yields in peripheral European Countries to rise. The yield on the 10-year Greek government bond rose more than 150 basis points since the start of the Cypriot crisis. Long-Term government bond yields in Italy, Portugal and Spain also rose over the period.

Economic data in the Eurozone continue to come in soft. Although German real GDP likely rose in the first quarter, it appears that the economic output in the overall euro area contracted for the sixth consecutive quarter. In addition, United Kingdom's economy is doing poor, with industrial production falling 1.2 percent in January and GDP falling in four of the past five quarters. The Bank of England kept its main policy rate unchanged at 0.5 percent.

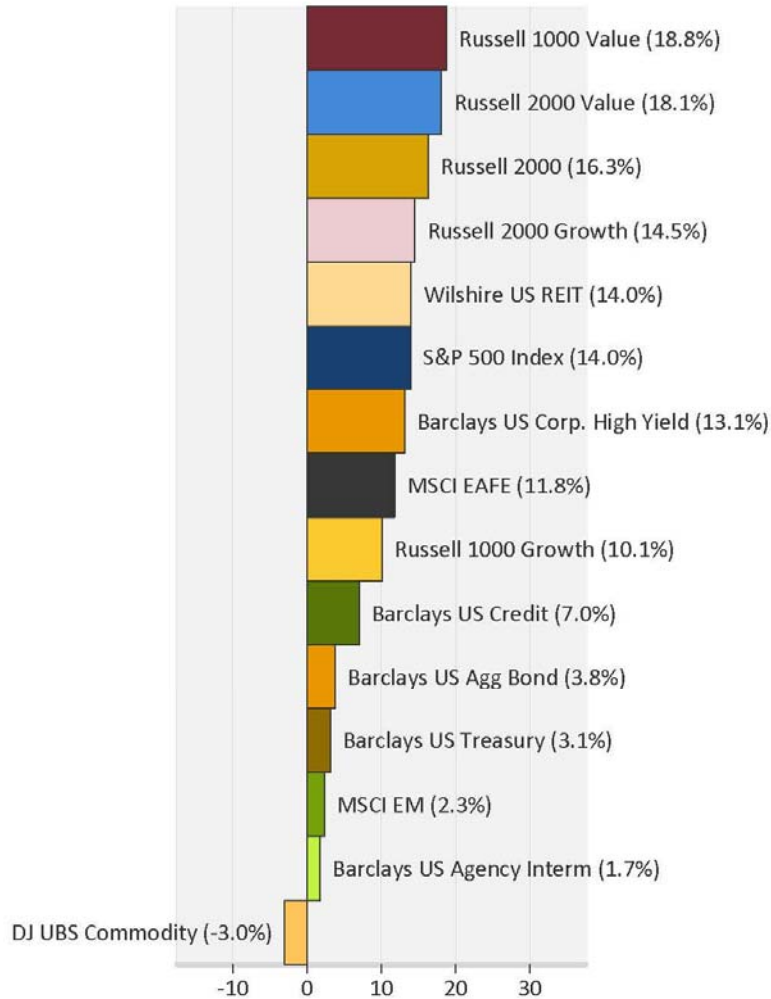
The Chinese economy showed signs of strengthening. Growth in industrial production was impressive at 9.9 percent in January. Although recent economic data is encouraging, monetary tightening in the short term does not seem likely until the global economy is stronger.

Asset Class Commentary

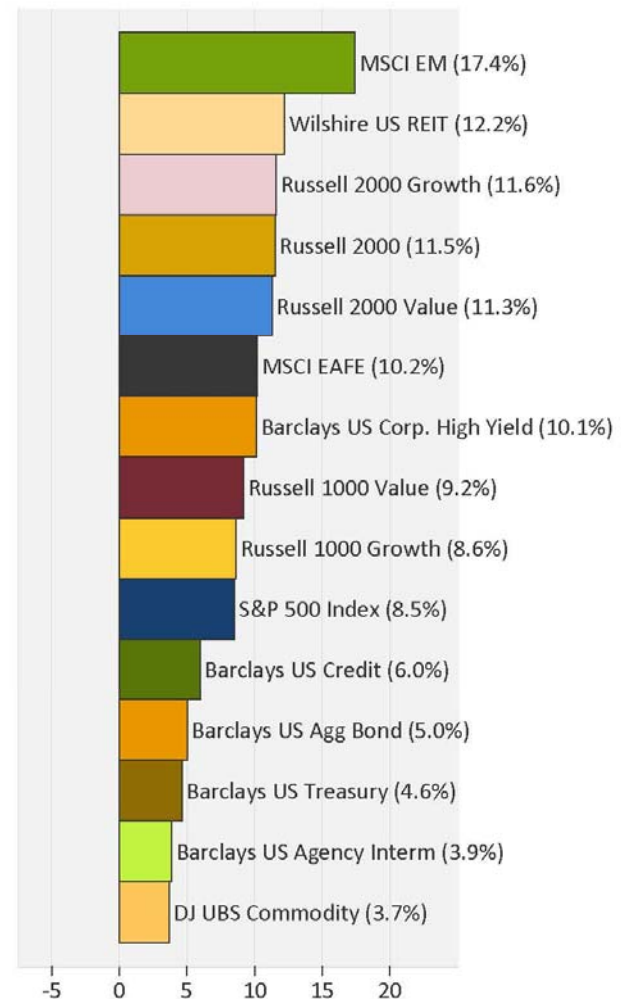
Domestic equity performance was positive for the month; the S&P 500 returned 3.8% and the Russell 2000 returned 4.6%. Emerging market equities were down during the month with the MSCI EM returning -1.7%. In fixed income, the Barclays Aggregate index was up 0.1% while the Barclays Corporate High Yield index was up 1.0%.

MAJOR ASSET CLASS RETURNS

One Year ending March 2013



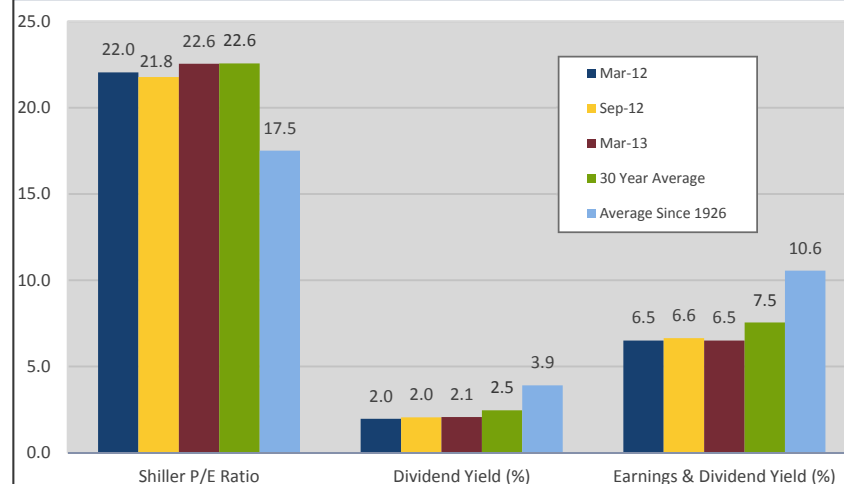
Ten Years ending March 2013



US LARGE CAP EQUITIES

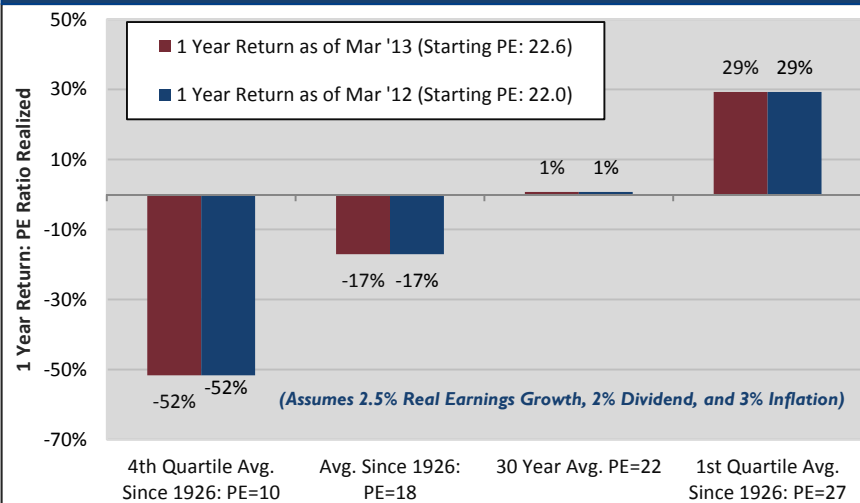
- The S&P 500 gained 3.8% in March and 10.6% for the first quarter. The Shiller P/E slightly increased from 22.5 to 22.6 over the month and is up from 21.4 for the quarter.
- The S&P 500 one-year return is 14.0% while the Shiller P/E is up 2.7% over the last year.
- The current Shiller P/E ratio suggests the market is fairly valued from a 30 year perspective, but overvalued relative to its longer historical average.
- Earnings and dividend yields are slightly below their 30 year averages but well below their historical average since 1926.

US Large Cap (S&P 500) Valuation Snapshot



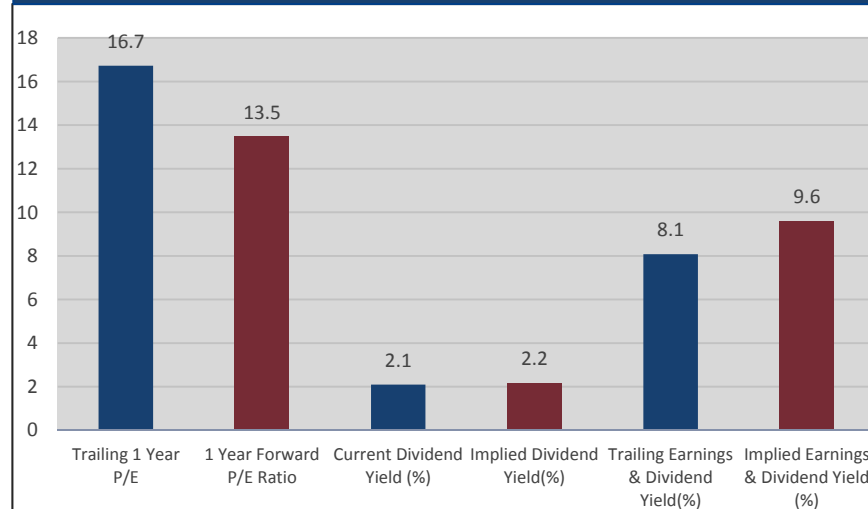
Source: Yale/Shiller, Wurts

Effects of Changes in Shiller PE Ratio



Source: Yale/Shiller, Wurts

S&P 500 Valuation Snapshot (Mar '13)

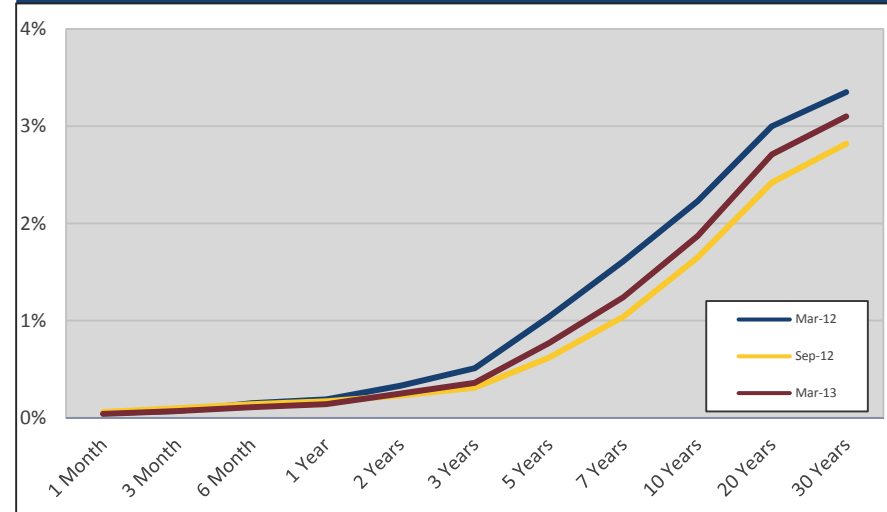


Source: S&P, Wurts

FIXED INCOME

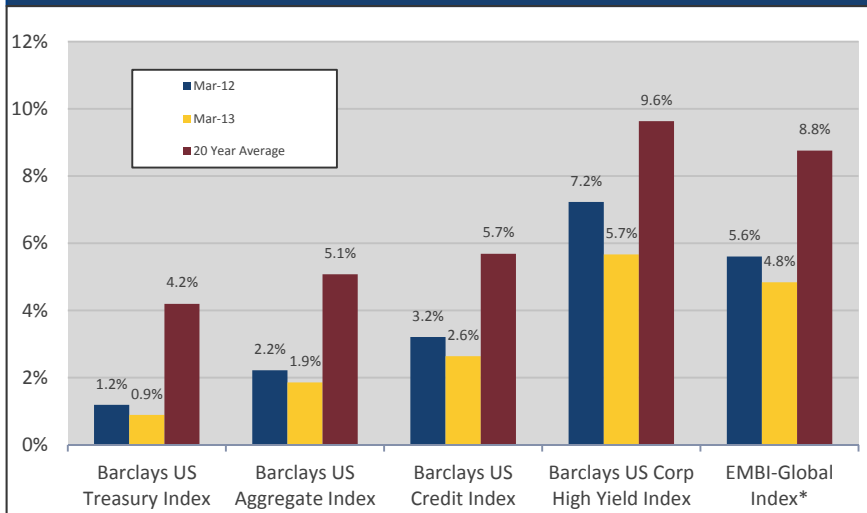
- Treasury yields decreased on the short end and slightly increased on the long end resulting in a steeper yield than a month ago.
- The long end of the Treasury yield curve has risen back closer to where it was a year ago and away from levels seen last September.
- Over the last month, five-year and ten-year inflation expectations remained unchanged at 2.2% and 2.5%, respectively.
- The BC US High Yield and US Agg nominal yields declined by 10bps from February to March. Absolute yields have trended downward over the last 12 months, and remain well below their 20-year averages.

US Treasury Yield Curve



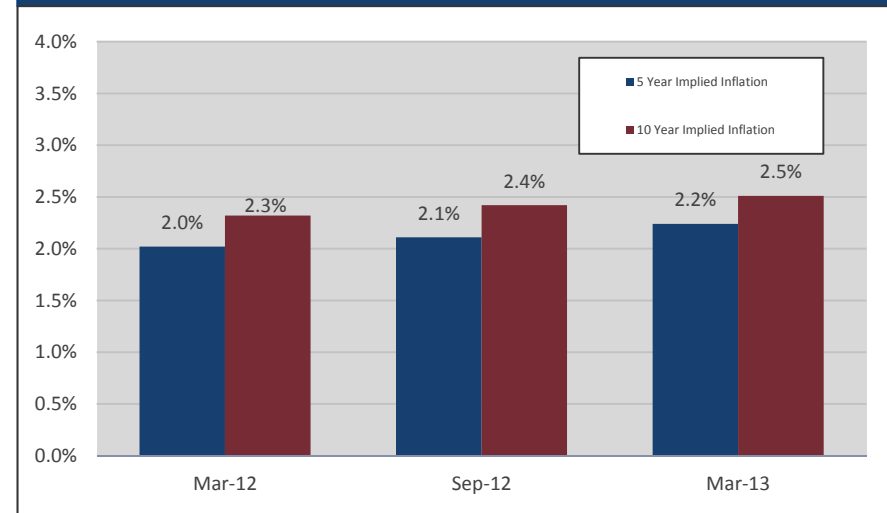
Source: Federal Reserve

Nominal Fixed Income Yield Maturities



Source: Ibbotson, JP Morgan

Inflation Expectations (Nominal less Real)

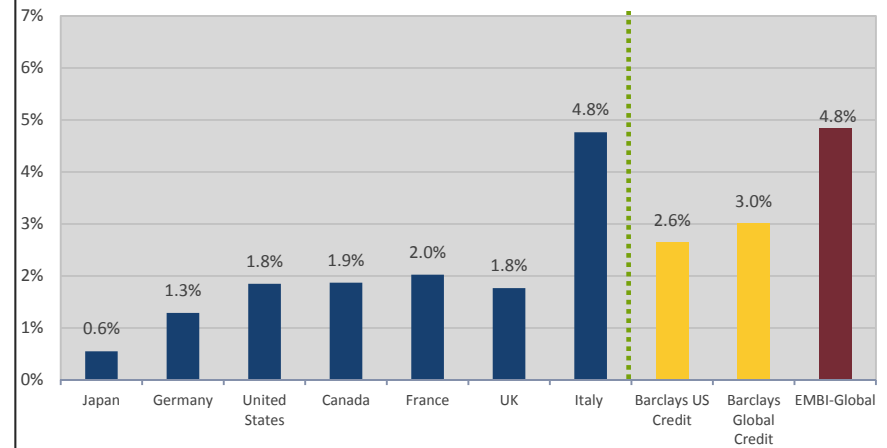


Source: Federal Reserve

GLOBAL MARKETS

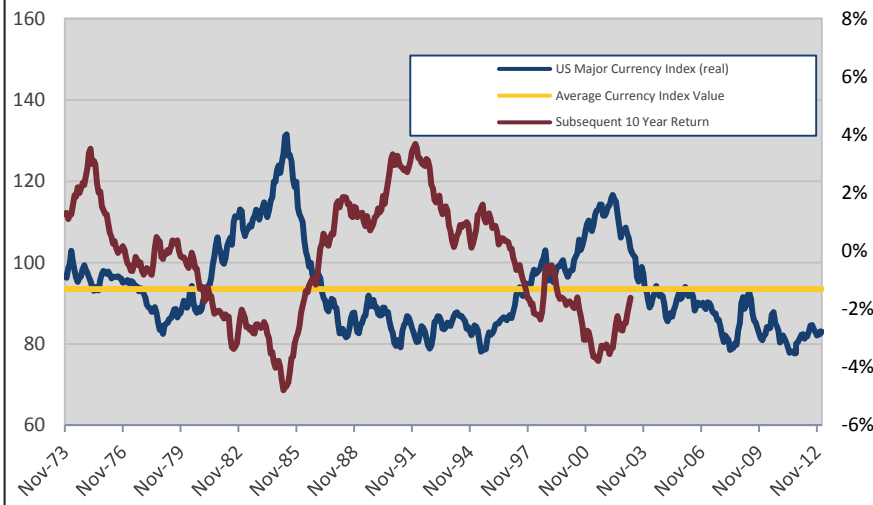
- Developed and emerging market equity returns were mixed in March with the MSCI EAFE rising 0.9% and the MSCI EM index falling 1.7%.
- All global sovereign yields fell during March except for Italy and Canada. Italian yields rose from 4.7% to 4.8% and Canadian yields rose from 1.8% to 1.9%.
- Trailing 3-month equity MSCI P/E ratios rose for EAFE and US markets, while emerging markets were flat.
- The US dollar appreciated in March relative to a trade-weighted basket from 84.2 to 86.5 (March 1973 = 100), leaving it well below the historical average of 93.5.

Global Sovereign 10 Year Index Yields (Mar '13)



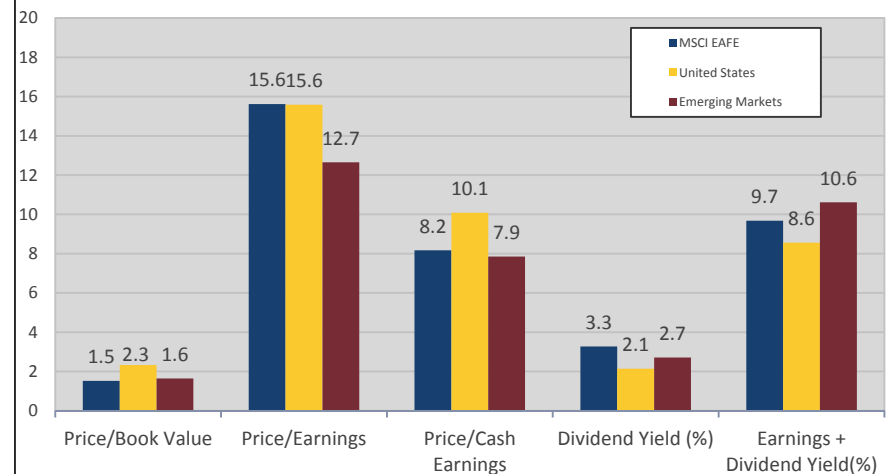
Source: Bloomberg, JP Morgan

US Dollar Major Currency Index (Mar '13)



Source: Free Lunch, Wurts

Rolling 3 Month MSCI Ratios (Mar '13)

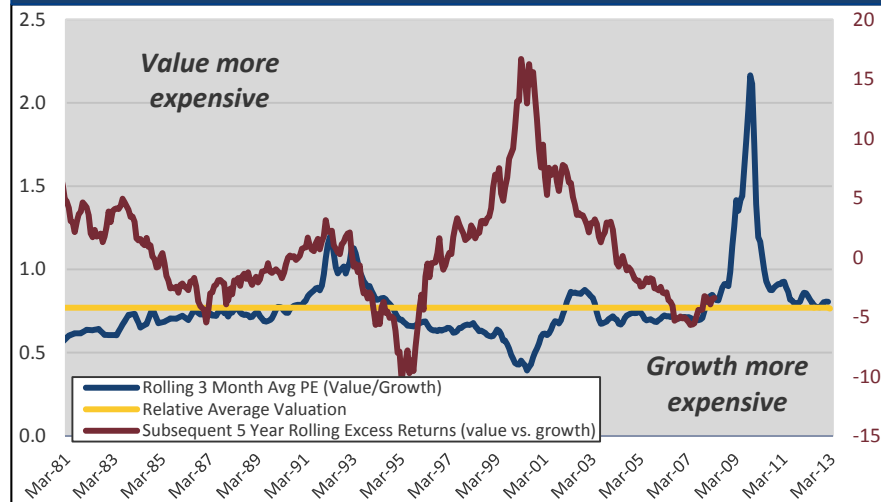


Source: MSCI

STYLE TILTS: US LARGE VALUE VS. GROWTH

- US large cap growth equities gained 3.8% while large cap value equity returns gained 4.0% over the month. For the quarter large cap growth returned 9.5% and large cap value returned 12.3%
- US large cap value stocks have outperformed growth stocks by 8.7% over the trailing 12 months, continuing the recent trend of strong relative performance.
- Value and growth stocks remain fairly valued relative to each other when compared to the long-run average P/E relationship.

Relative PE Ratio of US Value vs. Growth



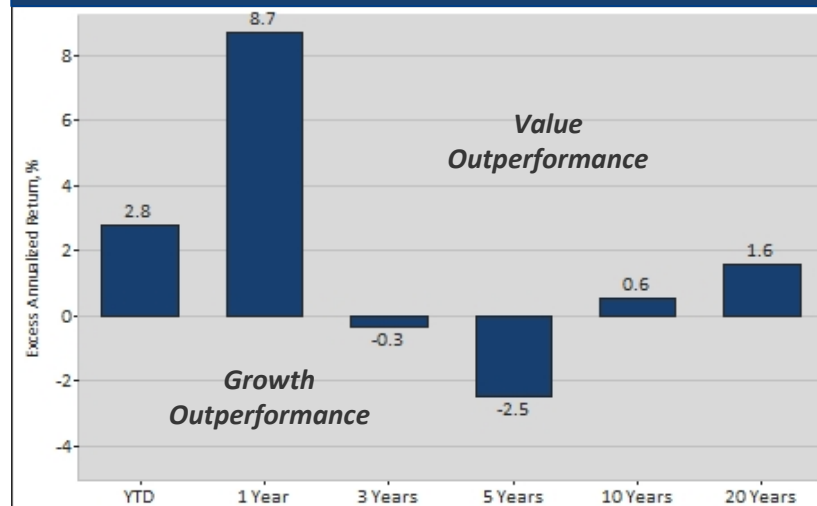
Source: Russell

US Value vs. Growth Absolute Performance

	Russell 1000 Growth Annualized Return to date, %	Russell 1000 Value Annualized Return to date, %
QTD	9.54	12.31
YTD	9.54	12.31
1 Year	10.09	18.77
3 Years	13.06	12.74
5 Years	7.30	4.85
7 Years	6.08	4.19
10 Years	8.62	9.18
20 Years	7.65	9.21
	Sharpe Ratio	Sharpe Ratio
3 Years	0.87	0.84
5 Years	0.45	0.32
7 Years	0.34	0.23
10 Years	0.51	0.53
20 Years	0.33	0.46

Source: MPI

US Value vs. Growth to Date Performance

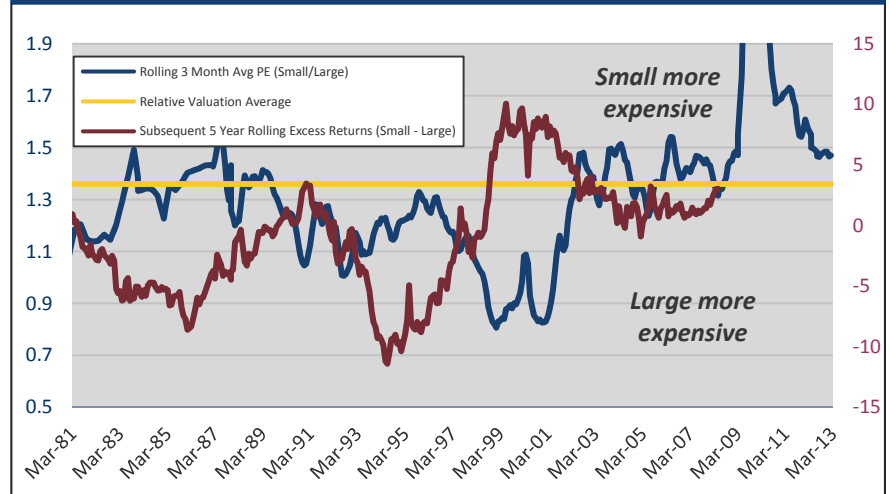


Source: MPI

STYLE TILTS: US LARGE VS. SMALL

- US large and small cap equities continued their run into March with the Russell 1000 up 3.9% and the Russell 2000 gaining 4.6%. For the quarter the Russell 1000 returned 11.0% and the Russell 2000 returned 12.4%.
- Small cap equities have outperformed large cap equities YTD by 1.4% and the trailing 12 month period by 1.9%. They continue to generate higher returns over all time periods.
- The relative P/E ratio between small and large cap stocks is beginning to show that both styles are close to fair value on a rolling 3-month timeframe.

Relative PE Ratio of US Small vs. Large



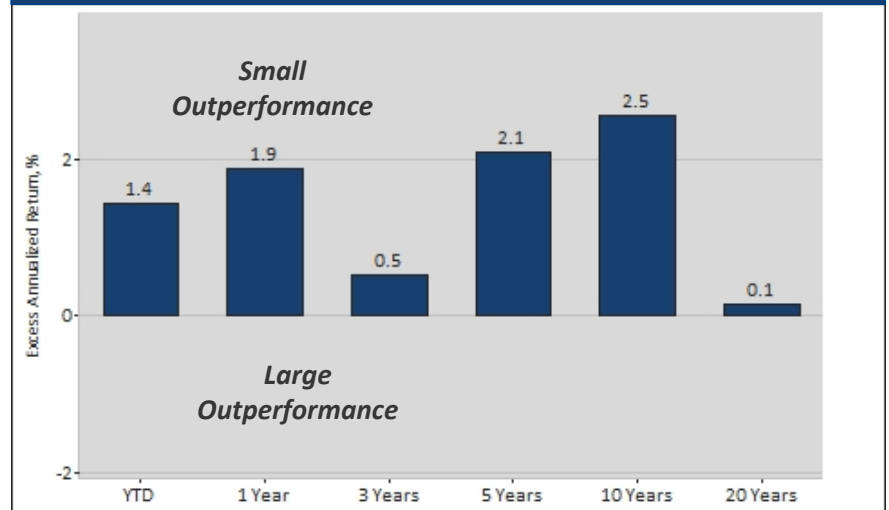
Source: Russell, Wurts & Associates

US Small vs. Large Absolute Performance

	Russell 1000 Annualized Return to date, %	Russell 2000 Annualized Return to date, %
QTD	10.96	12.39
YTD	10.96	12.39
1 Year	14.43	16.30
3 Years	12.93	13.45
5 Years	6.15	8.24
7 Years	5.20	4.59
10 Years	8.97	11.52
20 Years	8.69	8.84
	Sharpe Ratio	Sharpe Ratio
3 Years	0.86	0.72
5 Years	0.39	0.43
7 Years	0.29	0.24
10 Years	0.53	0.56
20 Years	0.42	0.37

Source: MPI

US Small vs. Large to Date Performance



Source: MPI

APPENDIX

PERIODIC TABLE OF RETURNS – MARCH 2013

1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	YTD
74.8	16.6	38.4	23.2	35.2	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	13.2
32.9	8.1	37.8	23.1	32.9	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	12.4
26.3	6.4	37.2	22.4	31.8	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	12.3
23.8	4.4	31.0	21.6	30.5	16.2	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	11.6
18.9	2.6	28.5	21.4	22.4	15.6	26.5	7.0	2.8	1.0	39.2	16.5	8.0	18.4	11.6	-25.5	28.4	16.8	1.2	16.4	11.0
18.1	0.4	25.7	16.5	19.1	13.8	24.3	6.0	2.5	-6.0	30.0	14.5	7.5	16.6	10.3	-28.9	27.2	16.7	0.4	16.3	9.5
13.4	-0.2	24.4	15.5	16.2	8.7	21.3	4.1	-2.4	-8.9	29.9	14.3	7.1	15.5	8.7	-33.8	20.6	16.1	0.1	15.3	5.2
13.2	-1.5	18.5	14.4	13.9	4.9	20.9	0.4	-4.3	-11.4	29.7	11.9	6.3	14.0	7.0	-35.6	19.7	15.5	-2.9	14.6	0.0
10.2	-1.8	15.2	11.3	12.9	1.2	16.8	-3.0	-5.6	-15.5	23.9	11.4	5.3	13.3	7.0	-36.8	18.9	13.1	-4.2	12.6	-0.1
9.7	-2.0	11.6	10.3	9.7	-2.5	11.4	-7.8	-9.2	-15.7	22.9	9.1	4.7	10.4	5.8	-37.6	18.4	13.0	-5.5	10.5	-1.1
3.1	-2.4	11.1	6.4	5.2	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	5.0	-1.6
2.9	-2.9	7.5	6.0	2.1	-6.5	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	NA
1.4	-3.5	5.7	5.1	-3.4	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	NA
-1.1	-7.3	-5.2	3.6	-11.6	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	NA

■ Large Cap Equity
■ Large Cap Value
■ Large Cap Growth
■ Small Cap Equity
■ Small Cap Value

■ Small Cap Growth
■ International Equity
■ Emerging Markets Equity
■ US Bonds
■ Cash

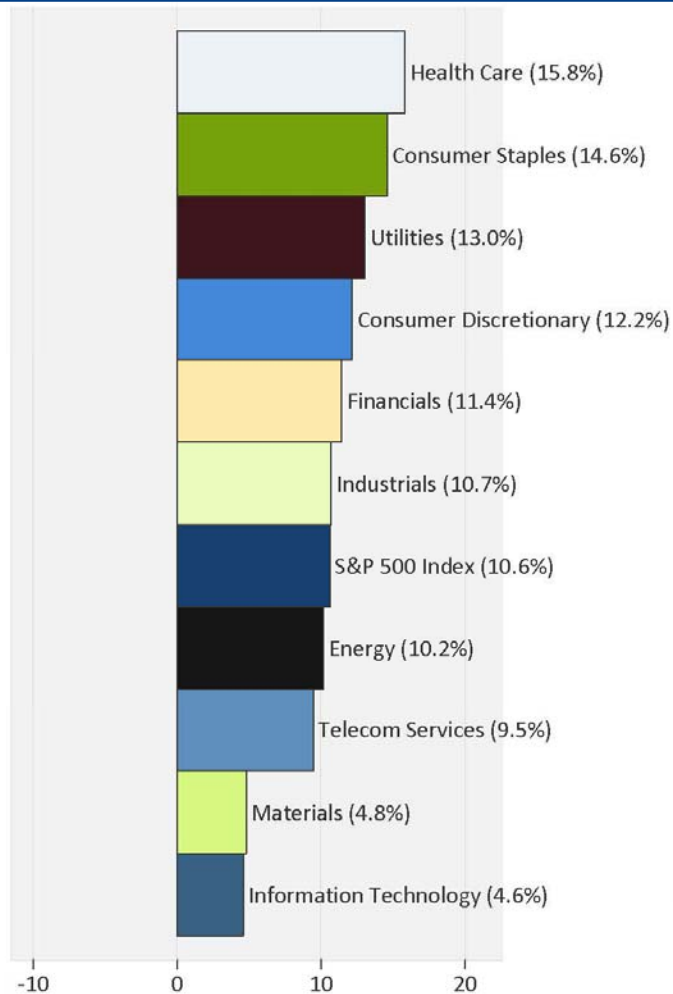
■ Commodities
■ Real Estate
■ Hedge Funds of Funds
■ Universe Median Total Funds

Source: Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF) and BNY Mellon

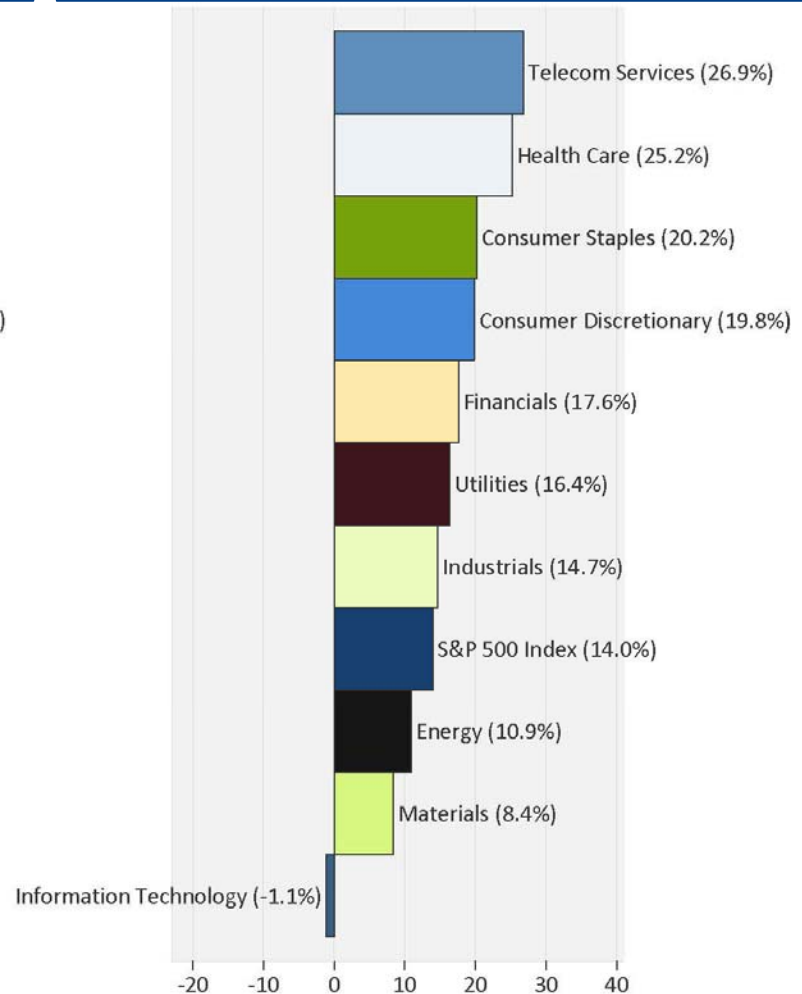
Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BC Agg, T-Bill 90 Day, DJ UBS Comm, NCREIF Property, HFRI FOF, BNY Universe Median Total Funds

S & P 500 AND S & P 500 SECTOR RETURNS

One Quarter Ending March 2013



One Year Ending March 2013



DETAILED INDEX RETURNS

Domestic Equity 3/2013	1-Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years
<u>Core Index</u>							
S&P 500 Index	3.8	10.6	10.6	14.0	12.7	5.8	8.5
S&P 500 Equal Weighted	4.4	12.5	12.5	17.5	14.3	9.2	12.0
DJ Industrial Average	3.9	11.9	11.9	13.4	13.3	6.5	8.9
Russell Top 200	3.7	10.1	10.1	13.2	12.2	5.3	7.8
Russell 1000	3.9	11.0	11.0	14.4	12.9	6.2	9.0
Russell 2000	4.6	12.4	12.4	16.3	13.5	8.2	11.5
Russell 3000	3.9	11.1	11.1	14.6	13.0	6.3	9.2
Russell Mid Cap	4.3	13.0	13.0	17.3	14.6	8.4	12.3
<u>Style Index</u>							
Russell 1000 Growth	3.8	9.5	9.5	10.1	13.1	7.3	8.6
Russell 1000 Value	4.0	12.3	12.3	18.8	12.7	4.9	9.2
Russell 2000 Growth	5.1	13.2	13.2	14.5	14.8	9.0	11.6
Russell 2000 Value	4.2	11.6	11.6	18.1	12.1	7.3	11.3

International Equity 3/2013	1-Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years
<u>Broad Index</u>							
MSCI EAFE	0.9	5.2	5.2	11.8	5.5	(0.4)	10.2
MSCI AC World ex US	0.3	3.3	3.3	8.9	4.9	0.1	11.4
MSCI EM	(1.7)	(1.6)	(1.6)	2.3	3.6	1.4	17.4
MSCI EAFE Small Cap	1.9	8.5	8.5	13.7	8.8	2.4	13.6
<u>Style Index</u>							
MSCI EAFE Growth	1.6	6.8	6.8	11.7	6.8	0.2	9.8
MSCI EAFE Value	0.2	3.6	3.6	11.7	4.1	(1.1)	10.5
<u>Regional Index</u>							
MSCI UK	1.2	2.5	2.5	9.8	8.0	0.7	9.3
MSCI Japan	5.0	11.7	11.7	8.7	3.5	(0.4)	7.1
MSCI Euro	(1.6)	(0.9)	(0.9)	8.8	1.2	(5.2)	9.2
MSCI EM Asia	(2.3)	(1.3)	(1.3)	5.6	5.3	2.5	16.1
MSCI EM Latin America	0.0	0.9	0.9	(4.1)	0.1	0.6	23.1

Fixed Income 3/2013	1-Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years
<u>Broad Index</u>							
Barclays US Treasury US TIPS	0.3	(0.4)	(0.4)	5.7	8.6	5.9	6.3
Barclays US Treasury Bills	0.0	0.0	0.0	0.1	0.2	0.5	1.8
Barclays US Agg Bond	0.1	(0.1)	(0.1)	3.8	5.5	5.5	5.0
<u>Duration</u>							
Barclays US Treasury 1-3 Yr	0.0	0.1	0.1	0.6	1.3	1.8	2.7
Barclays US Treasury Long	(0.1)	(2.4)	(2.4)	7.3	12.5	8.3	7.2
Barclays US Treasury	0.1	(0.2)	(0.2)	3.1	5.4	4.5	4.6
<u>Issuer</u>							
Barclays US Corp. High Yield	1.0	2.9	2.9	13.1	11.2	11.7	10.1
Barclays EM	(0.6)	(1.5)	(1.5)	10.2	10.3	9.9	10.7
Barclays US MBS	0.1	(0.1)	(0.1)	2.0	4.2	5.2	5.0
Barclays US Agency Interm	0.1	0.2	0.2	1.7	2.8	3.4	3.9
Barclays US Credit	0.0	(0.2)	(0.2)	7.0	7.9	7.5	6.0

Strategic Asset Allocation: Moving Beyond Mean Variance Optimization

“Diversification is protection against ignorance. It makes very little sense for those who know what they’re doing.”
Warren Buffett

By Peter Wilamoski, Ph.D.
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JANUARY 2012

Introduction

Nearly 60 years ago, Harry Markowitz introduced the idea that *diversification* reduces risk in a piece titled “Portfolio Selection”. Known today as Modern Portfolio Theory (MPT), Markowitz ultimately received a Nobel Prize and revolutionized how investment professionals approach asset allocation.¹ Today, Mean Variance Optimization (MVO), the application of MPT, is used nearly universally by asset managers to make strategic asset allocation decisions, i.e. to construct long-term portfolios.

MVO is a quantitative tool that allows investors to consider the tradeoff between each asset’s risk and return when allocating investments between asset classes. In considering those trade-offs, it is believed that a diversified portfolio can be constructed that will maximize expected returns for the level of risk investors are willing to accept. Investors are drawn to the promises of MVO: that the returns of a diversified portfolio will be less volatile than owning an individual asset, thus better protecting capital; and by incorporating the long-term expected returns of each asset class into the optimizer, investors can make long-term strategic investment decisions and effectively ignore short-term volatility in the market.

Investors only need look back to the 2008 financial market crisis (or any other unexpected market crisis) to vividly remember how MVO failed to deliver on its promise that a diversified portfolio of assets would reduce risk and protect a portfolio’s value. Portfolio’s built using assumptions about long-term expected returns, volatility and correlations ended up containing risks investors were unaware of. Widespread criticism and dissatisfaction with long-term strategic portfolios constructed using MVO followed, and the search continued for a better way to allocate assets.

It is not hard to understand why MVO fails to deliver on its promises; it requires investors to know the expected future long-term returns of each asset class, their volatility and how their prices behave relative to one another (correlation). The problems with this approach are many and include: (1) asset class returns over the near term can be very different than they are in the long-run; (2) there are many

risks associated with owning an asset not captured by simple measures of volatility (standard deviation); and (3) the correlation between assets can change as investors react to market events. This begs the question, why would an investor want to build a strategic portfolio that supposedly maximizes returns for a desired level of risk when all of the inputs generating that recommendation are constantly changing? The assumptions about the behavior of assets necessary for MPT to deliver on its promises are generally unrealistic and can lead to an asset's risk being modeled inappropriately. As was the case in 2008, investors often find themselves owning portfolios containing risks of which they are unaware.

In stating that “diversification is protection against ignorance” and that “it makes very little sense for those who know what they’re doing,” Warren Buffett is not criticizing the benefits of diversification, but recognizing that valuable information should not be overlooked in making decisions. The criticism of MVO is that the long-term inputs required to construct a portfolio fail to make use of valuable information, such as: (1) the current macroeconomic environment; (2) what investors are paying for assets today (relative to their long-run values); and (3) evolving but recognizable risks and behaviors, that should be taken into account in making asset allocation decisions. Failing to do so can introduce unexpected and unintended risks into a portfolio. By not incorporating the available and valuable information, portfolios constructed with MVO are not adequately diversified and can suffer larger drawdowns than expected.

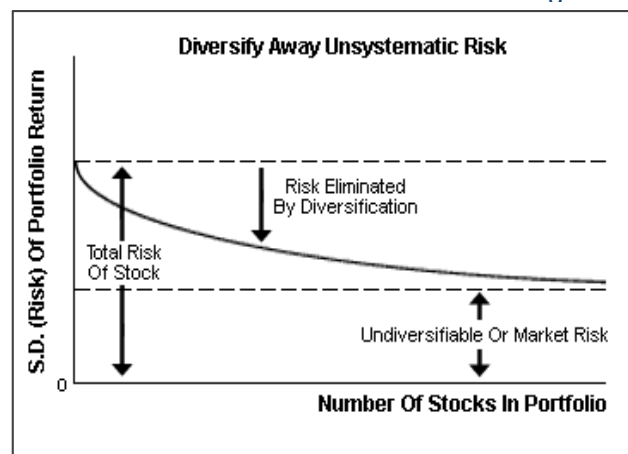
Modern Portfolio Theory

In a world where the future is unclear and investors seeking to maximize the future value of their assets are driven by a desire to minimize the risk to their value, the introduction of Modern Portfolio Theory (MPT) was universally applauded. MPT shows how it is possible to maximize a portfolio's expected return for a given amount of portfolio risk by carefully choosing the proportions of various assets.

MPT's usefulness in asset allocation rests on the idea that assets in a portfolio should not be individually selected based only on their own merits, but also by looking at how each asset changes in price relative to how other assets change in price. MPT shows that as long as the prices of different assets do not move in lockstep, constructing a diversified portfolio offers lower risk than owning all of a single asset. This is true regardless of whether asset prices are positively or negatively correlated to one another. Using stocks as an example, MPT shows that the risk of an individual stock can be broken into two components: systematic and unsystematic risk. Systematic risk, also referred to as market risk, cannot be diversified away. Unsystematic risk, also referred to as specific risk, can be diversified away. In Figure I, MPT shows that as the number of stocks in a portfolio rises, unsystematic risk is reduced.

Mean Variance Optimization (MVO) takes the benefits of diversification a step further; it allows the investor to identify the highest expected returns for every level of risk the portfolio holds. MVO allows

Figure I

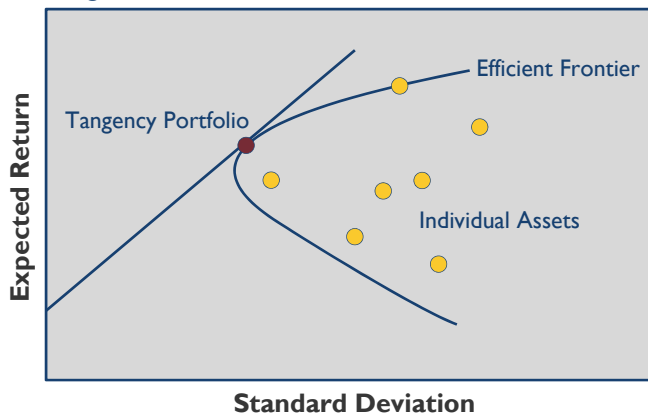


these trade-offs to be observed through the efficient frontier (Figure 2), which plots the expected return for a combination of assets against the portfolio's risk as measured by its standard deviation.

Portfolios on the upper half of the curve are considered efficient as they reveal the portfolio that yields the maximum level of return for a given amount of risk.ⁱⁱ The maximum level of risk an investor is willing to assume determines which portfolio on the efficient frontier the investor assumes.ⁱⁱⁱ

Limitations of Modern Portfolio Theory and Mean Variance Optimization

Figure 2



In the application of MVO, investors implicitly accept the underlying assumptions that make MVO work.^{iv} While all of the assumptions warrant a critical review, we focus on three assumptions that frequently do not hold in the real world: (1) all investors have an accurate conception of possible returns; (2) each asset's range of possible returns must be "normally distributed" and the asset's risk be defined by its standard deviation of returns; and (3) how each asset behaves relative to others is known (the correlation between assets is fixed and constant).

Investors have an accurate conception of possible returns

When using MVO to generate an optimal portfolio, the investor must provide measures of expected risk, return and correlation for each asset under consideration. In practice, investors estimate these values by looking at historical data and predicting what they believe the future holds.^v This is a problem because from the moment the valuations are made and assets are allocated, the forecasts of expected returns fail to account for new information and as a result, actual returns will vary from forecasted returns. By allocating assets based on their long-term expected returns and ignoring short-term changes in the valuation of assets, investors end up with portfolios that contain unexpected risks and inadequate diversification from those risks.

Forecasted returns can differ from actual returns for any number of reasons including unanticipated changes in economic growth, inflation, monetary policy or even market sentiment. Table I shows forecasted and actual returns for a number of asset classes.

If the forecasted returns are higher than what new information suggests they should be, MVO will allocate a greater proportion of assets to an asset class than is warranted. For 2008, a wide range of investors forecasted ten-year U.S. equity

Table I

Asset Class	2008 Ten Year Return Forecasts	2008 Actual Return	2009 Ten Year Return Forecasts	2009 Actual Return	2010 Ten Year Return Forecasts	2010 Actual Return
Equities						
US Large	8.2	-37	9.25	16	8	16
US Small	8.5	-38.5	8.25	27.5	7.5	24.5
Intern. Developed	8.7	-43.1	9.5	32.5	8.25	8.2
Emerging Markets	9.5	-53.2	10.5	79	9.5	19.2
Fixed Income						
US 10-Year Treasuries	4.5	12.4	5	-2.2	3.7	6.5
Investment Grade	5.25	-3.1	6.6	16	4.4	10.5
Emerging Market Debt	7	-9.7	8.2	26	6.1	14.5

returns of 8 percent and that US Treasuries would deliver returns over ten years of 2.25 percent. Instead, equities fell by 37 percent and as investors fled to risk-free assets, Treasuries returned over 12 percent. Very few investors incorporated this in their forecasts. Another recent example; those who forecasted ten-year U.S. equity market returns of 9.25 percent at the beginning of 2009 did not incorporate the impact the Federal Reserve Board's quantitative easing would have on market sentiment, leading to actual US equity returns of 28 percent. Had investors allocated assets *tactically*, i.e. making short term changes to allocations as new information became available portfolios would have better reflected potential risks.

Asset returns are normally distributed

Investors understand that though they can never accurately forecast returns, they are able to make decisions using MVO by assuming that the actual distribution of an asset's returns over time is normally distributed. If they are not, a portfolio constructed assuming they are will contain unexpected risks.

If an asset returns are normally distributed (1) its returns should be symmetrically distributed around their expected value; (2) the risk of a return not being equal to the expected return is a random event; and (3) the probability of various return outcomes can be assessed. What this means, as shown in Figure 3, is that the probability of returns close to the mean return should be high, and the probability of a return far away from the expected return should be low. Instead, markets seem to be dominated by "extreme" events all too often and there are many examples of asset returns being different than expected; these are also known as "fat-tail" events. These "fat-tail events" occur quite often and imply that risk is incorrectly portrayed.

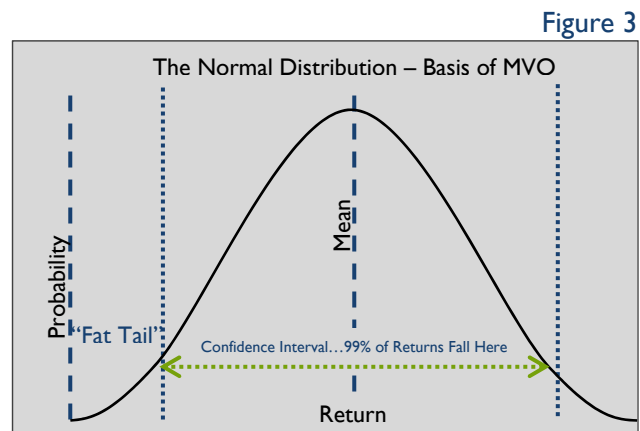


Table 2 demonstrates the expected and actual behavior of the Dow Jones Industrial Average (DJIA) on a daily basis. With a normal distribution assumed, in the nearly 22,000 days the returns of the DJIA were tracked, the index's value should have changed by more than 3.4 percent (positive or negative) in a single day approximately 58 times. Instead, the DJIA lost or gained more than 3.4 percent of its value 1001 times; a ratio of actual to normal of 17X. A 7 percent change in the DJIA's daily value should occur once in 300,000 years; instead it occurred 48 times in the 87 years of the study!

Table 2

Daily Change in DJIA 1916-2003 (21,924 Days)			
Daily Change (+ / -)	Normal Distribution Approximations	Actual	Ratio of Actual to Normal
>3.4%	58 Days	1001 Days	17x
>4.5%	6 Days	366 Days	61x
>7.0%	1 in 300,000 Years	48 Days	Very Large

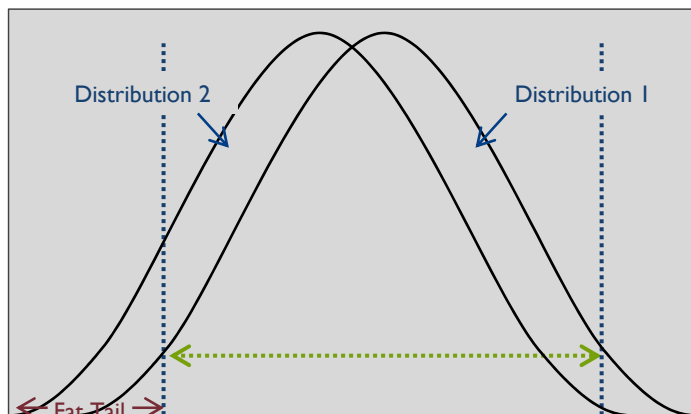
Source: PIMCO, Benoit Mandelbrôt: The (M is) behavior of Markets

Why would an asset's returns not be normally distributed? There are a number of explanations that go beyond the scope of this paper, but one simple explanation is that the distribution of forecasted returns

is based on a view of the future that does not occur. In figure 4, distribution I of an asset's returns is

Figure 4

based on an assumption of what will take place in the future. Distribution 2 is what actually took place and becomes a “tail event” with unexpected risk to the investor. In 2008, investors assumed equity returns were described by distribution 1, when in fact they were described by distribution 2.



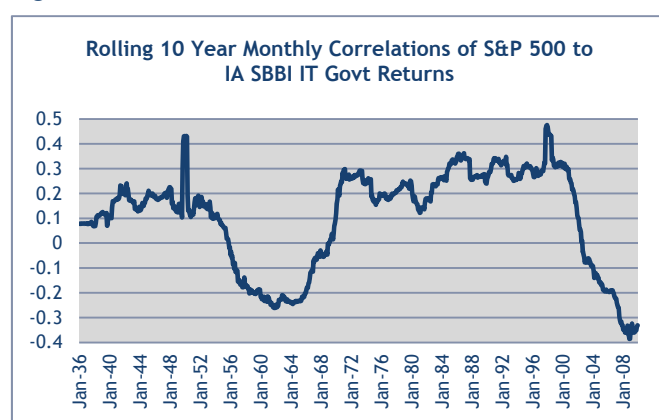
Another reason returns might not be normally distributed is that an asset's risk is in fact not described by its volatility (standard deviation).^{vi} As stated above, returns typically are not normally distributed, however, MVO operates under the assumption that returns are and uses volatility as the risk measure which can understate the true level of downside risk. In fact the return distributions of most commonly invested-in asset classes, including U.S., International and Emerging Market equities, U.S. Aggregate bonds, High Yield, REITS, Private Equity and Direct Real Estate can all be shown to have fat left tails. Given this result is widely recognized it is not surprising that that MVO, in ignoring fat left tails, produces portfolios that often leave investors surprised at the amount of risk they were exposed to.

Correlations between assets are fixed and constant

The risk diversification benefit of combining different assets is the result of imperfect correlation, however, like asset returns, it is clear that correlations are volatile over time, driven by common reactions to unexpected market risks. This is shown through many examples; the collapse of asset price bubbles, sovereign defaults, bank insolvency, and unexpected currency devaluations. The assumption that

correlations between assets are fixed and constant while in fact they are constantly changing, again exposes the investor to unexpected risks. Looking back to 2008, investors will find that diversifying assets to reduce risk failed to protect them. Instead, during periods of extreme uncertainty investors fled all risky assets in favor of risk free assets, and essentially made “all correlations go to one” when diversification was needed the most. Figures 5A-5C display strong examples of how the correlation history of various pairs of assets can change dramatically over time.

Figure 5A



A Valuation/Risk Based Approach to Asset Allocation

As a tool for long-run strategic asset allocation, it is clear that MVO does not fully incorporate the *current* risks that are associated with each asset class. This is widely recognized and much effort has been devoted to developing approaches to asset allocation that accounts for the deficiencies of MVO. While

Figure 5B

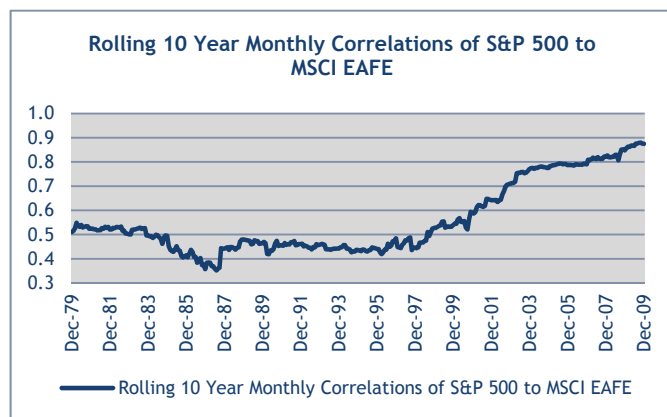
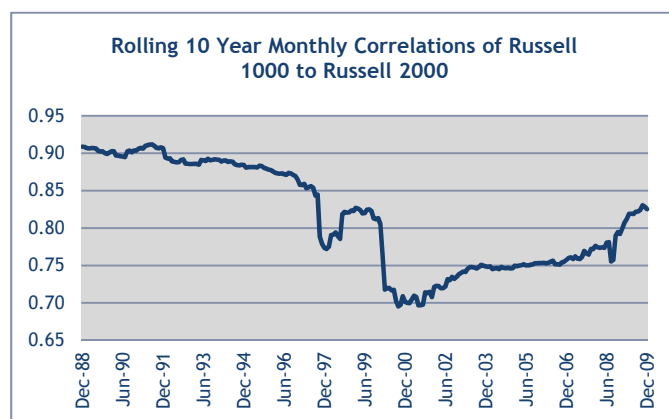


Figure 5C



Opportunities to add to or reduce exposure to an asset class may not present themselves all the time, but when they do, it makes sense to act upon them. In a perfect world, we want to capture the peaks and troughs of valuation from their long-term norms. While that is easier said than done, the key is to recognize the history of an asset's valuation and expected returns. As an example, in considering equities, investors should employ the Schiller P/E ratio (current price divided by ten year normalized earnings) as a measure of value. Examining an equity asset's historical Schiller P/E ratio allows investors to see what an asset is worth today relative to what has been paid in the past. Evaluating the current price versus the potential movement in the asset's value allows investors to understand with greater conviction the potential risks for adding to or subtracting from an allocation.

these efforts are beyond the scope of this paper, intuitively they involve incorporating available useful information that is able to recognize changes in valuation and risk.

A simple approach that incorporates the market risk and valuation changes that MVO ignores involves devoting significant resources to understanding the macroeconomic environment, and more specifically how changes across the range of risk factors effect valuations and correlation between asset classes. By understanding how changes in expected economic growth, inflation or other macroeconomic factors impact broad ranging capital markets, investors can develop a portfolio asset allocation that is best designed for the prospective market.

Figures 6A-6C reveal how interest rates and equity valuations vary over time with GDP growth and inflation, reinforcing the need to account for these relationships in making asset allocation decisions.

Figure 6A

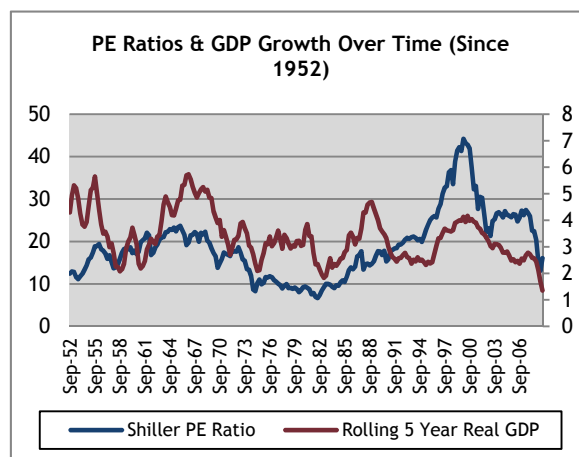


Figure 6B

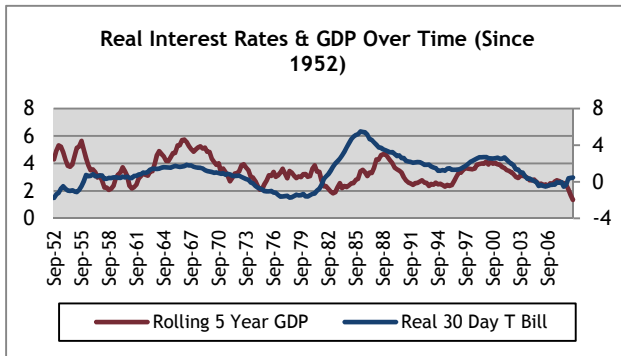
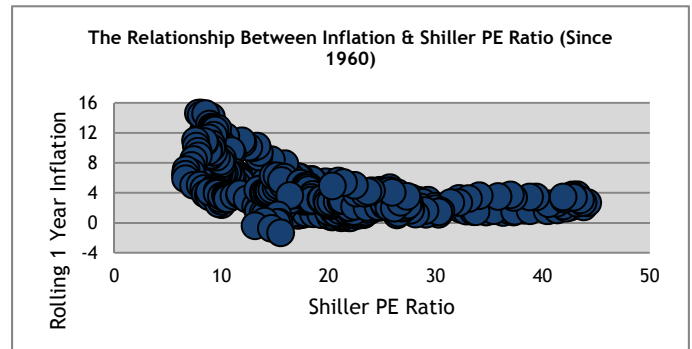


Figure 6C



Figures 7A-7C describe measures of valuation for several asset classes (Equities, Treasuries and TIPS). The figures suggest that while there are risks in predicting the peaks and troughs, by understanding the macroeconomic drivers of risk and how they impact the historical ranges of an asset's valuation, investors can add to and reduce exposure in a disciplined risk controlled fashion.

Figure 7A

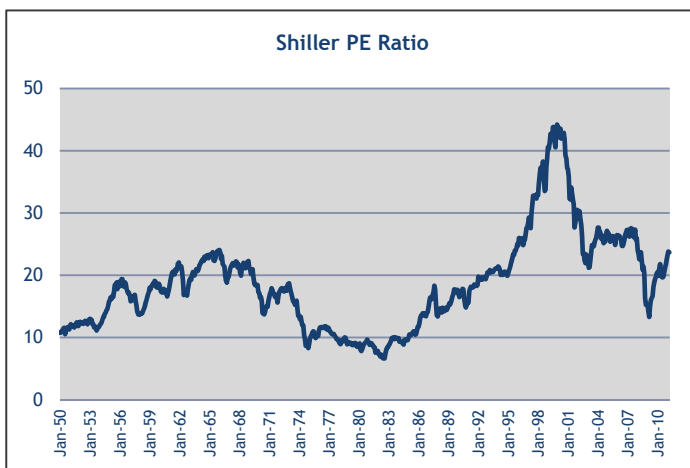


Figure 7B

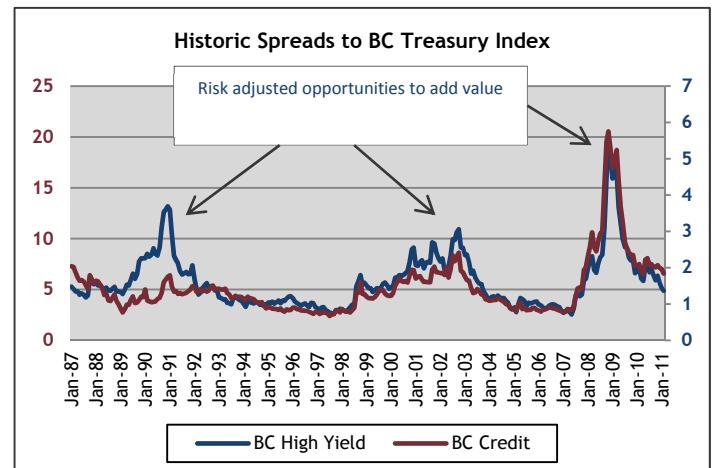
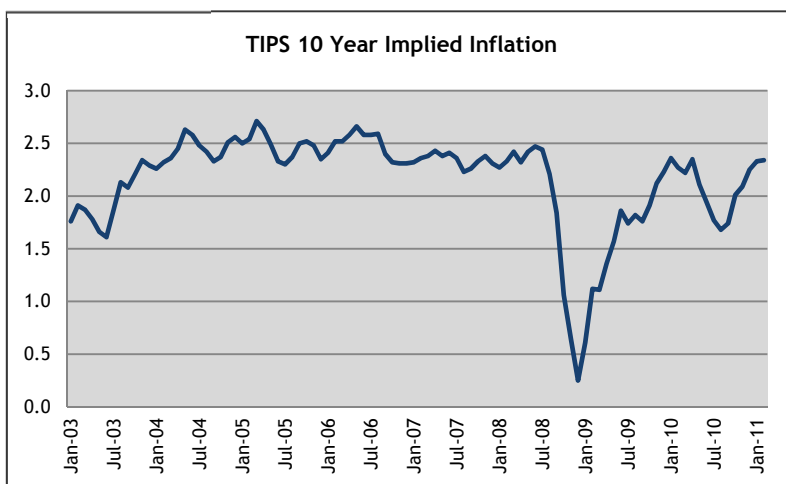


Figure 7C



Conclusions

In stating that “diversification is protection against ignorance” and that “it makes very little sense for those who know what they’re doing,” Warren Buffett is not criticizing the benefits of diversification, but recognizing that valuable information should not be overlooked in making decisions. Investors who have relied on MVO have too often been disappointed in the results because the long-term inputs required to

construct a portfolio fail to make use of valuable information, including (1) the current macroeconomic environment; (2) what investors are paying for assets today (relative to their long-run values); and (3) evolving but recognizable risks and behaviors. Failing to do so can introduce unexpected and unintended risks into a portfolio. By not incorporating available valuable information, portfolios constructed with MVO are not adequately diversified and can suffer larger drawdowns than expected.

The solution is to devote the resources necessary to recognize changes in the macroeconomic environment, how they affect the risks associated with assets and how those changes effect relative valuations and the behavior of asset classes relative to one another. With this understanding, investors are in a position to build a portfolio that reflects the risks they are willing to take on.

Notes

ⁱ Markowitz, Harry; Portfolio Selection, Journal of Finance, 1952; MPT shows that under certain assumptions combining assets in the appropriate proportions can (1) maximize a portfolio's expected return for a given amount of portfolio risk or (2) reduce its risk for an expected level of return.

ⁱⁱ The bottom half of the frontier reveals portfolio combinations with inferior returns for a given level of risk.

ⁱⁱⁱ MPT also shows that by combining a portfolio on the efficient frontier with a risk free asset, funded by borrowing, an investor can create an overall portfolio with a higher return than offered by the portfolio on the efficient frontier. This can occur because by acquiring a risk free asset, the rest of the portfolio can have higher risk and thus returns, with the overall level of risk being unchanged. This relationship between the risk free asset and the risky asset, showing it can offer superior returns without additional risk is described by the "Capital Asset Line" (CAL).

^{iv} The assumptions necessary for MPT to enable investors to identify the optimal portfolio include: (1) asset returns are normally distributed random variables; (2) correlations between assets are fixed and constant; (3) all investors aim to maximize economic utility; (4) all investors are rational and risk-averse; (5) all investors have access to the same information at the same time; (6) all investors have an accurate conception of possible returns; (7) there are no transaction costs; (8) all investors are price takers; (9) any investor can lend and borrow an unlimited amount at the risk free rate; (10) all securities can be divided into parcels at any size. Any numbers of these assumptions are unrealistic and their violation leaves one questioning whether a MVO portfolio truly generates a diversified allocation of assets that maximizes returns for a given level of risk.

^v "The process of selecting a portfolio may be divided by into two stages. The first stage starts with observation and experience and ends with beliefs about the future performances of available securities. The second stage starts with the relevant beliefs about future performance and ends with the choice of portfolio." Markowitz, Harry; Portfolio Selection, Journal of Finance, 1952;

^{vi} If investment returns are not-normally distributed, using volatility to measure the risk of a portfolio constructed using MVO can understate the true level of downside risk. Another way to measure the shape of an asset's return distribution is to look at other measures of risk: skewness (asymmetry of the distribution) and kurtosis (peakedness of the distribution). In the absence of skewness and kurtosis, the risk associated with asset class returns can be described by their standard deviation and returns are normally distributed. Assets described by negative skewness and higher kurtosis will have more negative returns (fat tails) than asset returns that are normally distributed. Why might an asset's return distribution be described by negative skewness and kurtosis? An asset's returns can be broken into three sources: beta (macro factors), alpha (active management) and liquidity. The risk associated with each source of return is different and can be described by some level of skewness and kurtosis. Research has shown that assets described by increasing illiquidity can be shown to have high levels of kurtosis and negative skew.

Institutional Investing in Long Commodities Strategies

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JANUARY 2013

Executive Summary

- Historically low correlation between commodities and financial assets, such as stocks and bonds, means that commodities should help institutional portfolios generate better risk-adjusted returns by contributing to the diversification in the investment portfolio.
- Commodities tend to perform better than most financial assets during periods of inflation because commodity prices reflect a trend in rising prices of essential goods.
- The major commodities indices have significant drawbacks, most notably negative roll yield, which provide opportunities for active management to add value.

Introduction

Commodities are defined as raw materials that can be bought or sold; e.g., oil, copper, coffee, corn and gold. Most institutional investors consider commodity futures as a separate asset class due to differentiated exposures to economic drivers and unique return characteristics. The main reasons for investing in commodities includes diversification benefits, overall portfolio risk reduction, and inflation protection. This paper will discuss the attributes of long-only commodities investing and will also address the benefits of active management in the asset class.¹

Commodity markets

While stocks and bonds provide legal claims on cash flows, commodities provide a legal claim on raw material goods. Valued as a consumable or a transformable asset,² commodities do not conform to traditional asset pricing models (such as the capital asset pricing model)³ and they cannot be priced by traditional accounting metrics (such as net present value). Commodity prices depend on global supply and demand dynamics, not what market participants perceive to be the acceptable risk premium. The major commodities sectors are: agricultural, energy, industrial metal, livestock, and precious metals.

Gaining exposure to commodities

Commodities exposure can be achieved through five ways: purchasing the underlying commodity, commodity future contracts, commodity swap and forward contracts, commodity-linked notes, or

equity in natural resources companies:

- **Commodity futures contracts:** This is the most common method of gaining exposure to commodities. Futures contract trading occurs in a central marketplace and has transparent pricing, clearinghouse safety, uniform contract terms, and daily liquidity. Only a small percentage of futures contracts result in delivery of the underlying commodity.
- **Outright purchase of the underlying commodity:** The physical purchase and holding of a commodity entails practical difficulties including transportation, storage, and insurance. This is not prudent for most plan sponsors. With the rise of bullion exchange traded portfolios (ETFs), investors can purchase a share of actual physical commodities, although this method is limited to a small sub-set of commodities, mainly precious metals.⁴
- **Natural resources companies:** Owning stock in natural resources companies is not considered a pure commodities play because the pricing tends to follow the general movement of the stock market (equity risk factor) and exposes investors to company specific risk.⁵
- **Commodity swap:** Total rate of return swap that delivers the performance on the underlying price basket.⁶ An example would be agreeing to exchange cash flows linked to prices of oil for a fixed cash flow. There is generally no central exchange for swap transactions and so they tend to be less liquid than commodity futures. Commodity swaps also expose the investor to counterparty risk.
- **Commodity-linked notes:** A commodity-linked note is a structured product that pays a return linked to the performance of a commodity or basket of commodities. On its maturity date, the note pays the initial principal amount plus the return based on the price change of the underlying commodity. These notes expose investors to credit risk of the notes issuers. The difference between commodity swaps and commodity-linked notes is that commodities-linked notes are fully funded, while swaps are mainly unfunded.

Commodities Futures

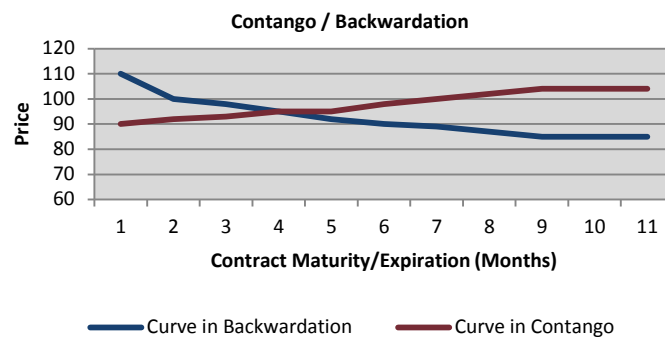
A commodity futures contract is a single commitment to buy or sell a commodity at a future date. If the seller or buyer of the futures contract wishes to avoid delivering or accepting delivery of a physical asset, the position must be closed out by selling or buying an offsetting position prior to the contract expiration. An investor who wants to maintain long exposure to commodities over time through buying futures contracts must continuously open and close positions - a process referred to as "rolling the position." To trade futures contracts, only a small initial margin must be posted as collateral against fulfilling the commodity futures contract commitment. The initial margin for holding a commodity future is typically 2%-10% of the value of the contract. For each commodity, there are several futures contracts with different maturities. The nearest dated contract is often the most liquid.

Pricing of Commodity Futures

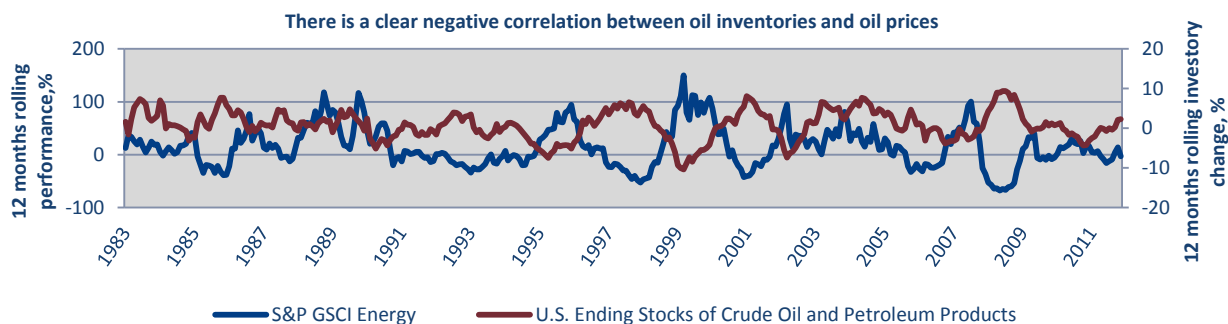
Commodity futures contracts exhibit a term structure similar to interest rates. The commodity futures curve can be downward or upward sloping, and the slope of the curve serves as a market signal to hedgers and speculators. The pricing of a commodity futures contract depends on the commodity spot price (i.e., the price of the physical commodity actively traded in the open market), as well as storage

and insurance costs, the risk free rate, and the commercial risk allocation (i.e., who bears the risk of commodity price change) between commodity consumers and producers, or hedgers and speculators. Storage and insurance costs tend to inflate the value of a futures contract, while commercial risk allocation can serve to reduce the value of a futures contract, especially when physical availability of a commodity is perceived to be low. Interestingly, though we are using commodities futures as investment instruments, the commodities futures market only exists because of the inherent uncertainty in commodity production and demand. Without this uncertainty, there would be no economic reason to enter such a risk-transfer agreement.

Generally, when a commodity futures curve is upward sloping, referred to as *contango*, the commodity is physically readily available. As a result, the higher price of the futures contract relative to the commodity's spot price is being derived from the insurance and financing costs associated with holding physical commodities. For example, when oil inventories are high and there is little geopolitical instability, commodity consumers are less concerned about a spike in oil prices and are not rushing to buy oil. The price of the oil futures contract will be derived from the oil spot price plus the storage and financing costs. This was the case in 2009 when oil storage in the United States nearly reached its maximum capacity resulting in moving the curve to its widest contango on record.



Conversely, when the commodity futures curve is downward sloping, referred to as *backwardation*, commodity consumers are willing to pay a premium for accessing the physical commodity. The market is signaling to producers that they can realize a higher price for their commodity today versus in the future, while a consumer who can delay consumption can obtain the commodity for a cheaper price in the future. For example, when oil inventory levels are low and geopolitical tensions are high, commodity consumers become concerned about near term oil supply shortages, and are willing to pay a premium for immediate delivery. In this situation, we would expect the future curve to be in backwardation. This situation existed in early 2004, when the Iraq War caused an oil shortage concern.

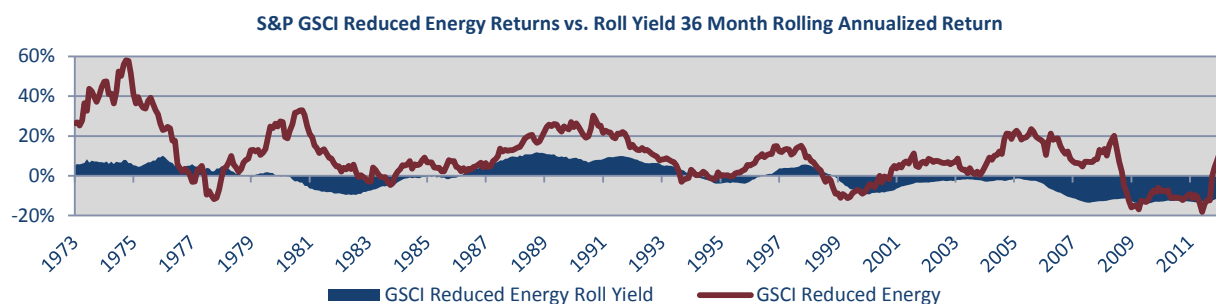


Source: U.S. Energy Information Administration, Morningstar Indices, Wurts and Associates calculations.

Speculators play a pivotal role in the commodities market by taking the counterpart position to hedgers in a futures contract. This allows real businesses to hedge their commodity exposure.⁷ We do not agree with the notion that speculators can significantly distort the price of commodities for an extended period of time. Instead, we believe the long-term price trend is determined by the marginal cost of production, though in the shorter-term, cyclical supply and demand factors will drive price variability around that trend: New sources of supply, geopolitics, weather, natural disasters, income growth, demographics (especially in emerging markets), and productivity all affect the long-term pricing of commodities.

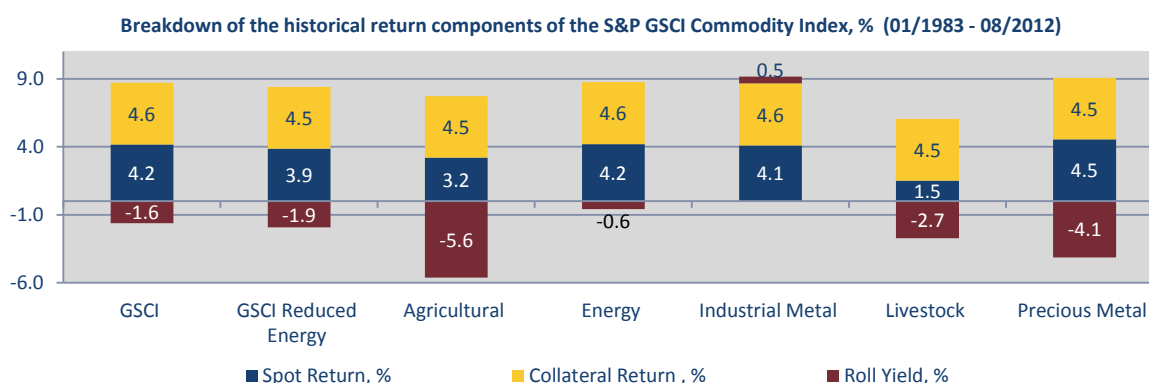
Return sources for commodity futures

Commodity futures returns are often decomposed into three elements; spot price change, collateral return, and roll return. Spot price change is simply the change in the market price of the commodity, which is driven by supply and demand variables. Collateral return refers to the income earned on the cash collateral underlying the notional value of futures contracts, which typically earn the short-term Treasury rate. Roll return depends on the shape of the futures term structure explained above. The gain or loss from rolling the position is zero if the price of the contract is the same as the previous one. If the term structure is in backwardation, the roll return is positive because the new futures contract can be bought at a lower price than the previous contract was sold. Conversely, when the term structure is in contango, the roll return is negative. The chart below breaks down the return component between the total return and the roll return. We show the S&P GSCI Reduced Energy index because of the overwhelming energy allocation that makes some investors leery of using it as a benchmark. The Reduced Energy index has a data series that goes back to 1970, while the DJ-UBS index return series starts in 1994.



Source: Morningstar Indices, Wurts and Associates calculations.

The long-run average returns across commodities are strongly influenced by roll returns. Typically, commodities with positive roll returns earned positive excess returns, whereas commodities with negative roll earned negative excess returns. For example, in 2009, the spot price of crude oil (WTI) appreciated by 78%, but the passive index crude oil allocation gained only 7% after incurring negative roll yield. Some studies suggest that overweighting commodities with a backwardation term structure, and underweighting those in a contango term structure has added value over time.



Source: Morningstar Indices, Wurts and Associates calculations.

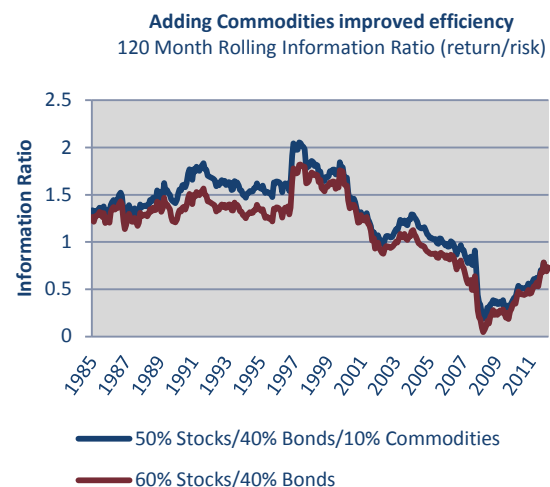
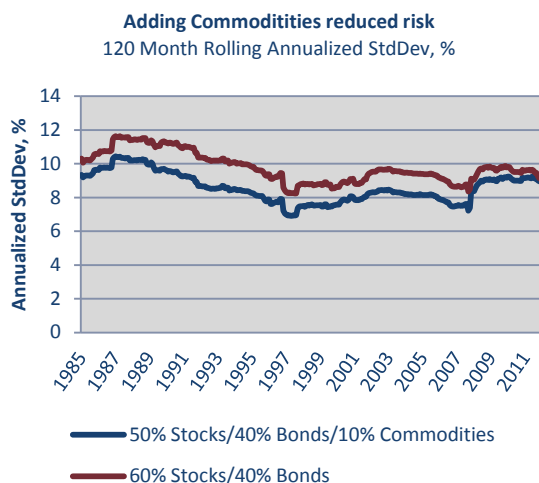
Commodity indexes

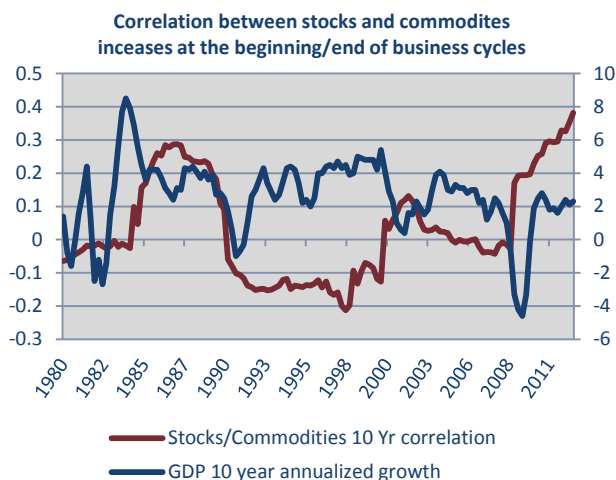
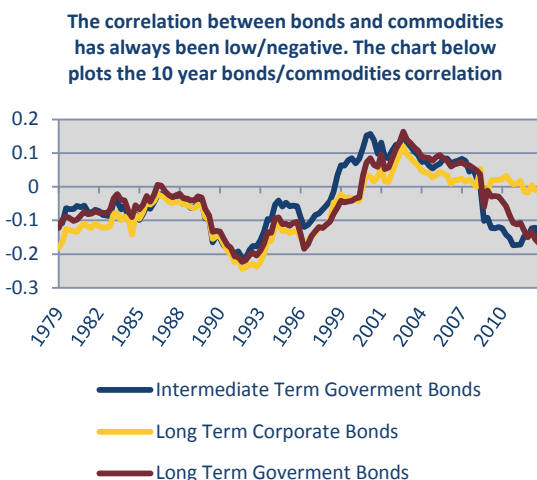
The common commodity benchmarks reflect all three components of a commodity futures investment (spot price change, collateral return, and roll return) and are constructed using trading volume and annual production indicators to determine the weight of each commodity.⁸ The benchmarks have different correlations and risk return profiles that need to be considered. Designed as an economic indicator, the GSCI is a production-weighted index that is designed to reflect the relative significance of each commodity to the world economy, while preserving the tradability of the index by ensuring adequate liquidity for the futures contracts. Constructed with 24 commodity futures, the GSCI assigns a weight to each commodity in proportion to its flows through the global economy, using a five year average contribution to world production. Energy is the largest sector of index, with a weight of approximately 75%, which detracts from the GSCI diversification benefits. Constructed with 22

commodities, the DJ-UBS is designed to provide both liquidity and commodity diversification. The DJ-UBS relies primarily on liquidity data to determine the weighting of each commodity in the index, and assigns a weight to each commodity by the relative amount of trading activity associated with that particular commodity. The index also relies, to a lesser extent, on dollar-adjusted production data to determine index weights. Importantly, the DJ-UBS assigns diversification rules which prevent any commodity sector to represent more than a third of the overall index. Thus, unlike the GSCI, energy is limited to no more than 33% of the index at the time of its annual rebalancing. Due to its broader capital and risk diversification, the DJ-UBS is the index of choice for most institutions.⁹

Why institutional investors should invest in the commodity asset class

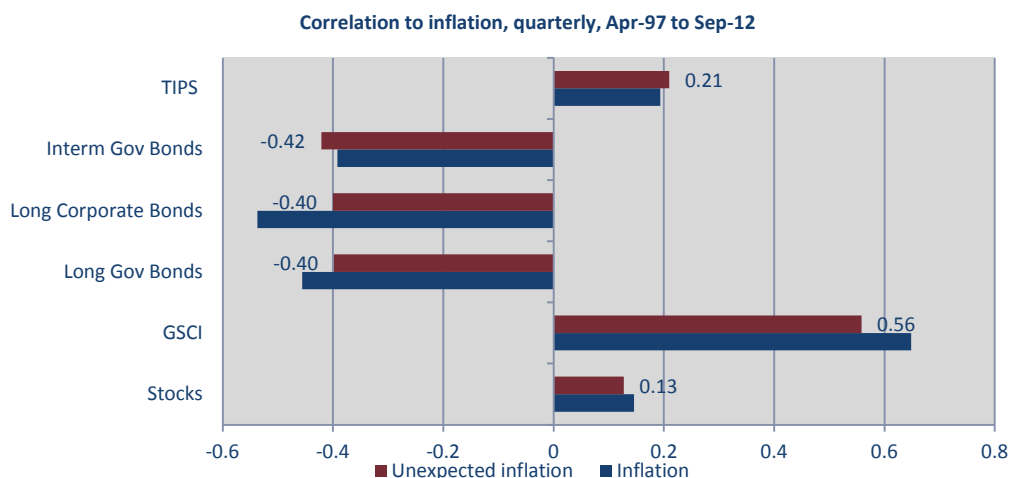
Within a portfolio context, investing in commodities provides investors with exposure to a new source of risk premium generated by taking short-term price risk from commodity producers. The long-term return profile of commodities is similar to the equity market.¹⁰ Unlike equities or bonds, long-term economic and interest rate expectations have less of an impact on commodity returns. Instead, they are influenced by current supply and demand conditions. This leads commodities to behave differently from bonds and equities at different stages of the business cycle. In certain cases, unexpected volatility in commodities has been known to disrupt the progression of the business cycle. As a result, adding commodities to a traditional long-only portfolio improves its diversification and efficiency.¹¹ Commodities also provide event risk protection as they have positive exposure to unexpected supply disruptions due to geo-political issues, natural disasters, etc.





Source: Morningstar Indices, U.S. Bureau of Economic Analysis (BEA), Wurts and Associates calculations; commodities allocation is modeled with S&P GSCI Total Return Index.

In contrast to equities and bonds, commodities may provide investors with a natural hedge against short-term and/or unexpected inflation. Commodity returns have been positively correlated to both inflation and unexpected inflation, while equity and bond portfolios are negatively affected by unexpected inflation.¹² Therefore, we believe that including commodities in a typical institutional portfolio may improve the portfolio efficiency, reduce the downside of the portfolio, and provide a hedge against inflation. We also distinguish between commodities and other real assets as inflation hedges: we generally think of commodities as having the highest beta to inflation versus Treasury Inflation-Protected Securities.

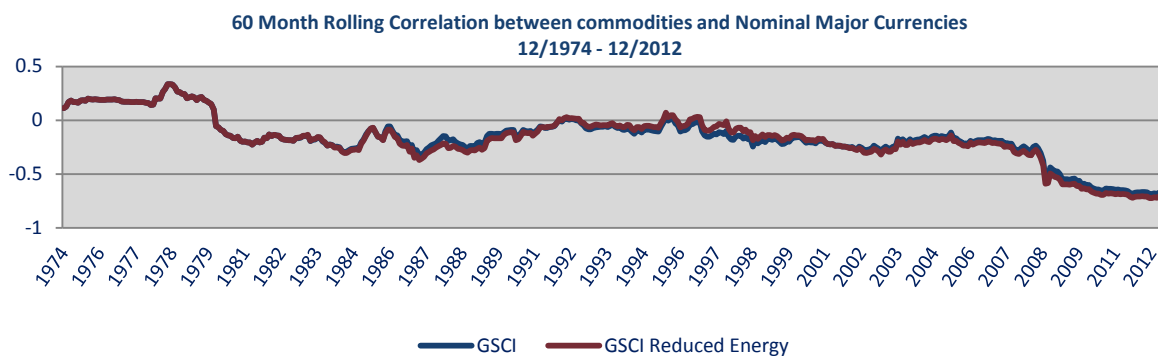


Source: Morningstar Indices, Wurts and Associates calculations

We also highlight the diversification that exists within the commodity asset class. Each sector is diversified and tends to hedge a unique type of inflation (energy: energy supply shocks; industrial metals: wage growth in emerging markets; precious metals: monetary-led inflation and stagflation; agriculture and livestock: food price inflation which also drives monetary policy in emerging markets).

Also, each commodity sector tends to perform differently under various growth environments: industrial metals do best when growth is rising, while precious metals may outperform when growth is struggling. Energy benefits from strong growth, but it can also affect the path of that growth. Agriculture and livestock tends to be more growth agnostic and therefore defensive.

Lastly, commodities tend to have a negative correlation with the dollar. When the dollar strengthens relative to other major currencies, the prices of commodities typically decline. When the value of the dollar weakens relative to other major currencies, the prices of commodities usually increase since the majority of all commodities are priced in U.S. dollars. A decline in the dollar means that more dollars are needed to buy commodities; therefore, adding commodities to the portfolio in effect diversifies currency exposure, especially the large dollar-bias of most institutional portfolios in the United States.



Source: Morningstar Indices, Wurts and Associates calculations

Active versus passive

Currently, the majority of institutional investment in commodities is index-based. Conceptually, index buyers benefit from “normal” market conditions when they are compensated for taking the spot price risk away from producers. However, there are three main drawbacks with passive long-only commodity indexing: inability to cope with upward sloping futures curves (contango) that lead to negative roll returns in times of inventory surplus; commodities sector weights without sound investment foundations; and a predetermined trading schedule that is exploited by commodity traders.

As a result of these drawbacks, newer active long-only strategies are gaining popularity. While both the S&P GSCI and DJ-UBSCI have become popular with commodity investors, they were not originally designed to serve as the basis for investable products. The indexes invest only in the respective futures contracts that are closest to expiration. As a result, turnover is elevated by the need to frequently roll futures positions forward to the next contract, which in turn leads to significant trading costs.

Active long-only commodity managers seek to generate excess returns over the benchmark by

- managing roll yield;
- allocating among sectors based on fundamental investment rationale;
- generating additional excess returns with relative value spread trades.

Active roll yield management attempts to minimize the negative performance associated with rolling futures contracts in an upward-sloping futures curve environment. The main risk of deviating from the index by extending the contract term is underperformance when the futures curve shifts from contango to backwardation (from upward sloping to downward sloping) due to short term spikes in demand, supply disruption, or shifting market expectations of future supply/demand.

It is also worth noting that given the high volatility of individual commodities and the low correlations between them, it makes an attractive combination for active managers. Additionally, the predominance of systematic momentum traders in the asset class offers opportunities for managers who are more value-driven. Lastly, the presence of hedgers indeed offers active managers opportunities to provide liquidity to them when price risks appear greatest.

Historical Correlation between commodities sectors (01/1983 - 09/2012, monthly)

	Agricultural	Livestock	Precious Metal	Industrial Metal	Energy
Agricultural	1	0.03	0.23	0.25	0.12
Livestock	0.03	1	-0.02	0.02	0.07
Precious Metal	0.23	-0.02	1	0.26	0.19
Industrial Metal	0.25	0.02	0.26	1	0.18
Energy	0.12	0.07	0.19	0.18	1

Source: Morningstar Indices, Wurts and Associates calculations

Conclusion

This paper provides a brief summary of institutional commodities investing. Wurts & Associates advocates a strategic allocation to commodities within portfolios as a means to improve the portfolio's diversification and economic risk factor exposure. Wurts & Associates also believes that an active management approach to commodity investing is preferable due to the pitfalls of commodities indices.

Appendix: Commodities Index Construction Methodology

	DJ-UBSCI	S&P GSCI
Inception date (backfilled)	1998 (1991)	1991 (1970)
Constituents	20	24
Selection, weighting criteria	Liquidity, world production ¹³	World production ¹⁴
Futures selection	Nearby futures contracts	Nearby futures contracts
Contract country of origin	US, UK	US, UK
Diversification rules	Yes ¹⁵	None ¹⁶
Roll frequency	Varies	Monthly
Roll window	5th-9th US business day	5th-9th US business day
Rebalancing	Yearly ¹⁷	Yearly ¹⁸
Price rebalancing	Yes	No
Sector Allocation		
Energy	30%	71%
Agriculture	38%	19%
Precious Metals	13%	3%
Industrial Metals	19%	7%

Appendix: Commodities sensitivity to expected and unexpected inflation

Regression analysis (monthly, Feb-1970/ Aug-2012)		Inflation	Unexpected Inflation
Commodities (GSCI)	Coefficient	2.49	2.56
	<i>T-Statistics</i>	3.29	3.13
Stocks	Coefficient	-1.12	-1.3
	<i>T-Statistics</i>	-1.88	-2.03
Intermediate Term Government Bonds	Coefficient	-0.43	-1.17
	<i>T-Statistics</i>	-2.01	-5.23
Long Term Corporate Bonds	Coefficient	-1.6	-1.96
	<i>T-Statistics</i>	-4.38	-5.02
Long Term Government Bonds	Coefficient	-1.68	-2.26
	<i>T-Statistics</i>	-4.12	-5.2

Regression analysis (Month, Jan-83/Aug-2012)		Inflation	Unexpected Inflation
S&P GSCI Energy	Coefficient	8.64	4.75
	<i>T-Statistics</i>	4.73	2.97
S&P GSCI Agricultural	Coefficient	-0.14	-0.08
	<i>T-Statistics</i>	-0.12	-0.08
S&P GSCI Livestock	Coefficient	1.42	-0.02
	<i>T-Statistics</i>	1.67	-0.03
S&P GSCI Precious Metal	Coefficient	1.23	2.72
	<i>T-Statistics</i>	1.23	3.21
S&P GSCI Industrial Metal	Coefficients	3.92	2.52
	<i>T-Statistics</i>	2.81	2.09

Notes

¹We view absolute return commodities strategies (hedge-funds/CTAs) as a part of an absolute return allocation, which depends on manager specific skill and/or idiosyncratic market inefficiencies rather than a strategic allocation.

²A transformable asset is an asset that can be changed to a consumable form, for example, wheat into bread.

³The Capital Asset Pricing Model describes the relationship between risk and expected return for securities. The model states that the expected return of a security or a portfolio equals the rate on a risk-free security plus a risk premium. The model was by Jack Treynor (1961, 1962), William Sharpe (1964), John Lintner (1965) and Jan Mossin (1966) independently, building on the earlier work of Harry Markowitz on diversification and modern portfolio theory. Read more: http://en.wikipedia.org/wiki/Capital_asset_pricing_model.

⁴For example, SPDR Gold Shares (GLD), iShares COMEX Gold Trust (IAU), iShares Silver Trust (SLV), ETFs Physical Palladium Shares (PALL)

⁵Energy-related equities and natural resources products are often pitched as mean of obtaining inflation protection. It is also argued that the performance of these products is far better than that of future-based commodities because of the negative roll yield associated with commodities. Our analysis indicates that energy related equities do improve the inflation/unexceptional inflation sensitivity of the portfolio. But, the inflation co-efficient (beta) of these products is low relative to commodity future contracts. Also, given the high equity beta of commodity-linked equities, the diversification benefits relative to a futures based strategy are lower.

⁶Read more: http://en.wikipedia.org/wiki/Commodity_swap.

⁷Speculators are defined as those without a direct business interest in buying or selling commodities. Read more: Jacks (2005), in "Populists versus Theorists: Futures Markets and the Volatility of Prices" and Sanders & Irwin (2010) "Bubbles, Froth, and Facts: The Impact of Index Funds on Commodity Futures Prices."

⁸Market liquidity is an asset's ability to be sold without causing a significant movement in the price and with minimum loss of value. In the futures markets, there is no assurance that a liquid market may exist for offsetting a commodity contract at all times. The most useful indicators of liquidity for these contracts are the trading volume and open interest. Read more: http://en.wikipedia.org/wiki/Market_liquidity

⁹See Appendix for details regarding index construction methodology.

¹⁰The S&P GSCI has returned 9.7% per year since 1970, basically in line with the 10.1% return of the S&P 500 Index for the period 1/70 – 1/12. There is significant volatility on a per year basis and commodities may not outperform every year or over the short- or long-term.

¹¹Measured over long horizons, the correlation between stocks and commodities is close to zero. However, it varies widely over time. The correlation is higher during periods of economic weakness. The same pattern is observed in the average intra-commodity correlation.

¹²See Appendix IX for details regarding inflation and unexpected inflation sensitivity. We calculate expected inflation as the difference between CPI (US BLS CPI ALL Urban SA 1982-1984) and 30 days Treasury Bills (IA SBBI US 30 Days T-Bill).

¹³Weighted by both liquidity (2/3) and dollar-adjusted historical production (1/3).

¹⁴Production weighted by 5-year historical production amounts.

¹⁵Diversification rules limit exposure to any one commodity (15%) or sector (33%); 2% minimum allocation to any commodity.

¹⁶No predefined commodity or sector limits. No minimum allocation to any commodity.

¹⁷Annual price-percentage rebalancing (no intra-year re-weighting).

¹⁸Annual rebalancing (no intra-year re-weighting).

Revisiting the Case for Global Equity Allocations

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JANUARY 2013

Introduction

One of my favorite financial “isms” is the idea that diversification is the only “free lunch” in investing. Of course this refers to the concept that, according to the principals of modern portfolio theory, by introducing more unique asset classes into a portfolio, volatility should be lower than implied by the sum of all parts. While the benefits of diversification remain one of the most widely accepted principals in financial theory, many still doubt its merits. Warren Buffett famously stated, “Diversification is protection against ignorance. It makes very little sense for those who know what they are doing.” While I’m confident that he may have been exaggerating for effect, we believe this approach is not ignorant but necessarily conservative. In the institutional landscape, with fiduciary responsibility to stakeholders, institutions do not have the benefit of Warren-Buffett-like financial savvy, nor the risk-tolerance to be wrong (or early, or late). For a variety of reasons, many institutional investors have recently begun to question the benefits of global equity allocations. Despite the recent scrutiny that global equity¹ investing has garnered, Wurts & Associates continues to maintain that globally diversified equity portfolios will offer lower volatility and better long-run returns than home-country biased portfolios.

As the capital markets fluctuate and react to ever-changing economic regimes, demographic shifts, technological and financial innovation, improved informational transparency and deleveraging throughout developed economies, Wurts & Associates continues to promote a diversified, global approach when examining the equity opportunity-set. To understand why a globally oriented long-term mindset is paramount, it is helpful to frame the argument relative to the primary criticisms befalling global equity allocations:

1. Returns have been significantly better in the U.S. than abroad.
2. Diversification failed to protect investors during the Global Financial Crisis.
3. Many European nations are distressed.
4. The growth rates in emerging market economies have slowed.
5. U.S. companies already maintain significant exposure to the economic activity of global markets.

We believe that these five criticisms, while true in isolation, do not imply that investors should structure portfolios with a U.S. home country bias going forward. Obviously, institutions have varying risk tolerances and objectives, and accordingly, different portfolio structures. Nonetheless, for the majority

of investors with the capacity to hold investments in equity securities, Wurts & Associates believes that the underlying risks should be spread across global equity markets rather than solely in the U.S.:

Criticism I: Returns have been significantly better in the U.S.

Exhibit 1

	Calendar Year Returns					Trailing Ann. Returns		
	2012	2011	2010	2009	2008	3 years	5 years	10 years
Domestic Equity Markets								
Russell 3000 Index	16.4%	1.0%	16.9%	28.3%	-37.3%	11.2%	2.0%	7.7%
S&P 500 Index	16.0%	2.1%	15.1%	26.5%	-37.0%	10.9%	1.7%	7.1%
International Equity Markets								
MSCI ACWI ex USA	17.4%	-13.3%	11.6%	42.1%	-45.2%	4.3%	-2.4%	10.2%
MSCI EAFE USD	17.9%	-11.7%	8.2%	32.5%	-43.1%	4.0%	-3.2%	8.7%
MSCI EM USD	18.6%	-18.2%	19.2%	79.0%	-53.2%	5.0%	-0.6%	16.9%

Gross Returns. Russell, MSCI, S&P, Wurts

We cannot argue with the data, but rather, we have an obligation to educate with regards to its implications. To counter this criticism of global investing requires a fundamental understanding of behavioral finance. As humans, we have inherent emotional biases that prevent us from acting rational some of the time, and behavioral finance tries to incorporate aspects of psychology in bridging the gap between what a rational investor *ought to do* and how investors *actually behave*. While these biases are most prevalent among individual investors, institutions are also led by individuals, and group-think can sometimes prevent institutional governing bodies from acting without emotion.

As measured by common equity indices domestic markets have outperformed non-U.S. markets for the trailing 3 and 5 year time frame. When a “normal” person looks at this information, it is difficult to surmise that one should hold any international equity. Fortunately, institutional investors are held to a higher standard, and must recognize that past performance is not indicative of future returns (And assuming one relates to the principles of value or contrarian investing, if strong past returns suggest anything, it’s to sell and buy the “other asset”). In behavioral finance, this is referred to as “Representativeness,” or, basing expectations primarily on past experiences. There are a myriad of other concepts in behavioral finance that explain why investors are skeptical of global equity portfolios, but suffice to say, the difference between rational and normal is meaningful.²

While behavioral finance may help explain why global equity has received increased scrutiny recently, it does not explain why global equity is still the rational alternative to a U.S.-centric equity portfolio. In order to address this, we must examine the other criticisms of global equity allocations.

Criticism II: Diversification failed to protect investors during the Global Financial Crisis

Over the last decade or so, the correlations between international and U.S. equity markets have risen considerably.³ Furthermore, these correlations spiked during the global financial crisis witnessed in 2008 and 2009. As a result, many investors have come to question whether the theoretical justifications for

diversification still hold. Wurts & Associates will be the first to agree that institutions need to think past the traditional definition of diversification as accomplished through mean-variance optimization, and instead think holistically about the underlying diversification of risk factors. By doing so, investors will recognize that equity beta represents a much larger portion of the total portfolio risk than might be implied by the underlying asset allocation.⁴ While this concept has implications for just how much equity beta is appropriate for the optimal portfolio, we still maintain that this beta should be derived from markets other than just the U.S.

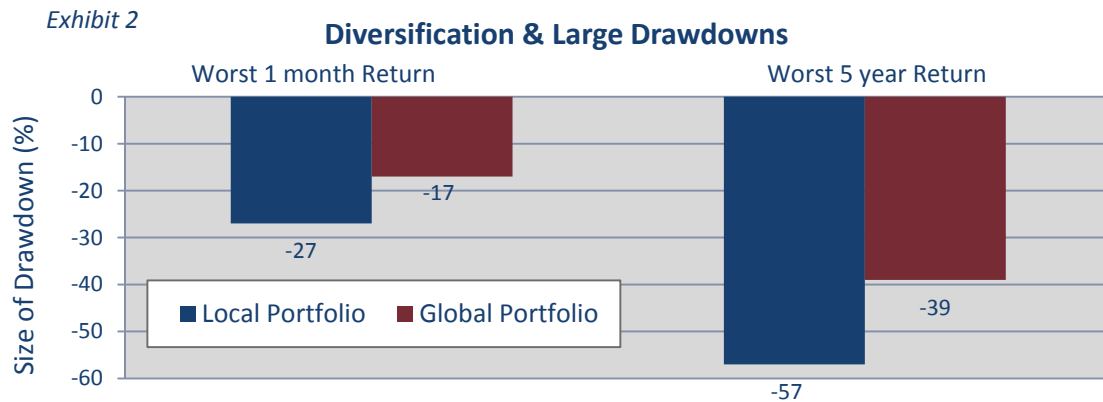
The most common way in which diversification is discussed is through the lens of expected volatility — be it lowering the standard deviation of returns or lowering the variance of returns. But investors aren't nearly as concerned about volatility if it's positive, or "good volatility." And since spiking correlations can make ex-ante volatility forecasts meaningless anyway (as was the case in 2008/2009), it makes sense to examine the benefits of global equity diversification through the lens of drawdowns ("bad volatility").

An acclaimed article⁵ from the Financial Analysts Journal examined the magnitude of drawdowns experienced by globally diversified equity portfolios relative to home-country equity portfolios:

Common, short-term crashes can be painful, but long-term returns are far more important to wealth creation and destruction. We showed that over the long term, markets do not tend to crash at the same time. This finding is no surprise because even though market panics can be important drivers of short-term returns, country-specific economic performance dominates over the long term. Diversification protects investors against the adverse effects of holding concentrated positions in countries with poor long-term economic performance. Let us not fail to appreciate the benefits of this protection.

"International Diversification Works (Eventually)". Asness, Israelov, Liew. Financial Analysts Journal. May/June 2011.

Exhibit 2 illustrates the culmination of the research by Asness et al. The authors analyzed diversification from the perspective of local investors in 22 countries for the period from January 1950 through December 2008, incorporating inflation impacts and assuming un-hedged portfolios diversified equally across global equity markets. Large drawdowns are inevitable for the equity investor who remains fully invested. But by diversifying globally, an equity investor can mitigate the extent of large drawdowns and therefore improve investment results, over the long term.



Asness, Clifford, Roni Israelov, and John M. Liew. 2011. Wurts.

Criticism III: Avoiding European equities because of the Sovereign Debt Crisis

With the plethora of issues facing Europe, the European monetary experiment is under greater duress than at any other time in its short history. Regular followers of our Quarterly Research Report may recall our continued skepticism of the European Central Bank's policy responses. Despite this turmoil, it seems unlikely that we will witness a decoupling of the Euro as a multinational currency; a tremendous amount of resources have already been committed to its success and the currency is still a great facilitator of trade in the region.

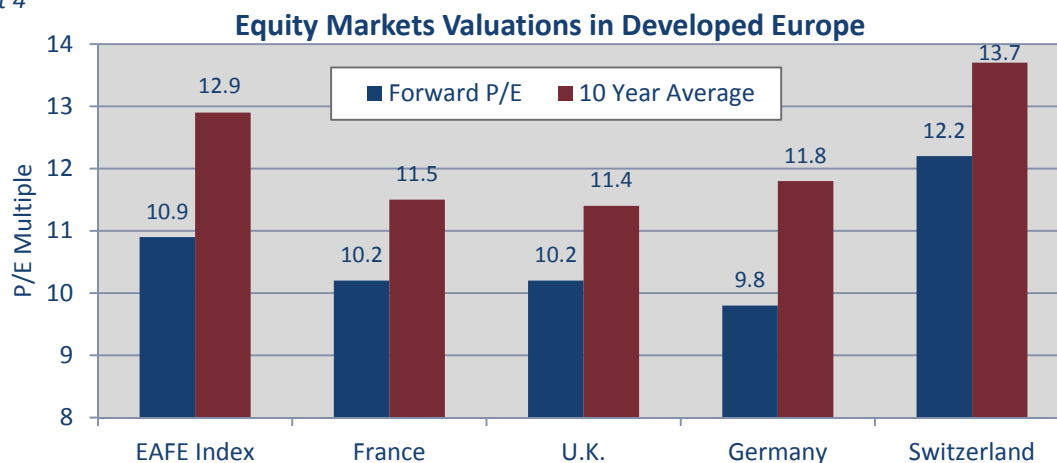
In the short-to-intermediate term, European nations continue to search for ways to spur economic growth in spite of the inability to enact country-specific monetary policies. While this has brought recession to many developed nations (namely, most of the "PIIGS"), we don't believe these circumstances warrant avoiding the region entirely.

It's important to remember that stocks are discounting mechanisms and stock prices are more impacted by changes in expectations about the future than they are for events that may have already transpired. Even those skeptical of the concept of efficient markets would have to agree that investors have shunned European equities largely because of changes in expectations about future growth. Accordingly, the majority of the uncertainty about the region's prospects for future growth may indeed already be reflected in the price of European equities. Ultimately, forecasting the timing and magnitude of a recovery within the region is a difficult task, and very few market participants will get it right. Because of the challenges associated with this, it is perhaps more likely that the recovery and the accompanying appreciation of equity markets may not be priced in yet. See *Exhibit 4* for a



snapshot of current valuation levels by country relative to their trailing, 10-year averages. It is also worth noting that forward earnings estimates may be somewhat depressed given the uncertain economic outlook, so current valuations levels may be even more attractive than Exhibit 4 suggests.

Exhibit 4



JP Morgan. Wurts. As of 9/30/12.

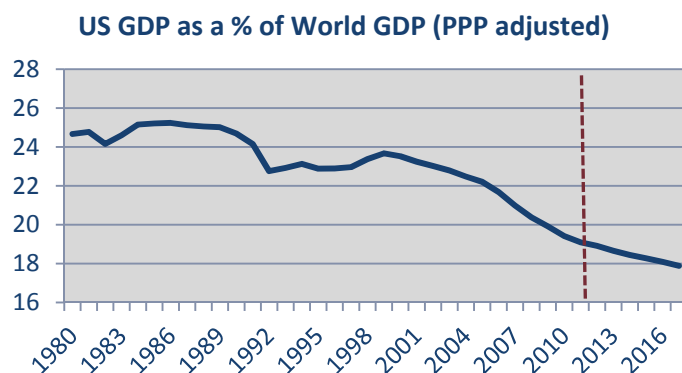
Criticism IV: The growth rates in emerging market economies have slowed

The widespread popularity of emerging markets equities has, for the most part, been predicated on the certainty of greater economic growth within these regions. Subsequently, the slowing growth of several of these countries, most notably in China, has caused some skepticism as to whether the risk-adjusted return prospects remain as compelling as they once were. We believe they are, but first, it's helpful to put the historical path of GDP growth in context.

While EM growth has slowed in recent years, *Exhibit 6* illustrates how much of this can be attributed to a broad-based global slowdown, cyclical in nature, and not reflective of a structural change that would suggest the investment case has changed.

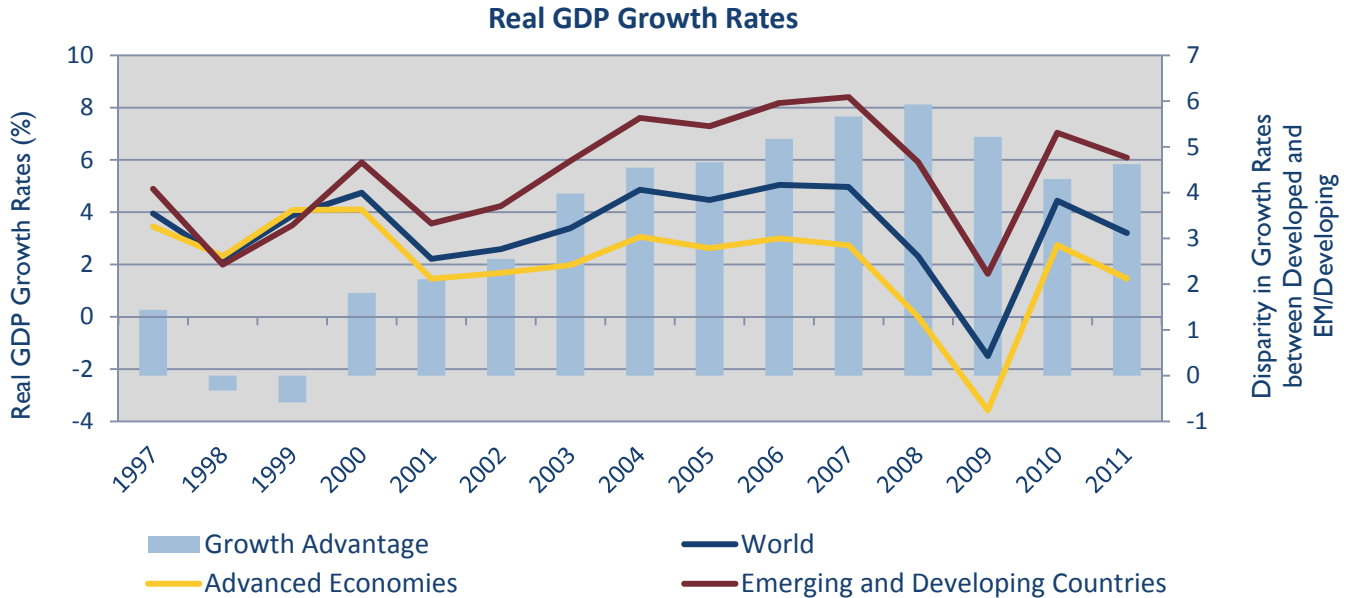
In absolute terms, EM GDP growth is still significantly higher than that of most developed markets, and the disparity in growth rates between developed and developing markets (represented by the light blue bars in the chart below) has actually showed an upward trend over the last 15 years.

Exhibit 5



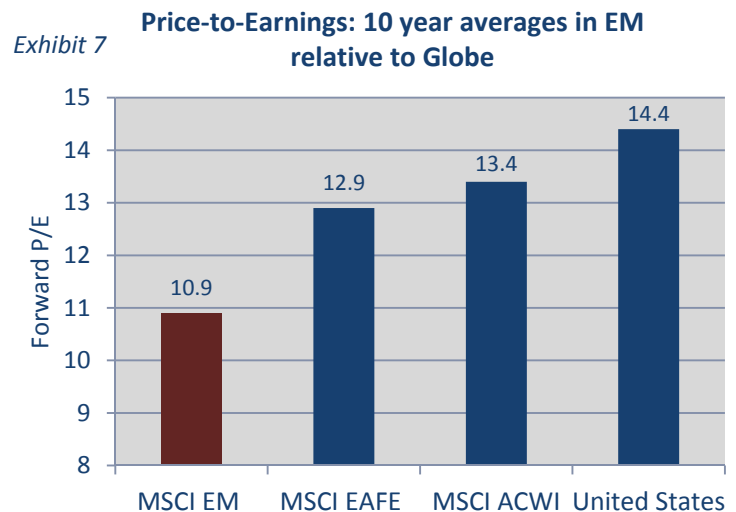
IMF, Wurts. Estimates after 2011.

Exhibit 6



Most economists would also agree that the U.S. economy will likely comprise a smaller portion of global GDP over the coming years (See *Exhibit 5*). By examining some of the fundamental growth drivers and how they vary between developed and emerging economies, it becomes even more apparent that EM countries will continue to outpace the U.S. over the long-term. As an example, sovereign debt-to-GDP ratios in EM countries are significantly lower, meaning debt service costs will not hamper growth to the extent experienced by that of developed economies. Furthermore, in most cases, the unemployment levels in EM countries are lower (and not as deflated by a declining participation rate) and the median population ages are lower, suggesting greater future output from labor.⁶

We have argued that EM economies have experienced higher growth rates, and we expect this growth advantage to continue for the foreseeable future. Considering our underlying rationale for why European equities make sense to own (see *Exhibit 4*), it's logical to question whether this projected growth rate is already priced in, especially in light of the long-term historical outperformance of EM equities (See the trailing, 10-year returns of the MSCI EM index relative to the MSCI EAFE index shown in *Exhibit 1*.) While EM equities don't appear to be priced at significant discounts relative to 10 year averages (10.3 as of September 2012, relative to the average of 10.9), *Exhibit 7* shows that over the long-term, price-to-earnings in EM countries has been materially lower than both global and U.S. equity markets. While this is a function of



MSCI, FactSet, J.P. Morgan, Wurts. As of 9/30/12

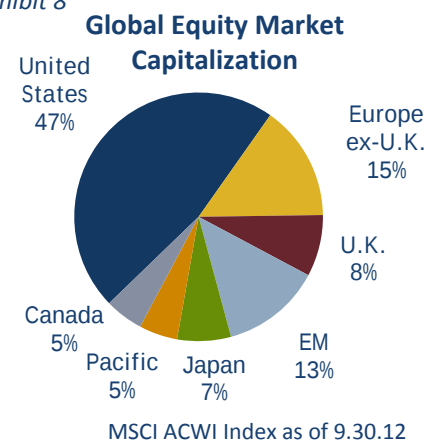
the higher systematic risks within these markets, as these regions continue to mature, we would expect the perceived risks to decline. When the market assigns less risk to these investments, price multiples will expand toward global averages and EM equities will outperform on a relative basis.

Criticism V: U.S. companies already maintain significant global exposure to the economic activity of global markets

As with all of the criticisms mentioned previously, we do not intend to dispute the statement shown above — only its implications for investing. In 2010, foreign markets accounted for roughly 32% of S&P 500 revenues.⁷ Despite the fact that many U.S. mega-caps do have diversified sources of revenue, a few reasons exist as to why this is not a justification for avoiding non-U.S. equities:

1. It is helpful to point out that because approximately 70% of S&P 500 revenues are derived from the U.S. domestic marketplace, these companies remain inextricably tied to the ebb and flow of the U.S. economy.
2. These corporations are also all subject to the same set of U.S. regulations, trade policies, and tax structures, and as such, carry essentially the same U.S. equity beta.
3. From a bottom-up investment standpoint, the investment universe is significantly constrained by omitting non-U.S. companies from consideration. By holding a portfolio concentrated in U.S. equities, this is an implicit bet that U.S. companies are the best performing stocks. Foreign entities may in fact benefit further from their informational or technological advantages, better cost structures, or greater customer loyalty than their U.S. domiciled competitors.
4. As the definition of U.S. equities is broadened to include smaller capitalization stocks, the portion of revenues derived outside of the U.S. decreases significantly.

Exhibit 8



Conclusion

For many sophisticated investors, the decision to diversify equity holdings across the globe may seem obvious. But faced with a precariously-positioned global financial system, the low return expectations for most asset classes, and the still painful recovery from the dot-com and residential real estate bubbles, some institutions, naturally, want to challenge the norm. Nonetheless, for those clients with the risk tolerance and return goals commensurate with bearing equity risk, Wurts & Associates advocates that:

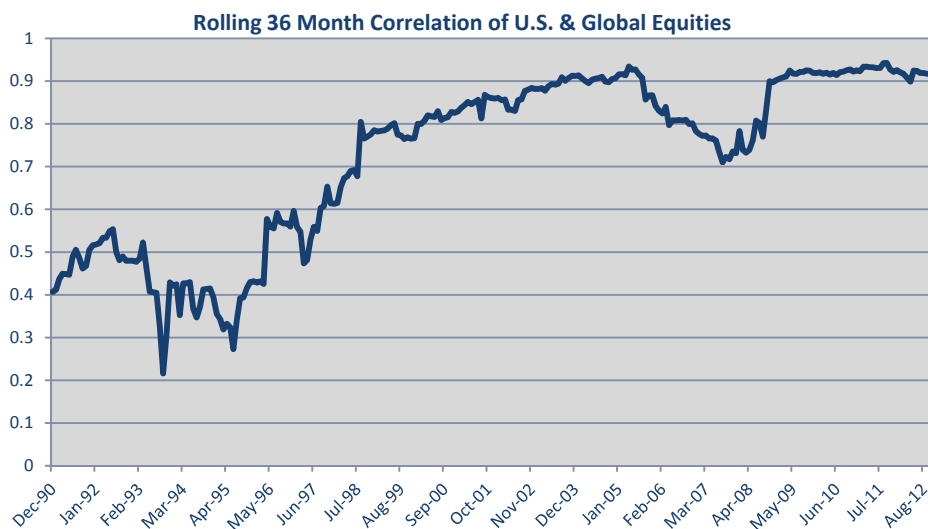
- Over the long term, global diversification still works.
- Concerns over the European economy may already be “priced in” to financial markets.
- Emerging market countries still offer compelling growth relative to the U.S. and most other developed economies.
- U.S. companies that generate global revenues still maintain exposure to U.S. beta.
- The global universe of stocks is far too broad to assume that U.S. stocks will always be the best performing.

Notes

¹ For purposes of this discussion we ignore the distinction between structuring a portfolio with a domestic equity allocation and an international equity allocation versus structuring the portfolio with one global equity allocation. While this is an important decision in the portfolio construction process it is beyond the scope of this paper.

² In addition to Representativeness, Overconfidence Bias, Frame Dependence, Anchoring and Adjustment, Aversion to Ambiguity, Myopic Loss Aversion, and Herding Behavior are behavioral biases that can explain why a U.S. investor may favor holding U.S. equity rather than a global equity portfolio.

³ Please see the below graph, which plots the correlation of U.S. equities, as proxied by the Russell 3000, with global equities, proxied by the MSCI ACWI-ex-U.S. index:



⁴ For more information on how Wurts & Associates thinks about portfolio risk, please refer to: www.wurts.com/services/allocation.php

⁵ The article cited in this paper, “International Diversification Works (Eventually),” received the Graham and Dodd Award of Excellence for 2011. For more information, please refer to: <http://www.cfapubs.org/page/doddAwards?journalCode=faj&>

⁶ The following data was obtained from J.P. Morgan’s 3Q 2012 Guide to the Markets, available here:

http://www.jpmorganinstitutional.com/cm/BlobServer/Guide_to_the_Markets_4Q_2012.pdf?blobkey=id&blobwhere=1321487368883&blobheader=application%2Fpdf&blobcol=urldata&blobtable=MungoBlobs&isAMIA=yes

	Unemployment Rates (%)	Median Population Age (years)
United States	8.1	37.1
Russia	5.2	38.8
Mexico	5.4	27.4
Brazil	5.3	29.6
China	4.1	35.9
India	9.8	26.5

⁷ Over the course of researching for this paper, I came across several different estimates for Non-U.S. revenue for the S&P 500; most estimates were in the 30-35% range. The 32% cited in this paper was obtained from a UBS Investment Research paper, “What’s the Emerging Market Exposure of the S&P 500”, published April 4, 2011.

The Private Equity Secondary Market: Its Characteristics and Role in a Private Equity Portfolio

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JANUARY 2013

Introduction

At a time when private equity general partners struggle to raise new funds, and buyout and venture capital deals have failed to recover from their 2009 peaks, the secondary market for private equity continues to grow as investors have been drawn to a range of claims about the merits of investing in portfolios purchased on the secondary market.ⁱ With less than \$5 billion in completed transactions in 2002, it is expected that 2012 will close with nearly \$30 billion of secondary transactions.

As described by proponents, it appears investing in private equity via the secondary market is a “sure-thing”, offering something for everyone. General partners raising funds point to the discounts to NAV (net asset value) that secondary portfolios have sold for recently as well as suggesting that they (1) return capital more quickly; (2) can avoid the J-curve effect faced by traditional private equity investments; and (3) avoid the “blind pool” risk associated with primary funds by evaluating assets further along into their investment periods. Proponents suggest these characteristics can help secondary funds produce superior IRRs compared to direct and primary funds, and under some circumstances, superior return multiples.

Before uncritically accepting the case for, and investing in secondary private equity portfolios, investors should recall earlier “investments of the day” such as portable alpha and 130/30 strategies. On paper they could do no wrong, but in practice failed to fully deliver on their rosy promises.

This review examines why investing in secondary funds might be attractive to limited partners and ask under what circumstances the strategy is likely to live up to its promises.ⁱⁱ We are left to conclude that secondary portfolios can reduce the risk of investing in private equity, but that superior returns most likely require a market imbalance that favors buyers, a condition that is likely to exist for some time, but is not assured.

Evolution of a Market

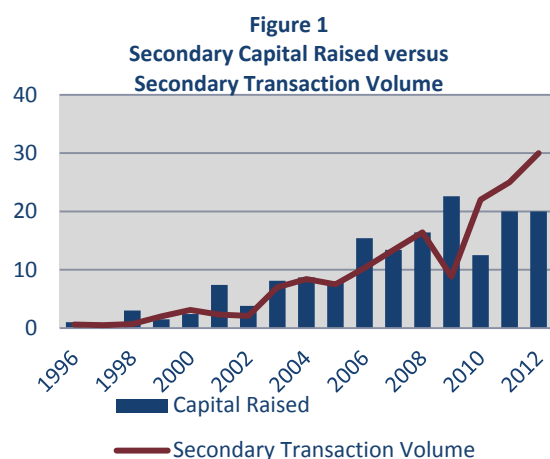
The secondary market for private equity positions has grown more than ten-fold in the last ten years, with much of that growth occurring after 2009 as “distressed” private equity investors found themselves

over allocated and in need of liquidity. General partners responded by raising tens of billions of dollars over the last few years to meet the increased supply (Figure 1). As of 2012, the volume of completed transactions continues to exceed new fund raising, but estimates put capital available to purchase secondary positions (dry powder) at \$35 billion with secondary funds on the market attempting to raise approximately \$20 billion over the next year.ⁱⁱⁱ Prospective investors should question whether the increase in private equity portfolios being offered for sale on the secondary market is permanent or temporary. If temporary, it is possible that new fund raising could exceed supply, pushing secondary prices up and hurting returns. So is the increase in supply temporary or permanent?

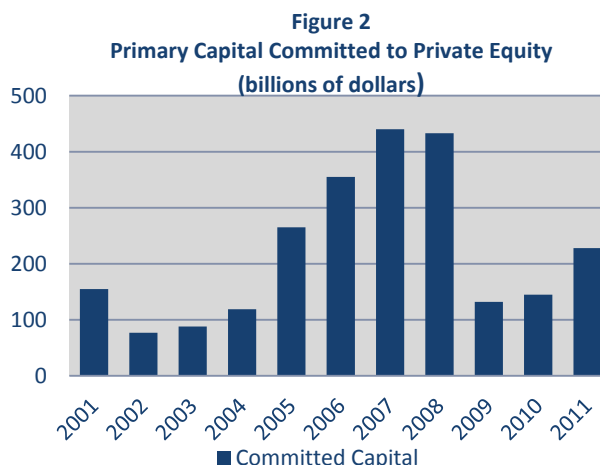
Historically about 3% of private equity investments are offered for sale in the secondary market each year. With primary capital committed to private equity growing from less than \$100 billion a year in 2002 to over \$400 billion by 2007-08, an increase in secondary offerings was to be expected (private equity portfolios tend to be offered for sale in the secondary market 3-to-5 years after commitments are made). But after 2008, private equity commitments dropped off sharply and have yet to recover (Figure 2), suggesting the future supply of offerings in the secondary market could do the same.

The increase in the supply of offerings in the secondary market could also reflect an increased willingness by investors to sell their holdings. There are many reasons as to why investors may choose to offer positions in the secondary market including a desire to (1) actively manage their portfolio; (2) reduce unfunded commitments; (3) lock-in accrued gains; (4) maintain a portfolio's diversification by various exposures, including manager and vintage year; and (5) to divest from non-core assets and managers in order to refocus on core manager relationships.

One reason to believe that the turn-over rate of private equity commitments could be permanently higher is the recent dynamics of private equity. The slower return of capital, poor manager performance and impending capital calls have forced investors to make greater use of the secondary market as a tool for actively managing their private equity portfolio. As an example, in 2008, when public equity markets lost significant value, many investors found their portfolios over allocated to private equity; with liquidity highly valued, many investors chose to rebalance their portfolio by selling off some of the private equity commitments. And once investors learn how to use the secondary market to manage their overall private equity portfolio, the evidence suggests they will become repeat sellers.^{iv}



Source: Cogent Partners

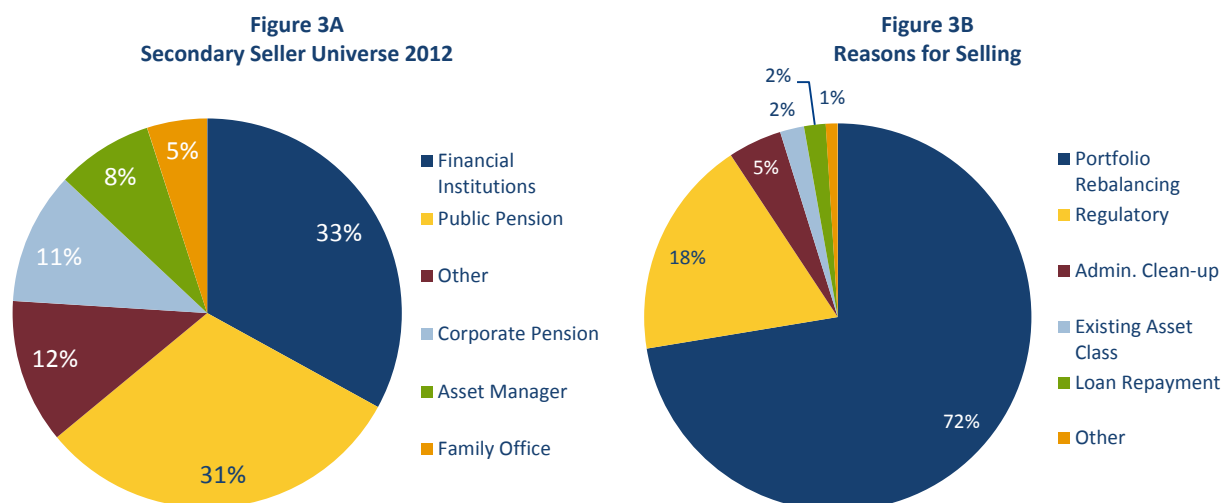


Source: Cogent Partners

Others believe that the increased rate at which investors are selling their private equity portfolio in the secondary market is only a temporary phenomenon - the result of new regulatory pressures forcing many private equity investors to reduce their overall commitment to the asset class as a means to meet higher capital requirements. Most notable among these regulatory pressures are the Volcker Rule, Basel III and Solvency II^v which will force banks and insurance companies to reduce their balance sheet exposure to illiquid assets such as private equity. Once financial institutions have reduced their private equity portfolios to meet new regulations, the rate at which they turnover their private equity holdings in the secondary market should return to normal levels, signaling a decrease in supply.

Who is selling in the secondary market, and why? It appears that the market continues to be driven by sales from public pensions (primarily North American) and by financial institutions (primarily European); they made up 64% of the \$13 billion in transaction volume in the first half of in 2012 (Figure 3). Sales by pension funds appear to reflect a desire to reduce private equity exposure and to invest with a smaller group of managers, while sales by financial institutions reflect a response to regulatory requirements.

So what does the evidence tell us about the changing supply and demand dynamics of the secondary market and what it means for pricing and prospective returns to investors in secondary portfolios? Demand for secondary portfolios, as measured by the amount of capital being raised by new funds is clearly rising, but the direction of new supply, however, is unclear. First, the original source of secondary supply, commitments to private equity funds have failed to recover to pre-2008 levels. And second, increased turnover of portfolios is likely to decrease once portfolios are rebalanced and meet new regulatory requirements. As demonstrated in Figure 1, the supply-demand dynamic has favored buyers of secondary portfolios the last several years. While this trend should continue for another several years, it is not clear what the supply demand dynamic will look like five or more years from now.

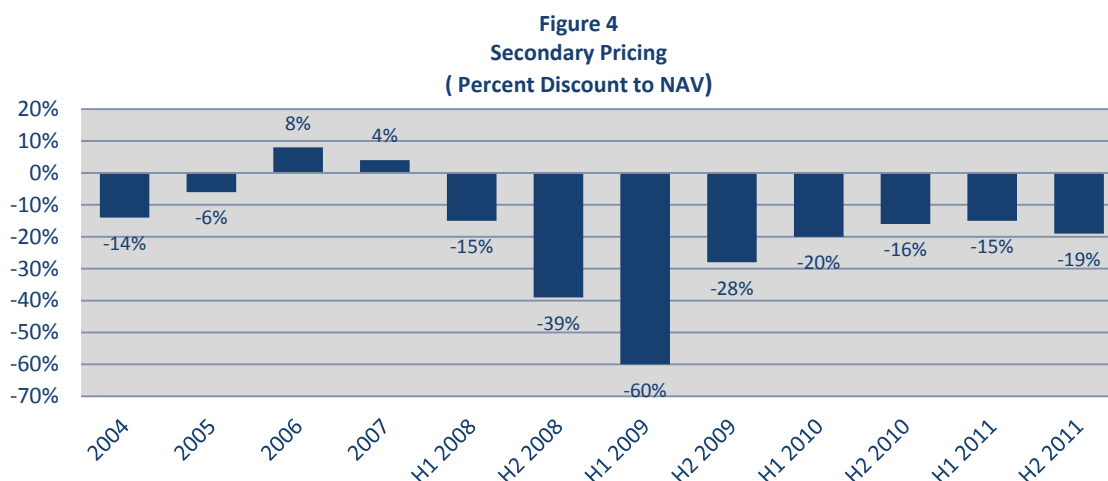


Source: Cogent Partners

The Appeal of Secondary Portfolios to Investors

The recent appeal of private equity secondary markets can be largely attributed to the 2008 financial crisis where many owners of private equity portfolios were forced to sell off their investments at

distressed prices. Investors with dry powder happily stepped in to buy these assets at sizable discounts to NAV. But as the history of private equity secondary pricing reveals (Figure 4), transactions are not



Source: Cogent Partners

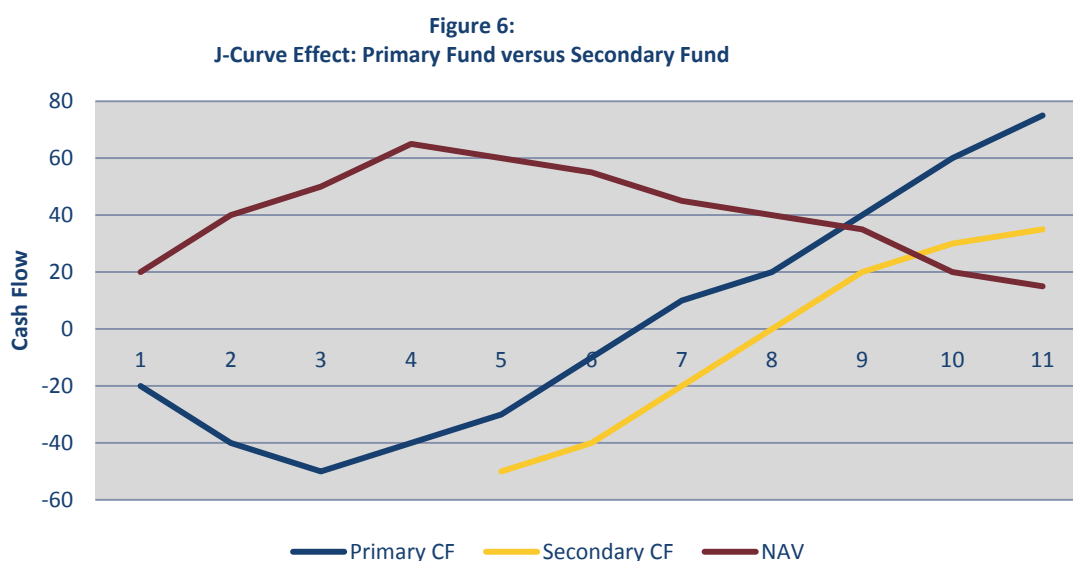
always completed at sharp discounts to NAV. If prices are not cheap, why might investors seek to own private equity acquired on the secondary market? Managers seeking to raise funds have laid out a number of reasons for owning a secondary portfolio rather than a direct or primary portfolio including (1) the faster return of capital; (2) mitigation of the J-curve effect faced by traditional private equity investments; and (3) avoidance of “blind pool” risk. Managers suggest that these characteristics of lower the risk/return profile of owning private equity and can help secondary funds produce superior IRRs compared to direct and primary funds. Figure 5 compares the characteristics of private equity secondary portfolios to primary funds.

Figure 5

Private Equity Characteristics: Primary Funds versus Secondary Funds		
Factors	Primary Funds	Secondary Investments
Strategy	Exposure to fund manager(s) that have an interest in or control private companies	Portfolio of mature fund interests in private equity purchased 4-5 years into their life
Transparency	Blind Pool	Purchasing partially or fully funded portfolio
Investment Period	On average, 5-year capital call and investment period; 5-year harvest period	Capital is called and invested over 1-3 years, 2-4 year harvest period
Pricing	Par	Generally purchased at a discount to NAV
Fees	On committed and invested capital	By purchasing fund interests 4-5 years into their life, most fees on committed capital avoided
J-curve	No J-curve mitigation	Faster deployment and return of capital mitigates the J-curve effect
Diversification	“Forward-looking” diversification	“Targeted Average Vintage Year”
Risk Return Profile	Blind pool and longer investment horizon raises risk profile; investors expect to be compensated with higher return multiples	Investing at value-added stage leads to more near-term distributions, a shorter investment life and higher expected IRRs

So how it is that ownership of private equity positions purchased on the secondary market can lead to lower risk and potentially higher returns, and how likely is this outcome?

In a typical primary fund investment, limited partners are purchasing an interest in a “blind pool”, and generally unaware of the underlying funds and portfolio companies in which their commitment capital will be invested. At the same time, these limited partners are paying fees on committed capital that will likely be called over a three to five year investment period. General partners seek out attractive portfolio companies and pursue their value creation strategies (cost cutting, acquisitions, expansion and capital structure optimization) regardless of the impact on short term operating performance, and limited partners accept this on the belief that they will be rewarded in the long-term. The result is the infamous J-curve, where early investment returns are negative as fees exceed the value created by the acquired portfolio companies (figure 6).



The characteristics of a secondary purchase are very different and seem appealing on a number of levels. First, rather than investing in a blind pool, a secondary investor is generally evaluating a prospective investment in year four or later of the life of the partnership. The prospective buyer of a secondary portfolio has the luxury of looking back at what has transpired, allowing them to evaluate the general partner’s track record in value creation. This not only allows the prospective buyer to avoid poorly executed funds but it gives them greater visibility into the portfolio’s prospects for likely value creation going forward. Here the buyer is able to “reprice” the asset and more accurately determine a price appropriate for the risks associated with its purchase.

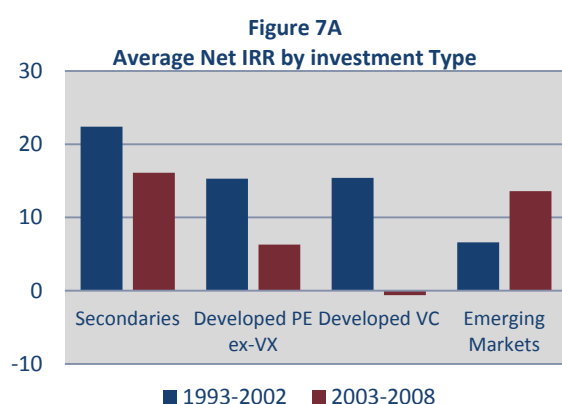
Second, if a decision is made to purchase the portfolio, the investor is likely purchasing a mature asset that is reaching a point in its life where the general partners’ value creation strategy is about to be rewarded with increasing distributions of cash flow. These distributions occur much earlier in the secondary buyer’s investment cycle than for a primary investor. Third, by investing near the end of a

primary fund's investment period, the buyer avoids paying many years of management fees on committed capital.

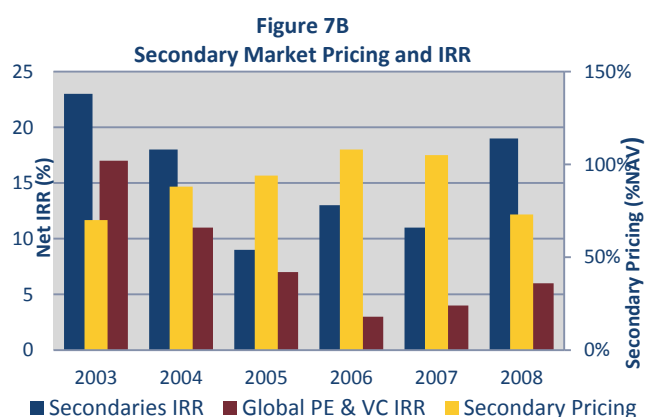
The conclusion you are led to is that the combination of lower fees and a faster return of capital will lead a portfolio of secondary positions to exit the J-curve faster and generate higher IRRs than would be earned by those investing in a direct or primary fund.

Secondary Market Returns

The qualitative analysis of secondary funds suggested that their characteristics, including a faster return of capital, reduced fees and a reduction in risk from purchasing assets with greater visibility and probability of success in value creation, could lead to higher IRRs as compared to direct or primary investments. It was also suggested that the price paid for a portfolio on the secondary market plays some role in the total return to investing in secondary funds. What does the evidence show?



Source: JP Morgan, Cambridge Associates



Source: Cogent Partners

A review of the performance of over 2500 private equity and secondary funds with vintages between 1993 and 2008 tends to lend support for the hypothesis that secondary funds produce higher IRRs:^{vi} As shown in figures 8A and 8B, between 1999-2002 and 2003-2008, secondary portfolios delivered higher IRRs than funds invested in buyout, venture capital and emerging markets over both times periods. And while the history is limited, the data also suggests that (1) secondary pricing as a percentage of NAV does influence the returns to secondary funds; and (2) even in environments where prices are greater than NAV, secondary funds generated higher IRRs than direct investments.^{vii}

Secondary Investment Strategies

In considering investing in a secondary fund, investors should be aware that managers raising funds employ different strategies, often specializing in parts of the secondary market where they have the most skill in identifying and closing on attractively priced deal flow. These different parts of the secondary market offer different potential returns and require different skill sets and fund sizes to be successful.

The simplest type of secondary offering involves the purchase of interests from “traditional” LPs. These types of transactions are generally sold through brokers in an auction process and as a result tend to be more efficiently priced. That is not always the case though; in a desire to maintain an aligned investor base, often General Partners will limit potential buyers to those already invested in the fund and that will invest in the next fund. In these situations, secondary funds that have already invested in the primary fund and have the skills to underwrite offered positions have a distinct advantage over LPs who are unable to compare multiple bids. This may result in the secondary fund closing the transaction at an attractive price. Traditional L.P. interests offered in the market tend to be “small” (\$10-\$20 million); secondary funds focusing on this space tend to be less than \$500m in size; \$10-to-\$20 million pieces in a larger fund would do little to “move the needle”.

Other funds play in more complicated segments of the secondary market that require additional skills to structure the transaction. “Direct Secondaries” involve the purchase of a portfolio of direct investments in portfolio companies in deals worth hundreds of millions of dollars and the establishment of a new General Partner to manage the new portfolio. Because there are fewer managers with the skill and expertise to lead these types of transactions, there is less competition and pricing is less efficient, thus creating the opportunity for outsized returns.

Another area of growth in the secondary market involves the sale and purchase of “tail-end” portfolios. Managers of primary funds often find themselves needing to wind-down their fund and provide liquidity to their limited partners before the assets have realized their potential value and can be sold. Purchases by secondary managers of these “tail-end” portfolios provide an exit strategy for primary funds. Primary funds are often willing to accept a discount to fair value in order to sell these assets in a timely fashion.

Figure 8

Secondary Investment Strategies		
	Definition	Characteristics
Traditional LP Interests	Sale of an investor’s interest in a private equity fund or portfolio of interests in various funds through the transfer of limited partnership interests	- Majority of deal flow - Most efficient part of the market - GP approval often required for transfer
Direct Secondaries	Sale of portfolio of direct investments to a secondary buyer that will manage the investments or hire a general partner to do so. Examples include “secondary spinouts” where the secondary investors acquire interest in a limited partnership that is formed specifically to hold a portfolio of direct investments	- Less efficient pricing - Fewer managers with skills and expertise to lead transactions
Structured Secondaries	Generally complex deals requiring innovative structures. An example includes the sale of a portfolio of private equity fund interests where the buyer acquires all future capital calls of the seller’s portfolio in exchanged for a preferred return against future	- Less efficient pricing - Fewer managers with skills and expertise to lead and structure transactions - Deals are generally of larger size

	distributions of the seller's portfolio	
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“Structured” secondary transactions offer buyers another opportunity to buy assets at less than fair value. Structured transactions offer an opportunity to generate outsized returns not because of the asset being sold, but because of how the deal is structured. These deals are all unique to the parties involved. One example involves the sale of a portfolio of private equity fund interests where the buyer acquires all future capital calls of the seller's portfolio in exchange for a preferred return against future distributions of the seller's portfolio.

Secondary Portfolios: Looking Behind the Curtain

On paper, it appears a portfolio of private equity positions purchased in the secondary market can appear to do no wrong. More often than not, portfolios have been priced at a discount to NAV, leading to an immediate write-up of the portfolio once the transaction is completed. And by purchasing an asset at its value creation stage, the investor minimizes fees paid and receives a faster distribution capital, shortening the J-curve, leading to higher IRRs than would be earned by direct investors. Finally, compared to a direct portfolio, a portfolio of secondary positions avoids blind pool risk, enabling investors to avoid underperforming funds and better access potential value creation, allowing assets to be repriced to a level appropriate for the risks associated with the asset. And in apparent validation of all of superlatives, recent performance has been strong.

Once Toto pulled the curtain back on the Wizard of Oz, we never looked at the Wizard the same way again. As the curtain is pulled back on portfolios acquired in the secondary market, do their positive characteristics always hold up?

Discounts to NAV – A significant portion of the returns to secondary portfolios relative to direct investments in private equity have come from purchasing them at a discount to NAV. Can investors count on secondary offerings pricing at discounts to NAV in the future? Historically, public and private equity and secondary prices have tended to move together (though with varying time lags). During the mid-2000s as public equity prices were rising, secondary portfolios sold at a premium to NAV as sellers in the secondary market demanded higher prices and buyers willingly paid it in anticipation of future growth. As public and private equity prices fell after 2007, secondary portfolios traded at a discount to NAV. As economic growth continues to recover, public and private equity prices will eventually rise, reducing the willingness of sellers to accept low prices for their portfolios.

Another reason portfolios have sold at a discount to NAV over the last several years has been a supply-demand imbalance. For a number of years, the desire to sell portfolios in the secondary market has exceeded the amount raised by funds wanting to buy. If the supply of positions offered decreases once financial institutions have rebalanced their portfolios, and fund raising (demand) continues to climb, discounts to NAV should shrink.

Shortened J-Curve – If a buyer directly purchases a secondary portfolio, it is likely they will pay less in fees and receive a faster return of capital than investing in a direct fund, shortening the J-curve effect. But most investors gain access through a secondary fund with terms similar to a direct or primary fund:

a ten-year commitment with capital calls over the first three years. So while the General Partners of a secondary fund is purchasing assets that will generally return capital more quickly, as in a direct fund, limited partners must wait several years for their capital to be called, paying fees over that time, and then wait ten-years or more for all of their capital to be returned.

Blind Pool Risk – Purchasing a secondary portfolio enables investors to avoid buying portfolio companies that have failed or are expected to underperform, raising a portfolio's expected return. That is true, if all else is "held constant", but it ignores the fact investors will pay more for a portfolio of known investments than for a blind pool. So, while a secondary portfolio avoids blind pool risk, it does not necessarily assure higher returns than direct investing because prospective buyers will pay more for assets with a higher probability of success.

Conclusions

The recent strong returns to investing in private equity portfolios acquired on the secondary market has generated interest on the part of investors, fueled in part by disappointment in the performance of their direct and primary investments, and in part by the marketing claims of those out fund raising.

Those claims, that portfolios purchased in the secondary market (1) return capital more quickly; (2) can minimize the J-curve effect faced by traditional private equity investments; and (3) avoid the "blind pool" risk associated with primary funds by evaluating assets further along into their investment periods are generally true, simply because they are the characteristics of buying known assets further into their value creation and harvesting stage. For many investors these characteristics are in and of themselves desirable, because they reduce the risks associated with investing in private equity.

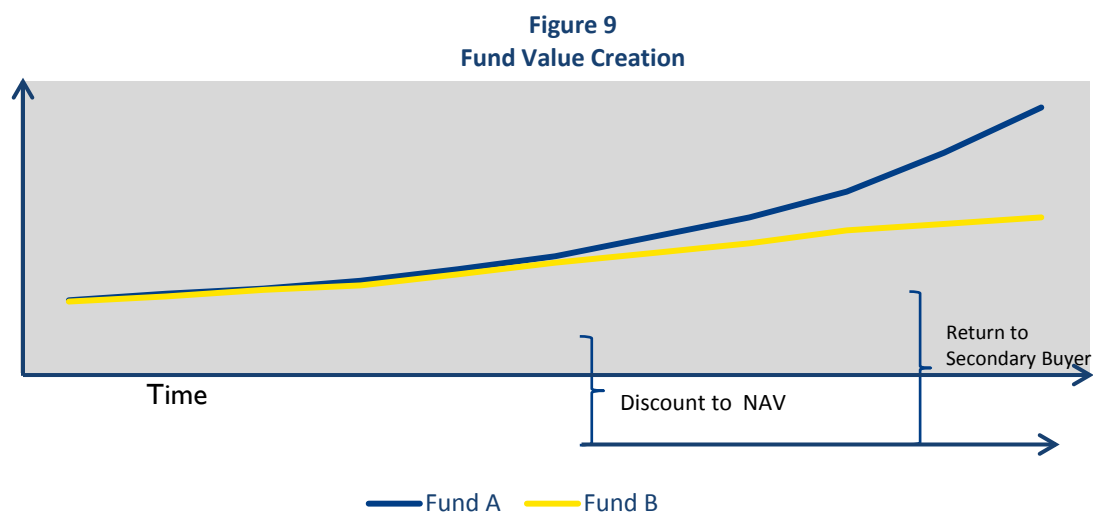
But for investors considering secondary private equity investments hoping for superior returns, the critical question is whether these characteristics ensure superior IRRs relative to direct and primary investments? A qualitative assessment of whether the characteristics generate superior IRRs does not yield an unqualified answer. If the characteristics of secondary portfolios do not necessarily ensure superior returns, then investors must count on favorable transaction prices, i.e., discounts to NAV to generate superior returns. Much of the recent performance of secondary investments can be attributed to supply-demand dynamics which favored buyers. This dynamic is likely to continue for several more years as financial institutions unwind their portfolios to meet new regulations, but as discussed, there is reason to believe this dynamic will become less favorable for buyers in the future. Only time will tell. If the supply-demand dynamic favors sellers in the future, investors seeking superior returns will need to pick funds whose strategy avoids more competitive segments of the secondary market in favor of less efficient segments of the market. These would include smaller L.P positions that are not sold in auctions, or direct and structured deals whose complexity leads to less efficient pricing.

Appendix A: Beware Discounts to NAV; Sometimes You Get What You Pay For

A legitimate question someone considering an investment in a secondary fund might ask is whether or not the asset class can generate attractive returns if discounts to NAV decline? General partners will argue yes, and to do so point to how value is created in the purchase. In general, the larger the discount

to NAV, the larger the expected IRR to a portfolio will be. The relationship between the purchase price and the expected IRR, however, is more complex. Below, we have provided an example highlighting this relationship by comparing two prospective secondary portfolios.

As figure 7 shows, a fund's value creation during the early investment period is often not reflected in its NAV since efforts to improve a company's operations are not initially reflected in higher operating earnings. A difference in two fund's prospective valuation does not become apparent until later in the investment period.^{viii} In the case where analysis reveals two funds have different expected returns, the price at which investors are willing to purchase each portfolio is very different. Secondary buyers with a target IRR in mind will require a different purchase price relative to NAV for each corresponding fund. For a given target IRR, a fund expected to produce significant value over the rest of its life can be purchased at a price closer to NAV than a fund with less promising prospects.



The example above yields several takeaways. First, the risk-return profile of secondary funds can be altered by the price that is paid.^{ix} The ability to observe a fund's value creation history and prospects allows a secondary fund buyer to "reprice" an asset and only purchase it at a price that raises the probability of it achieving its desire return. Investors in the blind pools of primary funds do not have this opportunity and must rely on the past performance of a general partner's earlier investments in decision making. Second, you get what you pay for; in an *efficient market*, a highly discounted price to NAV probably suggests the assets under consideration have a lower expected return than a higher priced asset.^x Third, the discount to NAV does matter in an *inefficient market*. A secondary fund will have more attractive returns if the *actual* discount to NAV paid exceeds the discount required to achieve the needed IRR given the portfolio's expected value creation. Another way to think about this is that some funds require a discount to NAV to make them a good investment and others do not.

So under what circumstances will secondary markets produce mispriced assets? One example involves the sale by limited partners to a single secondary buyer approved by the general partner. In this situation the buyer is a portfolio manager with the experience and skill set to evaluate the assets being sold and estimate the future cash flow they will generate, subsequently enabling the buyer to determine a "fair" price. The seller of their L.P. position on the other hand is generally working with limited information about the prospects of the portfolio. This difference in the availability of critical information

to assess a fair price can lead to a favorable price for the buyer. Another factor influencing how mispriced the asset is includes the desire of the seller to accept a discount to free them of their commitment.

These ideas are played out in the market place today as buyers and sellers of secondary positions haggle over price. In a market where sellers of partnerships often want to avoid having to sell positions at discounts to NAV, buyers have found creative ways to satisfy both sides. As an example, many sellers are willing to accept deferred payments in order to increase the total, final purchase price. By allowing buyers to pay a portion of the purchase price over time (as investments mature and proceeds are returned), sellers can achieve a price closer to NAV and generate implicit interest rates of between 5 to 10 percent on the deferred portion of the purchase. By slowing capital payments until distributions are received, the buyer is able to produce a higher IRR than would be the case if the purchase price was all paid up front.

Prospective investors in secondary funds have historically focused on the discount to NAV in their decision making. It is clear from the proceeding analysis that the role of price in the total returns to secondary investments is much more complex.

Appendix B: What about Multiples?

Conventional wisdom says that secondary portfolios will produce lower total return multiples than direct and primary funds, mainly because of their shorter investment duration. Fund managers with both primary and secondary products will often make this case to prospective investors; use secondary funds to reduce risk and accelerate returns, mitigating the J-curve, and invest in primary funds if a portfolio's multiple is more important to the investor's investment plan. There is some reason behind the conclusion.

Primary funds are subject to blind pool risk. This uncertainty leads to investors demanding a risk premium and resulting in a lower price for the asset than would be the case if there was visibility to the underlying asset. By avoiding this blind pool, secondary funds are able to "reprice" assets; but as visibility increases, markets become more efficient, and "outsized" returns are eliminated. The takeaway here is that investors in direct and primary funds should be rewarded with higher total returns than that of secondary fund investors because of this effect of asset visibility on total returns.

While the risk profile of direct and primary investments compared to secondary portfolios suggests the former should produce higher return multiples, the limited evidence available comparing the TVPI (Total value to Paid-In) of each reveals otherwise. For 1998 to 2008 vintage funds, the TVPI multiple for the median secondary fund was 1.3X and for all private equity funds it was 1.2X. For top quartile managers, the TVPI multiple for secondary funds was 1.6X and for all private equity funds it was 1.5X.^{xi} The results are available only for short period of history and are not available by vintage year so not too much should be read into them. It is also possible that the large discounts to NAV paid for secondary portfolios in 2003 (30%) and in 2008 (27%) skewed the results. If so, it is possible 2009-2010 vintage secondary portfolios will produce superior multiples to primary funds. First, because of the steep discounts paid as many stressed sellers were forced to unload portfolios; and second, because of the unfavorable conditions faced by general partners as they tried to raise funds: more competition for deals, fewer

opportunities in a slow growth environment, reduced use of leverage, and longer holding periods for portfolio companies.

Notes

ⁱ Secondary investments generally involve the purchase of limited partnership interests in private equity funds or direct private equity investments.

ⁱⁱ We also review the role purchase price has on the returns to secondary portfolios. It has been argued that the demand for private equity secondary positions grew as a result of attractive pricing (big discounts to NAV) brought about by a number of market “dislocations” and that demand will shrink once markets and prices normalize. We conclude that purchase prices, or more specifically, the discounts to NAV obtained in the secondary market, are only a portion of how value is created. Ultimately, returns depend on the ability of a manager identify mispriced assets, meaning, identifying managers with demonstrable success in executing their strategy is of critical importance. ⁱⁱⁱ

ⁱⁱⁱ J.P. Morgan, Insights, Secondary Private Equity: Investment Characteristics and Market Outlook, October 2012

^{iv} Among the other trends observed is the repeated use of the secondary market by sellers; of those that have sold positions in the secondary market, 83% of public pension plans are repeat sellers as are 50% of endowments and 33% of financial institutions. While the survey does not offer the reasoning behind these sales, possible explanations include: a belief that investors have already “booked” the majority of possible gains, investors are disappointed with their existing managers or enamored with new managers. Cogent Partners, Secondary Pricing Trends & Analysis; July 2012

^v Solvency II is a European Union initiative to be implemented by all 27 member states to create a harmonized EU-wide insurance regulatory regime, and will include new requirements regarding capital reserves.

^{vi} This analysis was conducted by Morgan Stanley AIP using returns for 1999-2008 vintage funds using data provided by Cambridge Associates and Cogent Partners.

^{vii} While the available data compares secondary funds to direct funds, a case can be made that secondary funds should produce superior IRRs to primary fund-of-funds due to the nature by which the latter allocate capital. As an example, compare a 2012 secondary fund to a 2012 vintage fund-of-funds. A typical secondary fund will commit most of its capital between 2012 and 2015 to funds near the end of their investment period, leading to rapid pace of investment. A fund-of-funds on the other hand will commit capital to underlying direct funds with 2012 to 2015 vintages and then it will take several more years before the direct funds call and invest the capital.

^{viii} Goldman Sachs, Private Equity Secondaries: Cyclical Opportunity or Strategic Allocation, May 2012

^{ix} “These cases demonstrate how the risk-return profile of funds can be reshaped through a secondary purchase at the right price. While these benefits can represent a distinct advantage for the secondary acquirer, this additional level of transparency does not come without cost. Sellers can also observe how a fund is developing and inevitably these observations will impact pricing expectations. That said, disciplined buyers of secondary interests who do their homework can find many interesting values often at much lower risk levels than those assumed by the original investors.”

^x The price a secondary buyer with a targeted return is willing to pay, be it a discount or premium to NAV, depends on the portfolio’s expected returns. In an *efficient market* the smaller is the fund’s expected value creation, the larger the necessary discount to NAV necessary to achieve the investor’s targeted IRR.

^{xi} This analysis was conducted by PineBridge Investments using fund data compiled by Preqin.

PRIVATE EQUITY OUTLOOK

June 2012



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HEDGE FUND OUTLOOK

October 2012

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When Markets Pay More Attention to Macro-Risks than Fundamentals, Most Hedge Fund Strategies Face Headwinds to Performance

Facing criticism from all directions, it is a tough time to be a hedge fund manager. In a world where markets appear to be driven by rapidly changing macro views about risks rather than “fundamentals”, some question whether hedge fund managers are able to take advantage of the flexibility they have to “go-long”, short, use leverage and hedge to capture insights about mispriced assets. We are left to conclude that the continuation of top-down, macro-economic risks introduces significant tail-risks and headwinds to performance for even the most attractive hedge fund strategies.

For the average investor, how hedge funds generate returns remains a mystery. However, in drilling down to their most fundamental building blocks, return drivers are really quite simple to understand. Hedge funds need to recognize market changes and the implications for asset prices before the market is able to price the changes themselves. For long/short equity managers, recognizing these changes involves deciding whether stocks are cheap or expensive, taking the appropriate position and waiting for everyone else to recognize the same thing. Macro managers do the same for currencies and interest rates, among other things. Change for relative value strategies means finding where the current price difference between assets is incorrect.

The process of recognizing these changes is a battle between different views of the future, and as that battle is waged, the market will experience price volatility until a winner emerges. The hedge fund managers who took a position need to decide: (1) how long it will take for markets to recognize and price change appropriately; and (2) can they withstand the volatility in the meantime?

In a world where asset values can be fundamentally mispriced for long periods of time, how should hedge fund managers manage their portfolios? During the “Great Moderation” (a term coined by Fed

Chairman Ben Bernanke to describe the period in the 1980s and 1990s when GDP growth and inflation was very stable), managers could decide if changes at a company, in an industry or a nation meant assets were cheap or rich. Today, the uncertainty over the European Union, China’s precarious hold on growth, and whether or not the US will experience a double dip recession changes day-to-day. In this fickle environment, asset prices can be perceived as cheap one minute (when markets are optimistic) and expensive the next (when the world is about to come to an end).

When uncertainty-driven volatility keeps prices from moving to fair value, what is a hedge fund manager to do? As John Maynard Keynes said, “the market can stay irrational longer than I can stay solvent.” Hedge fund strategies that want to live to trade another day have gotten out of the way of volatility by reducing exposure to the market, reducing leverage and by staying liquid. What point is there in shorting Spanish sovereign debt if it is unknown whether the ECB or EFSM is going to step in and support Spanish debt prices or not?

As a group, hedge funds have done a poor job of avoiding volatility; their discipline and skill is tempted by cheap asset prices that volatility can offer. As a result, hedge funds have produced poor to mediocre results since 2011 with countless stories of managers, confident in their understanding of the environment, stepping into a trade only to be whipsawed. To quote one: “It has become more obvious as the stress has gone on that stress creates value. There are a number of assets which have re-priced, some quite dramatically, because the underlying fundamentals are being challenged or because investors were too long or can no longer hold an asset.” Unfortunately, many of those trades moved against the managers based on policy intervention news that is constantly changing. These changes leave managers in a frustrating spot as they reduce exposure, only to find

When Markets Pay More Attention to Macro-Risks than Fundamentals, Most Hedge Fund Strategies Face Headwinds to Performance

themselves trailing the market as prices move back to reflect their earlier view. They are left to offer explanations such as “the magnitude of the uncertainty associated with this situation is making it very difficult for fundamentally based strategies to monetize the different opportunities across hedge fund strategies!”

Hedge fund strategies today face robust macro-driven and secularly driven headwinds to delivering strong performance. That said, skillful managers will find investment opportunities that minimize these headwinds. This outlook examines the challenges that directional and non-directional hedge funds, including hedged equity, event driven, and relative value strategies, face when executing their strategies today.

Outlook and Opportunities

When considering if hedge funds offer attractive risk adjusted returns, we are left to conclude that the continuation of top-down, macro-economic risks introduces significant tail-risk and headwinds to performance for even the most attractive hedge fund strategies. With the exception of distressed credit, we come away with a neutral to negative view about the appeal of strategies ranging from long-short equity and global macro, to merger and convertible arbitrage.

Directional Strategies (Equity Long-Short/Global Macro)

Equity long-short strategies face an environment where stock prices continue to move in lock step with the changing perceptions of risk. This makes it difficult for strategies to focus on identifying and capturing fundamentally-driven mispricing. Global macro managers face the same issue; rapid price reversals and asset values that do not reflect fundamentals which makes it particularly tough for managers with longer investment horizons. Until macro headwinds diminish and markets pay more attention to fundamentals, managers with

longer-dated demand themes are likely to underperform shorter-term tactical traders and trend followers.

Event Driven Strategies (Merger Arbitrage/ Credit)

It would seem that conditions favor merger arbitrage strategies; companies in search of growth with lots of cash and low financing costs should lead to an abundance of merger and acquisition (M&A) activity. Instead, M&A activity has been weak, rising as companies gain clarity about the macro environment and coming to a crawl as macro risks evolve. In credit, managers are confronted with many opportunities to buy attractively priced assets of companies with reasonable balance sheets. They must weigh those opportunities against the probability of rising default rates in the face of declining growth and risks associated with the European Union; prices are cheap, but they can get cheaper.

Relative Value Strategies (Fixed Income Arbitrage, Convertible Arbitrage, Equity Market Neutral)

There are many reasons it is hard for fixed income arbitrage strategies to find mispriced assets. Central banks have anchored expectations to lower yields and produced flatter yield curves, and spreads between risk free rates and credit remain low. Market characteristics critical to opportunity in convertible arbitrage have been weak; M&A activity remains low and equity volatility and equity market volumes are low on a historical basis. And finally, market neutral strategies that rely on fundamentals (e.g. valuation, earnings growth and quality) to identify stocks that are mispriced will continue to produce erratic performance in a risk-on, risk-off market that pays scant attention to fundamentals.

HEDGE FUND PERFORMANCE

HEDGE FUND PERFORMANCE: 2011-2012

Performance Struggles in “Risk-on, Risk-off” Market

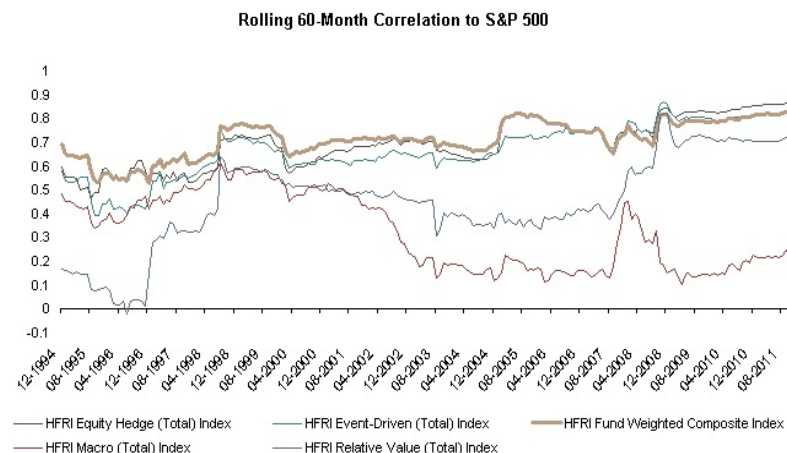
- 2011 performance left investors disappointed and the first half of 2012 has shown little improvement. In 2011, the average hedge fund lost 2.5%, hedged equity strategies lost over 7%, hedge fund-of-funds lost over 5.5% and only global macro and relative value strategies generated modest positive performance. Negative performance occurred for only the third time since the inception of the index and for the second time in four years.
- As would be expected given their high correlation to equity market returns, through the first half of 2012, hedge fund returns closely followed the path of equity markets. Hedge funds delivered strong performance in the first quarter of 2012, before giving up much of their gains in the second quarter. The DJ Credit Suisse Core Hedge Fund Weighted Index gave up 2.7% in the second quarter, leaving the benchmark up 2.2% through June 2012.
- Most hedge funds attributed their poor performance to volatile and unpredictable market dynamics brought on by uncertainty with Europe and and US policy. Put differently, performance struggled during periods when markets came to be characterized by “risk-on, risk-off” trades. In this environment, asset prices are driven by changing views about macro-economic risks over fundamentals. When investors believe macro risks are diminishing, markets rally as investors are willing to hold riskier assets. When risks are rising, markets sell off as investors seek to lower their portfolio risk.
- Markets driven by “risk-on, risk-off” behavior are challenging for investors whose decisions are based on fundamentals.
- “Risk-on, risk-off” markets are characterized by increasing price volatility and rising correlation across stock prices; we’ve experienced both lately. Many investors view large changes in the VIX index, which measures the expected movement in the S&P 500 index, as capturing “risk-on, risk-off” markets.

Hedge Fund Performance Struggles in Volatile Markets (6/30/2012)

	2011	2012 YTD	3-year	5-year
DJ/CS HF Index	-2.50%	2.20%	6.90%	1.89%
Long/Short Equity	-7.31%	2.21%	4.56%	0.56%
Global Macro	6.43%	0.14%	9.27%	6.95%
Merger Arbitrage	-9.09%	0.59%	3.29%	3.28%
Distressed	-4.23%	4.47%	7.86%	1.05%
Fixed Income Arbitrage	4.69%	4.69%	12.00%	2.28%
Convertible Arbitrage	1.13%	4.08%	11.56%	3.31%
Equity Market Neutral	4.49%	-1.37%	1.70%	-7.99%
HFRI FOF	-5.70%	1.00%	1.91%	-1.96%
S&P 500	2.11%	9.49%	16.40%	0.22%
ML All US Convertibles Index	-5.18%	6.50%	13.30%	2.03%
S&P/GS Commodities Index	-1.18	-7.23%	2.11%	-5.46%
CS HY II Index	5.47%	6.66%	15.90%	7.73%
DJ World Index	-9.91%	4.24%	8.82%	-4.66%

Source: Credit Suisse & HFRI

Hedge Fund Returns Highly Correlated to Equity Market Returns



Source: HFRI

HEDGE FUND PERFORMANCE: 2011-2012

Hedge Fund Asset Growth Among the Other Explanations for Declining Performance

- Besides “volatile and unpredictable market dynamics (creating) a challenging environment related to the European currency and sovereign debt crisis” (HFR), there are other explanations for the poor performance of hedge funds.
- Other explanations for poor performance suggest that asset growth has proven detrimental. Assets managed in hedge fund strategies have increased from just \$300 billion in 2000 to over \$2 trillion in 2012.
- Those critical of the industry suggest that asset growth led to “crowded trades” which subsequently hurt performance. A basket of the 50 stocks with the greatest hedge fund allocations underperformed the S&P 500 by 5% in 2011.
- Another explanation for falling hedge fund returns is that their ability to capture “alpha” is falling. If we isolate the influence of equity market returns and other risk factor exposures (size, style, etc.) on hedge fund returns, manager skill (alpha) appears to have decreased over time. While there are many possible explanations for the decline in managers’ ability to produce alpha, growth in assets is an obvious one.
- One reason investors include hedge funds in a diversified portfolio is their historical ability to protect capital in falling markets. While over time this tends to be true, the evidence reveals that it is not always the case. While we expect long/short equity or global macro to behave more like equities and not necessarily protect capital in falling markets, there are times when non-directional strategies such as convertible arbitrage or equity market neutral will also fail to protect capital.

Take Away the Return to Market Factors and Hedge Funds are Finding it Harder to Produce Alpha



Source: HFRI

Hedge Funds Don't Always Protect Capital

(Data beginning January 1994)

	L/S Equity	Global Macro	Merger Arbitrage	Distressed	Fixed Income Arbitrage	Convertible Arbitrage	Equity Market Neutral	DJ/Credit Suisse Hedge Fund Index	S&P 500	CS HY II Index	ML All US Convertibles Index
Avg Month	0.77%	0.97%	0.54%	0.83%	0.45%	0.63%	0.45%	0.71%	0.75%	0.64%	0.66%
Best Month	13.01%	10.60%	3.81%	4.15%	4.33%	5.81%	3.66%	8.53%	10.93%	10.08%	13.55%
Worst Month	-11.43%	-11.55%	-6.15%	-12.45	14.03%	-12.59%	-40.55%	-7.55%	-16.79%	-15.84%	-17.98%

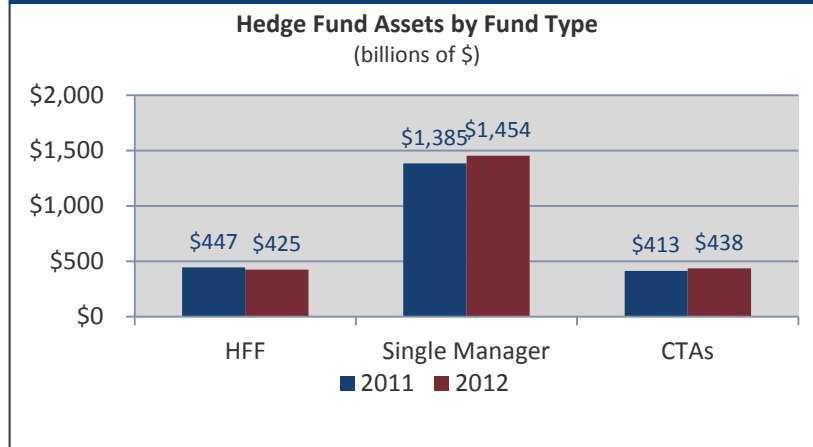
Source: Credit Suisse

HEDGE FUND: EVOLUTION OF THE INDUSTRY

As Performance Disappoints, Asset Growth Slows, and Larger Single Strategy Managers Benefit at the Expense of Fund-of-Funds

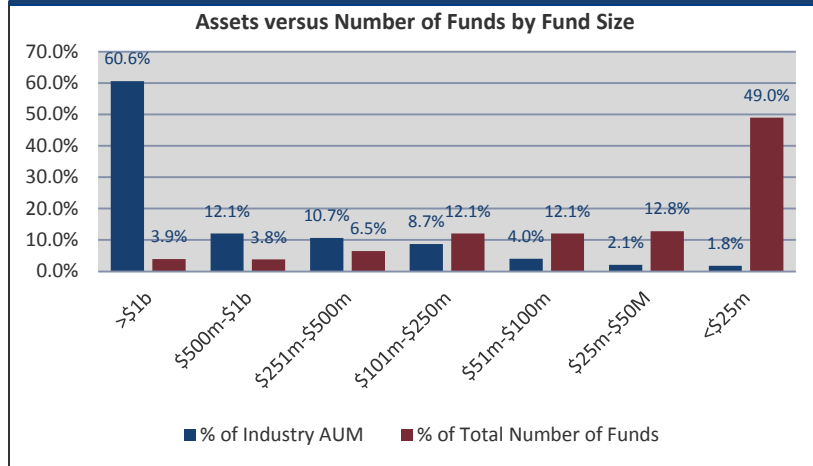
- The hedge fund industry continues to evolve as investors learn from and respond to their experiences by reassessing how they use and access hedge funds.
- The long-term poor performance of hedge fund of funds (HFF) appears to be leading investors to favor single manager strategies. Single-manager hedge fund assets continue to grow, just at much slower rates than in the past. The nature of funds receiving those assets continues to change too, more assets are given to the largest managers.
- HFF assets declined to \$425 billion from \$447 billion in 2011. Since 2010, the number of fund-of-funds fell from 3,559 to 3,259 today. The only area of growth appears to be with managers overseeing more than \$1 billion in assets. There are now 90 HFF (3.24% of the total) with average assets of over \$2.3 billion that manage nearly 50% of all fund-of-fund assets. The number of HFF managing less than \$500 million in assets also fell by 16% in 2011.
- Hedge fund assets, just \$300 billion in 2000, grew to \$2.1 trillion in 2012 (HFRI), though the pace of growth has now slowed. After net inflows of \$62 billion in the first half of 2011, net inflows amounted to \$7 billion in the second half of the year. Half-way through 2012, net inflows to hedge funds amounted to about \$20 billion. The number of single manager funds has grown by nearly 15% since the end of 2010 to 10,754 today. The majority of funds manage less than \$50 million (5,370), but the 3.9% of funds with more than \$1 billion in assets control over 60% of all single manager hedge fund assets.
- A recent survey by Preqin of current institutional investors in hedge funds suggest 41% will add to their existing long/short equity allocation, 27% will commit new money to macro strategies, and only 7% will make new allocations to distressed. In the conclusions found within Wurts & Associates' Hedge Fund Outlook, we take a neutral view on the near-term prospects for long/short equity and macro strategies, but have a overall positive view about the prospects for distressed funds.

More investors appear to be moving assets from hedge fund of funds to single manager strategies



Source: Pertrac

Strategies with more than \$1b in AUM make up a small percentage of the total number of funds, but they manage the majority of the assets.



Source: Pertrac

DIRECTIONAL STRATEGIES

DIRECTIONAL STRATEGIES: EQUITY LONG/SHORT

Macroeconomic Uncertainties Require Resolution for Stock Pickers to Prosper

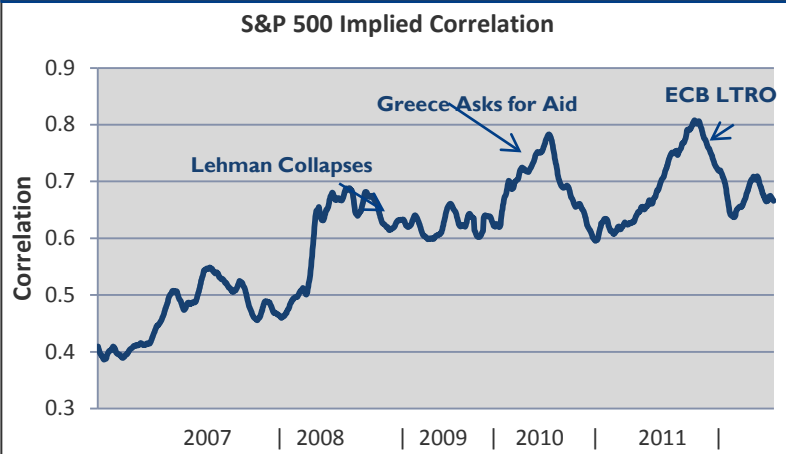
- Strategy Overview:** Equity Long/Short (L/S) strategies maintain both long and short positions in primarily equity and equity derivative securities. A wide variety of investment processes can be employed to arrive at an investment decision, including both quantitative and fundamental techniques. Strategies can be heavily diversified or narrowly focused on specific sectors and can range broadly in terms of levels of net exposure, leverage employed, holding period, concentrations of market capitalizations and valuation ranges of typical portfolios.
- Current Environment:** L/S funds have faced a challenging environment the last several years as asset prices have often been driven more by macroeconomic fears and responses to government policy, than by company fundamentals. This can be seen in the rise and fall of equity market volatility and correlations as expectations change about the resolution of the European debt crisis and US spending and tax policy.
- One metric that captures macro risks the market faces is the VIX index (CBO Market Volatility Index). Often referred to as the “fear index”, the VIX index measures the market’s expectation of stock market volatility over the next 30-days. Historically, equity prices have moved inversely to macro risks. Recently, these markets have been known as “risk-on, risk-off;” rallying as macro risks fall and selling-off as risks rise. Stock prices are likely to remain highly correlated as long as markets are driven macro risks.
- Correlations dropped at the beginning of 2012 on the strength of improving US job growth and after European policymakers gave investors reason to hope its crisis was behind. But only months later, correlations began to rise on faded hopes about Europe and concerns about the strength of global economic growth. In the face of macroeconomic uncertainty, markets have been characterized by risk-on/risk-off behavior, rallying on any good news and selling off rapidly on bad news. As a result, L/S performance suffered from poor exposure management through 2011 and to a lesser extent in 2012.

As long as markets continue to be driven by macro -risk, stocks prices will remain correlated



Source: Bloomberg, CBOE

Picking which stocks are cheap and expensive is tough when stock prices move together



Source: Bloomberg, CBOE

DIRECTIONAL STRATEGIES: EQUITY LONG/SHORT

Macroeconomic Uncertainties Require Resolution for Stock Pickers to Prosper

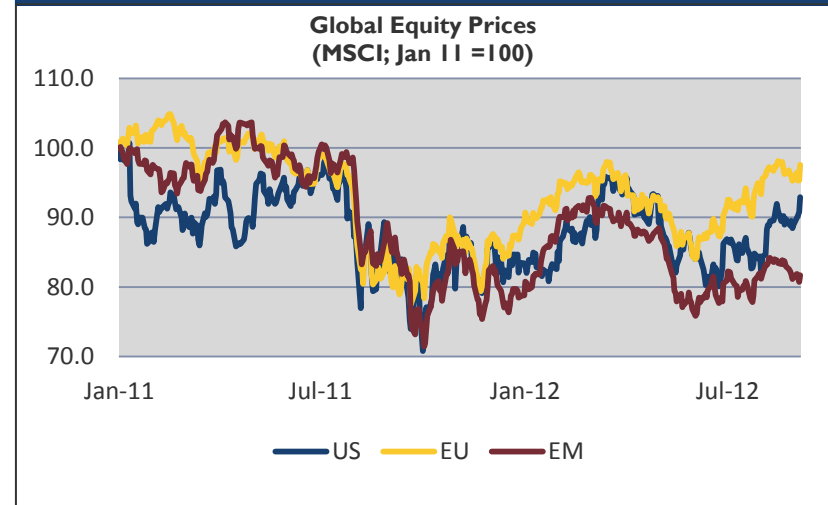
- Outlook Neutral:** L/S managers are able to identify attractive long/short candidates, but face an uncertain environment in which to make decisions. Equities around the world appear cheap by historical standards which should provide attractive opportunities, but are they cheap given expected growth rates?
- In the U.S., valuations appear slightly cheap. Their relative value depends on whether the Fed will undertake another round of QE or whether Congress will resolve the fiscal cliff without the US being pushed into recession. In Europe, markets appear to be pricing in a lengthy recession. Whether stocks are fairly valued depends on how Europe's issues are resolved. Managers with strong convictions can take positions that benefit from the expected resolution of Europe's issues (e.g., shorting companies that depend on government spending).
- As macro issues are resolved and investors return their attention to fundamentals, stock correlations should decrease and dispersion increase, creating a better environment for managers to capture stock mispricing. At that point, managers are likely to begin raising their gross positions, but until then, long/short equity managers are likely to continue to limit the gross and net positions of their portfolios.
- Amidst this uncertainty, some managers are likely to focus on opportunities whose outcome is less dependent on cyclical growth or government intervention, and instead seek out misunderstood secular growth stories or industries where leadership is changing. In Europe, managers will likely stay "close to the exit" (hold positions for a short time, actively trade and keep their gross and net exposures low), and focus on event-driven opportunities where companies can create or destroy shareholder value through corporate activities like share buybacks. In emerging markets where growth rates are moderating, L/S managers have the opportunity to move beyond "going long growth" to identifying stocks whose value does not reflect their long-run growth prospects.

Global Equity markets appear cheap against a variety of valuation measures, creating opportunity for managers

	Forward P/E		P/B		Div. Yield	
	Current	10-yr Avg	Current	10-yr Avg	Current	10-yr Avg
World	11.2	13.5	1.6	2.1	2.90%	2.50%
EAFE	10.5	13	1.3	1.7	3.90%	3.30%
EM	9.6	10.9	1.5	1.9	3.10%	2.80%
US	12.4	14.5	2.1	2.4	2.10%	2%
Germany	9	11.9	1.2	1.5	4%	4.60%
UK	9.6	11.5	1.5	4	3.30%	3.80%
Japan	12.1	18.1	1	1.4	2.60%	1.80%
China	8.3	12.3	1.5	2.1	3.50%	2.70%
Brazil	9.4	9.5	1.3	1.9	4.40%	3.60%

Source: J.P. Morgan

Recent divergence in global equity prices gives long/short strategies have a chance to generate alpha



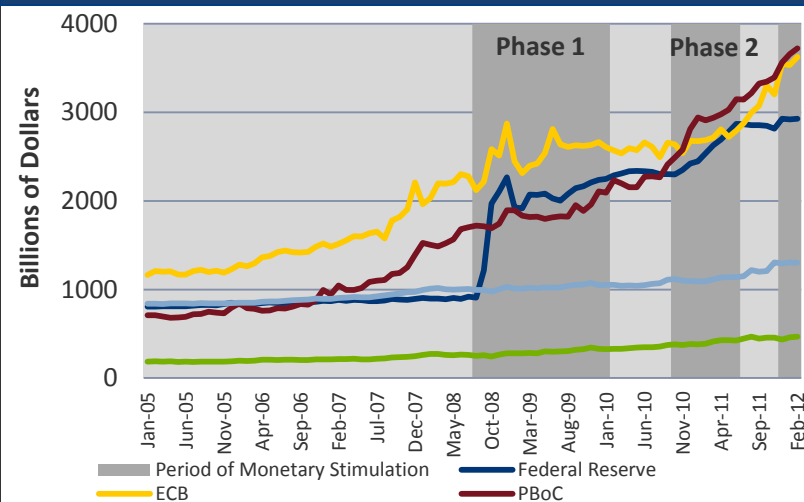
Source: Bloomberg

DIRECTIONAL STRATEGIES: GLOBAL MACRO

“Risk-on, Risk-off” Trading Environment Creates Headaches for Macro Managers

- Strategy Overview:** Global macro investing involves betting on price movements in equity, currency, interest rate, and commodity markets. Trades are either purely directional, betting on discrete price movements such as long the U.S. dollar index, or relative value, two similar assets are paired on the long and short sides to exploit a perceived relative mispricing such as long emerging market equities and short U.S. equities.
- There are two approaches to global macro investing: discretionary trading, where the managers’ opinions of market conditions lead them to the trade, and systematic trading, where a rule-based (quantitative) approach is taken. Systematic traders are often referred to as trend followers.
- Current Environment:** The last several years provided global macro managers many opportunities to succeed. Central Banks have flooded the world with liquidity and sovereign rates have diverged; European rates rising and US rates falling in a risk averse flight to safety. The dollar’s long-term downward trend has been interrupted by weaknesses in the euro and yen. Uncertainty about the extent of economic weakness caused commodity prices to fluctuate around their long-term trend, impacting the currencies of commodity exporters.
- Macro strategies delivered strong performance in 2011 as managers were able to capture policy induced trends in interest rates, exchange rates, and growth rates. Performance in the first half of 2012 has been weak however, as volatile markets driven by government intervention and rapidly changing investor sentiment have overwhelmed the impact of fundamentals in determining asset prices.

The world’s central banks have flooded the globe with liquidity, which has implications for interest rates, currencies, inflation and GDP growth



Sources: Federal Reserve, ECB, Bank of Japan, Bank of England, People’s Bank of China, Bloomberg, Wurts

Diverging sovereign rates create opportunities for managers with fundamental views about the direction of rates

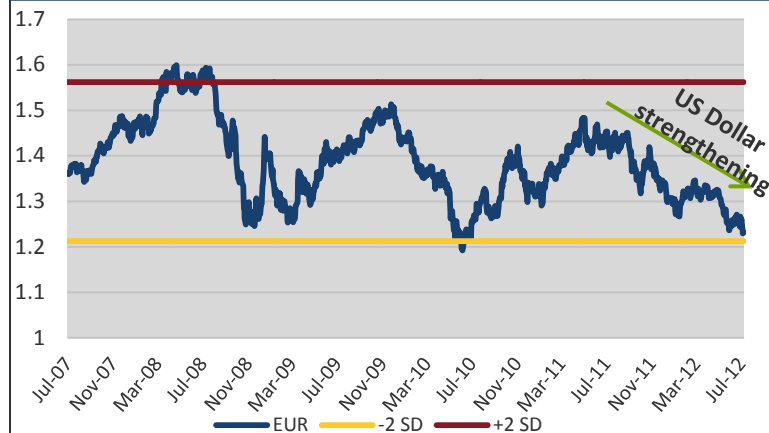


Sources: Bloomberg, Wurts

“Risk-on, Risk-off” Trading Environment Creates Headaches for Macro Managers

- When taking positions based on expected movements in interest rates, exchange rates, inflation rates and economic growth, macro managers must weigh the impact of economic fundamentals on values against policy changes “designed to lean against the wind” as well as their effect on expectations.
- As an example, economic weakness in Europe and unsustainable debt levels should lead to rising interest rates in Spain and falling rates in countries like Germany. It should also result in a weaker euro, or possibly falling commodity prices as global demand weakens. Managers who take positions based on these fundamental views have to consider policies that can reverse these outcomes. Will the ECB step in and buy Spanish sovereign debt, bringing their rates down? Will the EU step back from growth-killing austerity measures and begin to focus on growth, causing the euro to rise?
- Changing investor sentiment can also hurt fundamentally driven manager decisions. Many managers shorted French bonds and went long German Bunds based on the belief that rising debt would force French rates up and German rates would fall in a flight to safety. Instead, French-German spreads tightened on hope associated with the French presidential elections. Managers who abandoned that bet were left frustrated as spreads widened again in the second quarter.
- Rapid price reversals and the failure of assets to reflect their fundamental value makes it tough for managers with longer investment horizons. Until macro headwinds diminish and markets pay more attention to fundamentals, managers with longer-dated themes are likely to underperform shorter-term tactical traders and trend followers.
- Outlook Neutral:** Opportunities abound. Managers will continue to short sovereign debt of weakening nations (e.g., Spain) and make yield curve and currency trades on the expectation of additional monetary easing. However, in the face of macro headwinds, discretionary directional and relative value managers will continue to run their portfolios at lower than normal risk levels and seek out trades where prices are driven by idiosyncratic opportunities (e.g., US natural gas).

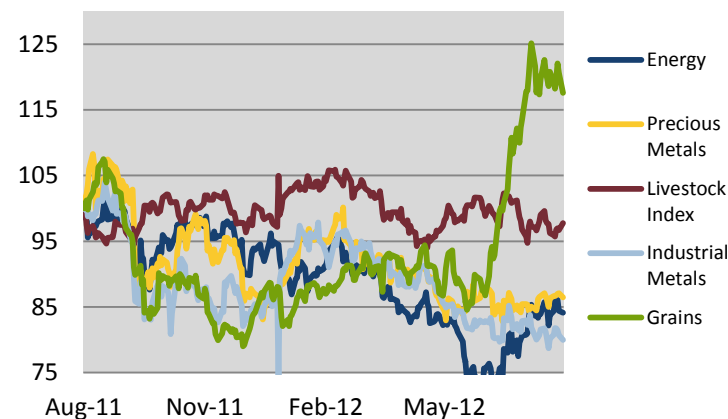
European economic weakness has reversed the dollar's long-term deterioration against the euro; how should macro investors react?



Source: Bloomberg

Those betting on secular increases in the prices of commodities must weigh these views against cyclically driven weakness in prices.

Commodity Prices



Source: Bloomberg

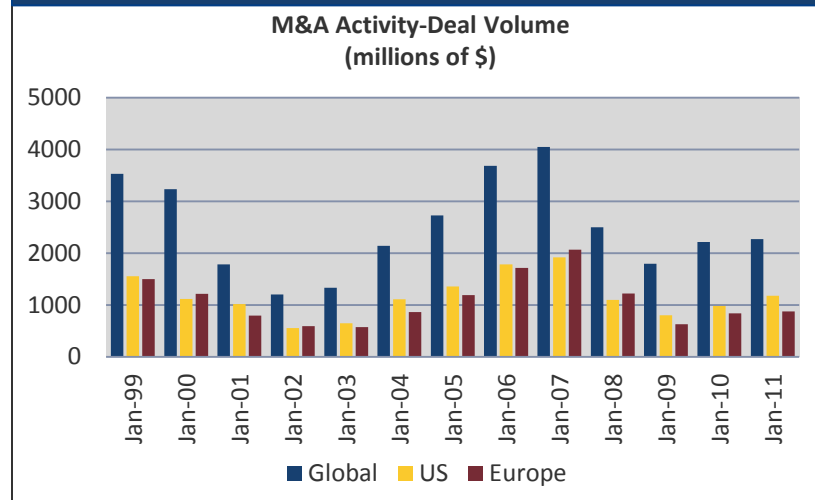
EVENT DRIVEN STRATEGIES

EVENT DRIVEN STRATEGIES: MERGER ARBITRAGE

Fundamentals favor rising Merger & Acquisition Activity but Economic Uncertainty Wins Out

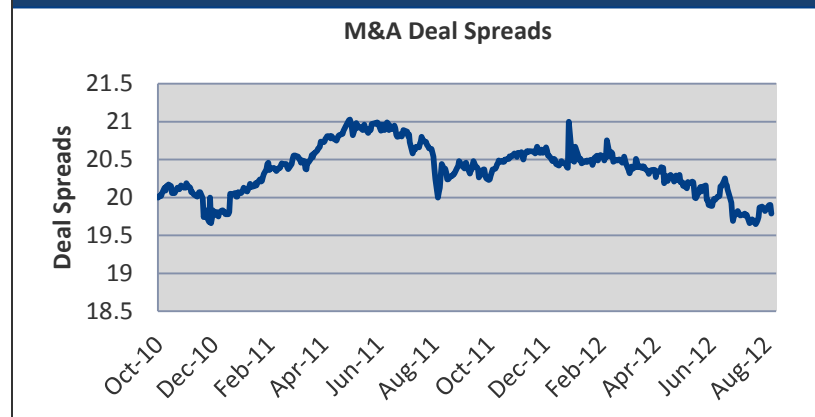
- Strategy Overview:** Return opportunities in merger arbitrage depend on, among other things, the volume of deals and the “spreads” (difference in price of the acquiring and target company) available after those deals are announced. These spreads depend on a multitude of factors, including the amount of capital chasing deals and the costs of borrowing to finance deals. As more money chases deals and the costs of borrowing falls, the prices of target companies rise, thereby narrowing spreads and the profits to be earned.
- Current Environment:** Today’s merger arbitrage environment is mixed. Merger activity should be high. Many industries face changing fundamentals affecting industry leadership (healthcare and energy). Corporations, as a whole, have strong balance sheets with lots of cash on the books. In a low growth environment, strategic acquisitions are an attractive way to acquire growth, though they face competition for deals from private equity firms that have dry powder to put to work.
- One would expect rising deal volume and rising bids, driving spreads down and creating profits for early entrants. Instead deal value has steadily declined since 2010. Also troubling is a significant decline in announced deal premiums, down over 50% from last year.
- Macroeconomic uncertainty appears to be the prime culprit making companies reluctant to take on new corporate events. Uncertainty has not only reduced deal volume, it has also caused managers implementing merger arbitrage strategies to position portfolios defensively, reducing their gross and net exposures, making it difficult to capture equity market rallies.
- Outlook Neutral:** While activity is limited and overall arbitrage spreads are low, merger-arbitrage continues to be moderately active, focusing on strategic cash deals with a high likelihood of completion. Activity will remain strongest in industries undergoing fundamental change.

Merger and Acquisition activity has failed to recover to pre-financial market crisis levels on global economic uncertainty



Source: Bloomberg

Recent weakness in announced deal spreads will hurt M&A strategies ability to generate alpha



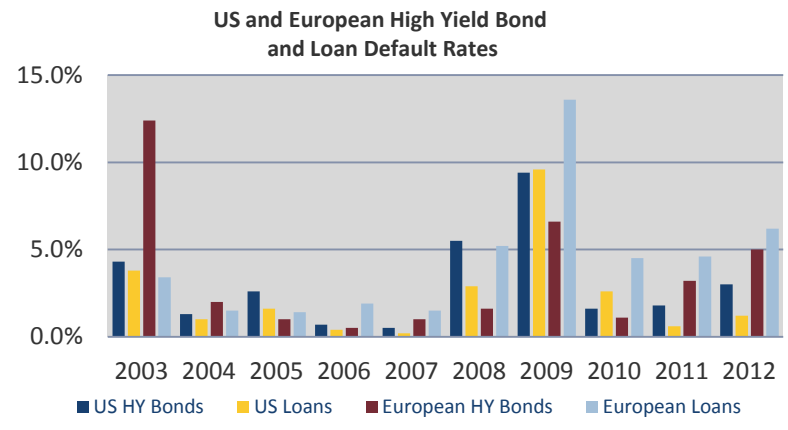
Source: Bloomberg, Credit Suisse

EVENT DRIVEN STRATEGIES: DISTRESSED CREDIT

Global Economic Weakness and Bank Deleveraging Creates Spectrum of Opportunities

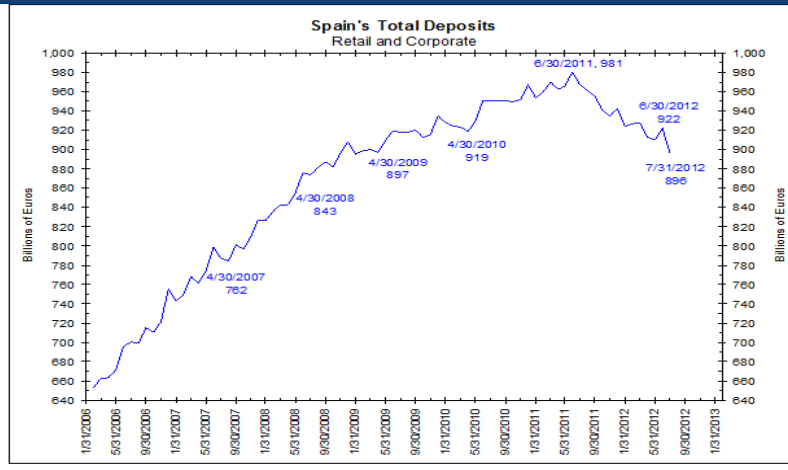
- Strategy Overview:** Distressed strategies focus on corporate or government debt trading at significant discounts as a result of bankruptcy, default or the market's perception that those outcomes are likely, or when owners are forced to sell. Active strategies may involve restructuring a company. "Passive" approaches can include long/short credit (go long/short companies' whose fundamentals are improving/deteriorating) and capital structure arbitrage (e.g. buying senior bonds and shorting the equity).
- Current Environment:** The 2008 U.S. distressed cycle is in its later stages, but Europe's cycle is just beginning. The European crisis and recession have already driven sovereign and corporate debt prices down. European banks are curtailing lending and expected to unload nearly \$1 trillion of assets to reduce their debt levels.
- Europe's woes have not resulted in the volume of bankruptcies and restructurings expected; most likely because of policy measures designed to keep governments and banks from collapsing. Rather than unload assets at fire-sale prices, banks have curtailed lending and taken advantage of ECB liquidity to allow them to sell assets in an orderly fashion.
- In the near-term, investors will be forced to decide whether it is too soon to take positions. Those who stepped into distressed assets in 2010 witnessed "risk-off" driven market sell-offs that drove prices down in 2011. This did create opportunities for managers with dry powder as falling prices widened the gap between asset prices and their underlying values, creating a larger margin of safety.
- Outlook:** Positive In the intermediate term, European economic weakness will create significant opportunities for direct lenders as banks curtail lending and sell portfolios of non-performing loans and corporations seek new financing. In the near term, distressed managers appear to be reducing market exposure, as a reaction to the implications of a deeper recession on the supply and price of distressed assets.

European default rates are on the rise creating opportunity for Distressed Investors



Source: FRB St Louis, BofA Merrill Lynch

Deposit outflows from Spanish banks raises the risk of their insolvency, creating opportunity for distressed investors

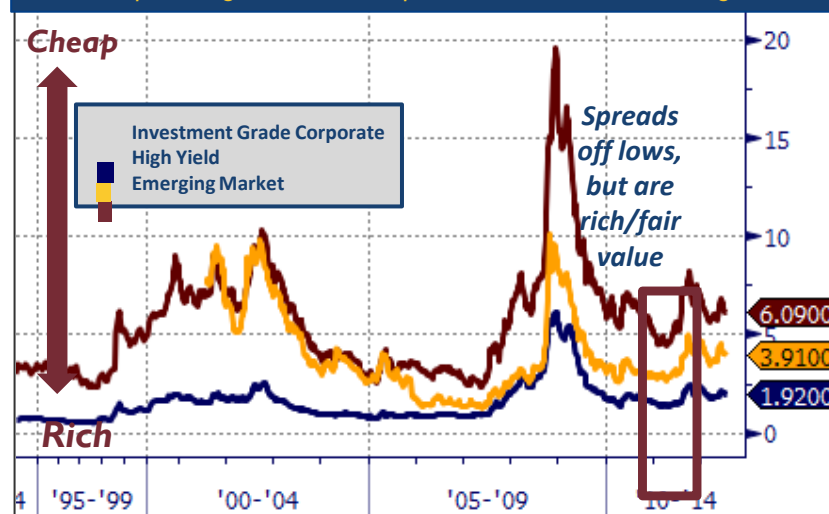


EVENT DRIVEN STRATEGIES: CREDIT

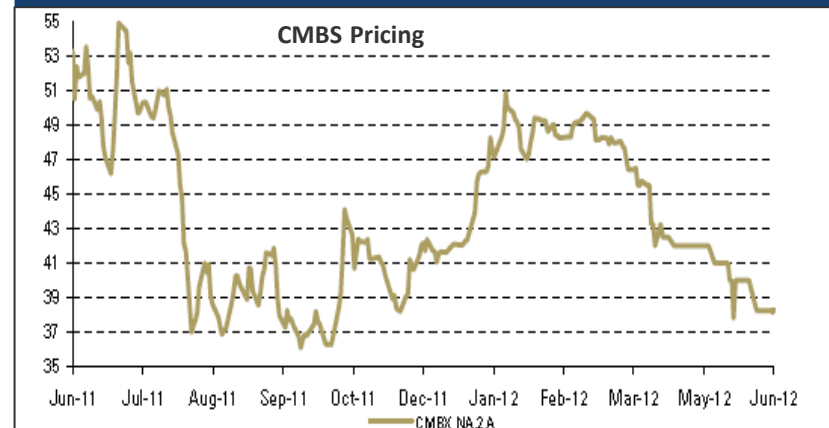
Credit Opportunities Will Depend on the Direction of Growth

- Strategy Overview:** Credit strategies focus on corporate fixed income securities including senior and subordinated claims as well as bank debt. Positions are structured based on expected idiosyncratic developments and with little broad credit market exposure. Credit analysis determines the likelihood of an improvement in the issuer's creditworthiness, and in most cases, securities trade in relatively liquid markets.
- Current Environment** U.S. growth is weak, but it looks good compared to the rest of the developed world as supportive monetary policy is expected to continue for some time. Companies have strong balance sheets with extended debt maturities and low default rates. Markets responded to this drop in risk with a steady inflow into high yield funds and new high-yield issuance. Senior secured loan issuance also climbed, supported by the return of CLO issuance.
- Fundamentals of ABS** have been improving. CMBS prices were pushed down on concerns about Europe and the wall of debt coming due, but more recently fundamentals (prices have stabilized and rents are climbing) suggest improving CMBS and RMBS prices going forward.
- European credits** are attractive, but the environment is uncertain and a large maturity wall is approaching. Asian credit is also attractive on the basis of strong company fundamentals and wide credit spreads, however, European banks are large providers of credit in Asia. An escalation of Europe's crisis leading to their withdrawal from the market would negatively impact Asian credit markets.
- Outlook:** Neutral How to position a portfolio that depends on idiosyncratic opportunities on one hand and a view of the future on the other? Credit yields and spreads, as well as defaults, are low by historical standards. A pessimistic outlook (rising rates, spreads and defaults) suggests a different portfolio than one where growth is accelerating. Until there is macro clarity, credit strategies will likely focus on idiosyncratic opportunities and less market sensitive trades.

Whether spreads tighten or widen depend on views about economic growth



Managers "long" CMBS have been hurt by concerns about Europe, but improving fundamentals suggest they will be eventually be rewarded



Source: Bloomberg, Och-Ziff

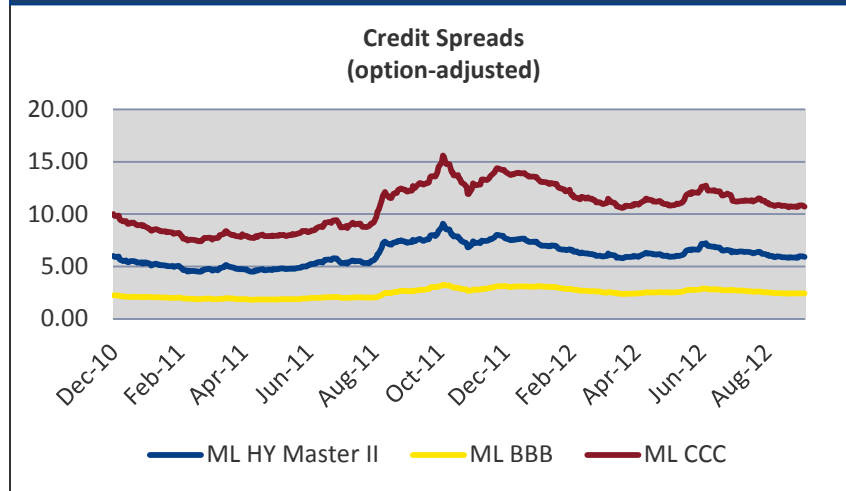
RELATIVE VALUE STRATEGIES

RELATIVE VALUE: FIXED INCOME ARBITRAGE

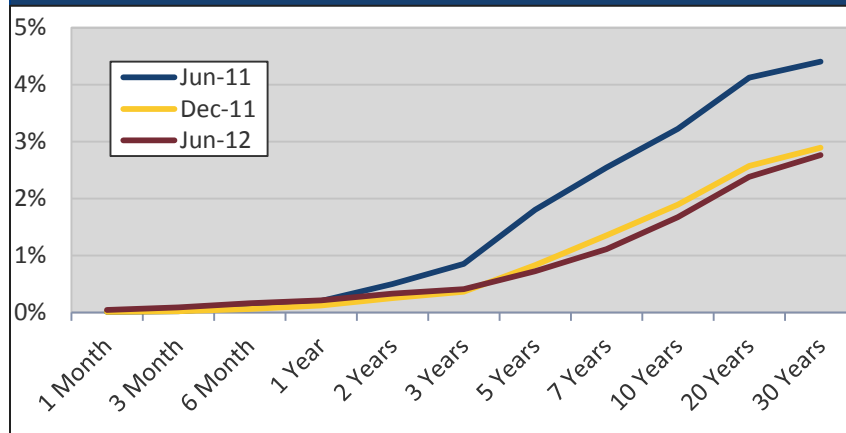
Activist Monetary Policy and Reduced Leverage Limits Opportunities

- Strategy Overview:** Fixed income arbitrage strategies exploit pricing differentials between fixed income securities. Some of the most widely used fixed income arbitrage strategies are swap-spread arbitrage, yield curve arbitrage, and capital structure arbitrage, all of which try to exploit perceived mispricing among one or more fixed income instruments. There are three common traits to all fixed income arbitrage strategies; they involve a long position offset by a corresponding short, they use leverage, and they rely on mean reversion as the basis for bringing price discrepancies to an end.
- Current Environment** Flatter yield curves and tight spreads between credit and risk free rates as well as differences in sovereign spreads rates offer investment opportunities, but potential returns in fixed income arbitrage remain muted as central banks have anchored expectations to lower yields, and the use of leverage is down. Additional quantitative easing is likely to lead to more dampening of market volatility, further reducing opportunities
- On a positive note,** relative value trading opportunities in fixed income markets should benefit from the decline in proprietary trading activity as banks exit that role, and any resulting increase in interest rate volatility.
- Outlook:** Neutral With strong headwinds to fixed income, many relative value strategy managers are running conservatively positioned portfolios with reduced leverage, effectively reducing return opportunities while waiting for a more favorable trading environment.

Divergence and volatility in credit spreads create opportunities for managers to take positions



The continued flattening of the US Treasury Yield Curve Creates Opportunities, but lower yields and reduced use of leverage will limit returns

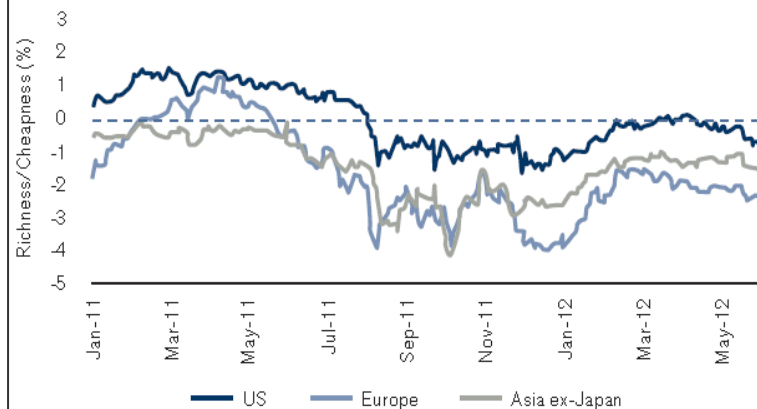


RELATIVE VALUE: CONVERTIBLE ARBITRAGE

Convertible Bonds are Cheap, but Macro Uncertainty Leads to Volatile Issuance

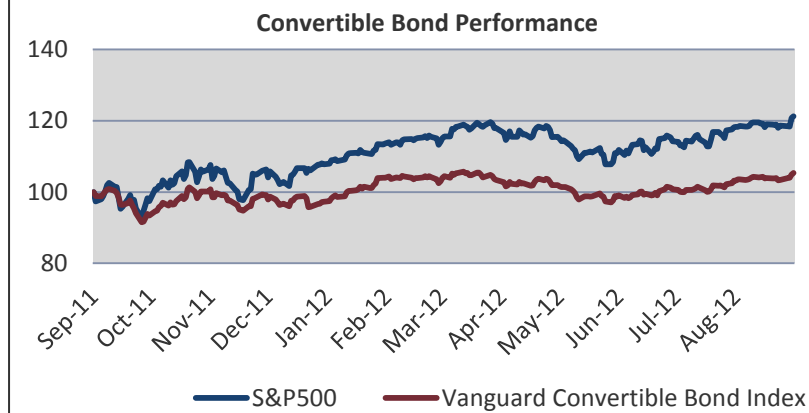
- Strategy Overview:** Convertible arbitrage is a market-neutral investment strategy that involves the simultaneous purchase of convertible securities and the short sale of the same issuer's common stock on the premise that the convertible is sometimes priced inefficiently relative to the underlying stock, for reasons that range from illiquidity to market psychology. The equity option embedded in the convertible bond may be a source of cheap volatility, which convertible arbitrageurs can then exploit.
- Current Environment:** Market characteristics critical to opportunity in convertible arbitrage have been weak. Merger and Acquisition activity remains 30% lower than 2011 levels while equity volatility and equity market volumes have fallen and are low on a historical basis.
- Convertible issuance has been volatile, rising and falling with confidence about economic growth with European and Asian convert issuance declining most recently. Falling issuance has caused overall convertible bond supply to shrink providing fewer opportunities for trading. On a relative basis, European converts have cheapened relative to those issued in the US and Asia.
- A decrease by banks in their commitment of capital to market-making and proprietary trading has reduced market liquidity. As a result prices may adjust more slowly to fundamentals and there may be more mark-to-market volatility.
- Outlook:** Neutral In an environment not particularly favorable, many managers are conservatively positioned with low leverage and are fully hedged. Managers are seeking out opportunity in less heavily invested spaces (Asian convertible bonds) and are looking for event-driven opportunities.

Convertible bond prices are cheap, creating relative value opportunities



Source: Barclays/PAAMCO

But convertible securities have under performed equities in a tough environment



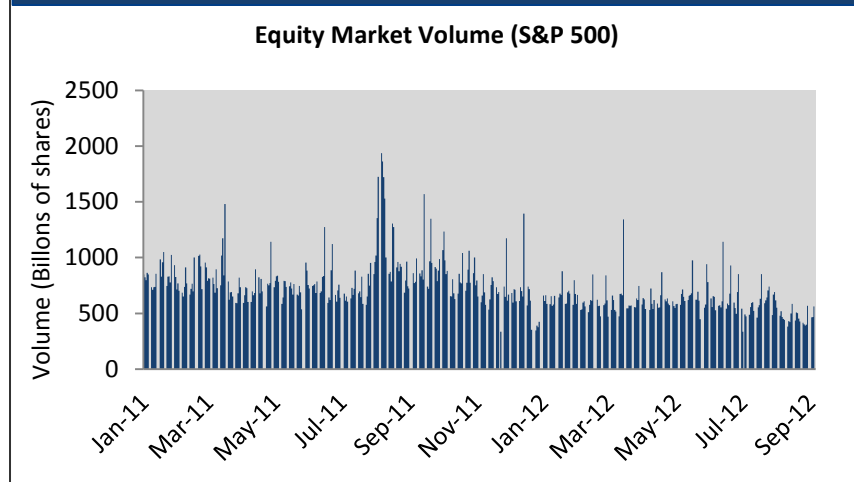
Source: Bloomberg

RELATIVE VALUE: EQUITY MARKET NEUTRAL

Fundamentals Must Matter for Equity Market Neutral Strategies to Prosper

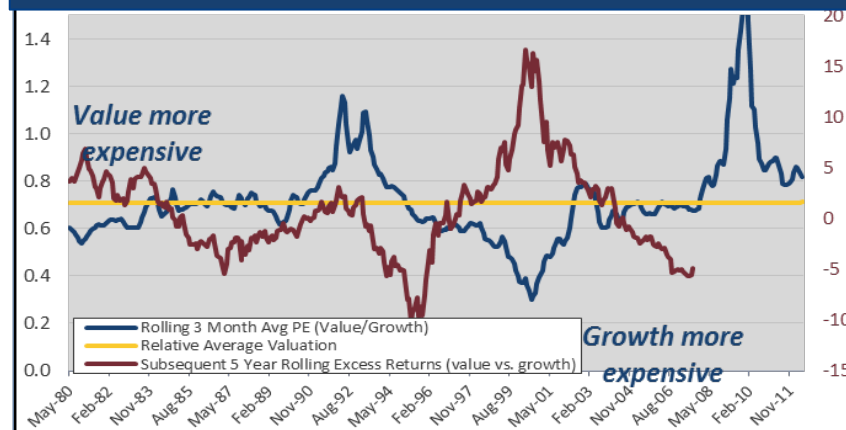
- Strategy Overview:** By their nature, equity market neutral (EMN) strategies (pairs-trading, stat-arbitrage) have a low correlation to equity market returns. Part of the relative value family of strategies, equity market neutral returns are generated from identifying mis-pricings and going long the undervalued stock and short the overvalued.
- Current Environment:** While EMN returns have a low correlation with equity markets, the opportunity set does depend on equity market correlations. Low correlation among equity returns allows for price dispersion and thus trading opportunities for managers. With the rise in macroeconomic uncertainty and market volatility, equity market correlations have risen. In these risk-on, risk-off markets, EMN “models” that rely on fundamentals (value, quality) to explain mispricing are the basis for positions are often ignored by the market, hurting returns.
- Equity correlations have recently risen on renewed macro risk benefitting EMN strategies. Price momentum factors were rewarded and disparity across growth and value factors, enabled EMN strategies to add value.
- Since EMN strategies benefit from high volatility, they should do well from the continued exit of banks from the provision of liquidity to the market place.
- Outlook:** Neutral In the face of a “risk-on, risk-off” environment that often ignores the company fundamentals that are the basis for positions, managers continue to manage conservative portfolios with low levels of gross exposure, and are seeking out trades with industry or event driven catalysts.

Declining equity market volumes are a hurdle to equity market neutral performance



Source: Bloomberg

When some risk factors are cheap and others are not, equity market neutral strategies have a chance to generate alpha



SUMMARY OF CONCLUSIONS

SUMMARY OF CONCLUSIONS

Outlook

Strategy	Opportunity Set	Portfolio Position	2012	2011
Equity Long Short	Managers have faced a challenging environment as asset prices have often been driven more by 1) macroeconomic fears and 2) responses to government policy, than company fundamentals.	Until macro risks are resolved and investors turn their attention to fundamentals, managers will continue to limit portfolio exposure, and focus on event-driven opportunities where companies create or destroy shareholder value through corporate activities like share buybacks.	Negative/Neutral	Negative
Global Macro	Rapid price reversals and asset values failing to reflect fundamentals makes it tough for managers with longer investment horizons. Until macro headwinds diminish and until fundamentals matter, managers with longer-dated demand themes are likely to underperform shorter-term tactical traders and trend followers.	Discretionary, directional and relative value managers will continue to run their portfolios at lower than normal risk levels, and seek out trades, where despite macro headwinds, prices are driven by idiosyncratic opportunities.	Neutral	Negative
Merger Arbitrage	Low financing costs and cash that can provide managers with hard-catalysts and liquid opportunities suggest an improved M&A outlook. But managers weigh that against macro and regulatory concerns.	In spite of limited activity and low overall arbitrage spreads, merger-arbitrage managers continue to be moderately active, focusing on strategic cash deals with a high likelihood of completion. Activity will remain strongest in industries undergoing fundamental change.	Neutral	Positive
Distressed Credit	Rather than unload assets at fire-sale prices to improve balance sheets, banks have curtailed lending and taken advantage of ECB liquidity and low interest rates, allowing them to sell assets in an orderly fashion. Investors seeking to purchase portfolios of non-performing mortgage and other loans at steep discounts will have to be patient.	In the intermediate term, European weakness will create significant opportunities for direct lenders as banks curtail lending and sell portfolios of non-performing loans, and as corporations seek new financing. In the near term, distressed managers appear to be reducing market exposure, as a reaction to the implications of a deeper recession on the supply and price of distressed assets.	Positive	Positive
Credit Strategies	Managers are confronted with strong company balance sheets, low default rates and strong demand for yielding securities on one hand, and slow growth and the probability of rising default rates on the other, face declining growth and the risks associated with the European Union.	How to position a portfolio depends on idiosyncratic opportunities and a view of the future. Credit yields and spreads, as well as defaults are low by historical standards. A pessimistic outlook (rising rates, spreads and defaults) suggests a different portfolio than one where growth is accelerating. Until there is macro clarity, credit strategies will likely focus on idiosyncratic opportunities and less market-sensitive trades.	Neutral/Positive	Positive
Fixed Income Arbitrage	Opportunities in fixed income arbitrage remain muted as central banks have anchored expectations to lower yields and produced flatter yield curves. Additional QE is likely to lead to more dampening of market volatility, further reducing opportunities.	Opportunities in fixed income arbitrage remain muted as central banks have anchored expectations to lower yields and produced flatter yield curves. Additional QE is likely to lead to more dampening of market volatility, further reducing opportunities.	Neutral	Neutral
Convertible Arbitrage	Market characteristics critical to opportunity in convertible arbitrage have been weak. M&A activity remains 30% lower than 2011, while equity volatility and equity market volumes have fallen and are low on a historical basis. In general, relative value strategies tend to trail directional strategies during risk on environments and protect capital in risk-off markets.	In a not particularly favorable environment, managers are conservatively positioned with low leverage and are fully hedged. Managers are seeking out opportunity in less heavily invested spaces (such as Asian convertible bonds) and are looking for event-driven opportunities.	Negative	Negative
Equity Market Neutral	Market neutral strategies, which seek to capture stock mis-pricings, should benefit from the continued exit of banks from the provision of liquidity to the market place. At the same time, these strategies face a risk-on, risk-off environment where fundamentals (value, quality), that explain mispricing and are the basis for positions, are often ignored by the market.	In a "risk-on, risk-off" environment that often ignores fundamentals that are the basis for positions, managers continue to run conservative portfolios with low levels of gross exposure, and are seeking out trades with industry or event driven catalysts.	Neutral	Negative

APPENDIX: HEDGE FUND STRATEGY DEFINITIONS

Directional Strategies

Equity Long/Short strategies maintain both long and short positions in primarily equity and equity derivative securities. A wide variety of investment processes can be employed to arrive at an investment decision, including both quantitative and fundamental techniques; strategies can be broadly diversified or narrowly focused on specific sectors and can range broadly in terms of levels of net exposure, leverage employed, holding period, concentrations of market capitalizations and valuation ranges of typical portfolios. Equity Hedge managers would typically maintain at least 50% exposure to, and may in some cases be entirely invested in, equities - both long and short.

Macro strategies trade a broad range of strategies in which the investment process is predicated on movements in underlying economic variables and the impact these have on equity, fixed income, hard currency and commodity markets. Managers employ a variety of techniques, both discretionary and systematic analysis, combinations of top down and bottom up theses, quantitative and fundamental approaches and long and short term holding periods. Although some strategies employ Relative value (RV) techniques, Macro strategies are distinct from RV strategies in that the primary investment thesis is predicated on predicted or future movements in the underlying instruments, rather than realization of a valuation discrepancy between securities. For Macro strategies the overriding investment thesis is predicated on the impact movements in underlying macroeconomic variables may have on security prices.

*Hedge fund strategy definitions are adapted from Hedge Fund Research (HFI).

Event Driven Strategies

Event Driven strategies maintain positions in companies currently or prospectively involved in corporate transactions of a wide variety including but not limited to mergers, restructurings, financial distress, tender offers, shareholder buybacks, debt exchanges, security issuance or other capital structure adjustments. Security types can range from most senior in the capital structure to most junior or subordinated, and frequently involve additional derivative securities. There are many types of Event Driven Strategies including Merger Arbitrage and Distressed.

Merger Arbitrage strategies focus on opportunities in equity and equity related instruments of companies which are currently engaged in a corporate transaction. Merger Arbitrage involves primarily announced transactions, typically with limited or no exposure to situations which pre-, post-date or situations in which no formal announcement is expected to occur. Opportunities are frequently presented in cross border, collared and international transactions which incorporate multiple geographic regulatory institutions, with typically involve minimal exposure to corporate credits.

Distressed strategies focus on corporate fixed income instruments trading at significant discounts to their value at issuance or obliged (par value) at maturity as a result of either formal bankruptcy proceeding or financial market perception of near term proceedings. Managers are typically involved in the management of these companies, frequently involved on creditors' committees in negotiating the exchange of securities for alternative obligations, either swaps of debt, equity or hybrid securities. Managers employ fundamental credit processes focused on valuation and asset coverage of securities of distressed firms; in most cases portfolio exposures are concentrated in instruments which are publicly traded, in some cases actively and in others under reduced liquidity but in general for which a reasonable public market exists.

Relative Value Strategies

Relative Value (RV) strategies maintain positions in which the investment thesis is predicated on the realization of a valuation discrepancy in the relationship between multiple securities. Managers employ a variety of fundamental and quantitative techniques to establish investment theses, and security types range broadly across equity, fixed income, derivative or other security types. Fixed income strategies are typically quantitatively driven to measure the existing relationship between instruments and, in some cases, identify attractive positions in which the risk adjusted spread between these instruments represents an attractive opportunity for the investment manager. RV positions may be involved in corporate transactions where the investment thesis is predicated on realization of a pricing discrepancy between related securities, as opposed to the outcome of the corporate transaction. Among the most popular RV strategies are Fixed Income Arbitrage, Convertible Arbitrage and Equity Market Neutral.

Fixed Income Arbitrage strategies are predicated on the realization of a spread between related instruments in which one or multiple components of the spread is a fixed income instrument backed physical collateral or other financial obligations (loans, credit cards) other than those of a specific corporation. Strategies employ an investment process designed to isolate attractive opportunities between a variety of fixed income instruments specifically securitized by collateral commitments which frequently include loans, pools and portfolios of loans, receivables, real estate, machinery or other tangible financial commitments. The investment thesis may be predicated on an attractive spread given the nature and quality of the collateral, the liquidity characteristics of the underlying instruments and on issuance and trends in collateralized fixed income instruments. In many cases, investment managers hedge, limit or offset interest rate exposure in the interest of isolating the risk of the position to strictly the yield disparity of the instrument relative to the lower risk instruments.

Convertible Arbitrage strategies are predicated on the realization of a spread between related instruments in which one or multiple components of the spread is a convertible fixed income instrument. Strategies employ an investment process designed to isolate attractive opportunities between the price of a convertible security and the price of a non-convertible security, typically of the same issuer. Convertible arbitrage positions maintain characteristic sensitivities to credit quality of the issuer, implied and realized volatility of the underlying instruments, levels of interest rates and the valuation of the issuer's equity, among other more general market and idiosyncratic sensitivities

Equity Market Neutral strategies employ quantitative techniques to analyze price data and ascertain information about future price movement and relationships between securities for purchase and sale. These can include both Factor-based and Statistical Arbitrage/Trading strategies. Factor-based investment strategies include strategies in which the investment thesis is predicated on the systematic analysis of common relationships between securities. In many but not all cases, portfolios are constructed to be neutral to one or multiple variables, such as broader equity markets in dollar or beta terms, and leverage is frequently employed to enhance the return profile of the positions identified. Statistical Arbitrage/Trading strategies consist of strategies in which the investment thesis is predicated on exploiting pricing anomalies which may occur as a function of expected mean reversion inherent in security prices; high frequency techniques may be employed and trading strategies may also be employed on the basis on technical analysis or opportunistically to exploit new information the investment manager believes has not been fully, completely or accurately discounted into current security prices.

PRIVATE EQUITY: RETURN TO THE GOLDEN AGE OR A NEW NORMAL?

Introduction

Private equity investing is said to have experienced a “Golden Age” in the early to mid-2000s, a period when returns were strong and investment commitments grew rapidly. The Golden Age began around 2003, as interest rates began to fall and lending standards began to loosen, lowering the cost of borrowing and making it easier for private equity firms to finance large acquisitions. The combination of lower borrowing costs and greater use of leverage during a period of sustained economic growth enabled private equity investors as a whole to earn returns in excess of those being generated in the public equity markets.

The Golden Age ended in 2007-2008, just as it did for the bull-market in public equities. Both fell victim to the collapse of the housing market, ensuing credit crunch, financial market crisis and recession. This was followed by a period of weak economic growth, held back by the need for households, businesses and the government to delever. PIMCO’s Mohamed El-Erian coined the term “New Normal” to describe such an environment and concluded that investors would face years of slow economic and earnings growth which would result in muted public equity returns.

This raises the question, is private equity subject to the same headwinds to economic and earnings growth faced by public equities in an era of the new normal? Should investors expect lower private equity returns in the future? Or in a world awash in central bank provided liquidity and easing credit markets, can investors expect a new Golden Age for private equity?

Private equity depends to a great extent on the same drivers of performance as do public equities: earnings growth and the amount investors are willing to pay for that growth. The additional expected return to owning equity in privately held companies depends on what the investor is willing to pay to control a company, how much value

they can create while they own it, and what the market is willing to pay for it upon exit.

An examination of the economic factors driving private equity performance suggests that: (1) returns will be lower, both for investments already made and for commitments yet to be invested; and (2) the source of returns will be different, driven less by leverage and “normal” economic growth and more by the skill of managers to add value to their underlying portfolio companies. Interestingly, these outcomes appear to have as much to do with the environment in which private equity transactions are conducted as they do with the New Normal faced by public equities.

Outlook and Opportunities

In considering the range of private equity investment opportunities we are left to conclude that: (1) buyout funds face strong headwinds to performance; (2) the economics of venture capital are improving, but return opportunities are not exceptional; (3) secondary transactions, aided by favorable supply conditions, offer reasonable returns relative to historical performance; (4) opportunities in private debt remain attractive, driven by a structural imbalance in the debt markets; (5) regulatory changes related to banks and economic conditions in Europe create opportunity in distressed; and (6) excessive enthusiasm about opportunities in emerging markets has hurt fundamentals; and finally, (7) the attractiveness of investments in energy is sector specific.

Buyout: Buyout does not appear particularly attractive, regardless of the target’s capitalization or geography. Large cap buyout valuations remain high, and while valuations are more attractive for the mid/small market category, slow economic growth, reduced use of leverage and the record number of companies that will be in need of an exit in the years ahead suggest expected returns for 2012 vintage funds will be in-line with or lower than their historical averages. Focusing on specific

PRIVATE EQUITY: RETURN TO THE GOLDEN AGE OR A NEW NORMAL?

regions does not appear to offer much help; emerging markets can be described by a large over-hang of capital and underdeveloped exit markets, while developed markets such as Europe are plagued by economic geopolitical uncertainty.

Venture/Growth: After a decade of poor returns, decreasing fund raising and deal volume, and improving exit markets, the economics of venture and growth are beginning to look more favorable. The IPO and M&A markets have improved, but until we see further improvement in the environment for IPOs and M&A, we do not expect venture capital to offer compelling returns. The best opportunities to invest remain in growth funds or secondary transactions in portfolios of companies with positive cash flow.

Secondary: Secondary transactions appear to offer the greatest opportunity within private equity. Assets no longer trade at 2008 distressed level discounts to NAV, but they have widened as of late aided by macro-economic uncertainties. Secondary transactions for venture assets are currently priced at a larger discount than buyouts. Though investors are not subject to the same blind pool of risks as buyout and venture investments, returns depend on the prices managers pay as well as their ability to identify assets and structure deals at a stage of the asset's life in which portfolio companies will create significant value.

Credit: Regulatory changes that have forced banks to reduce lending and unload loan portfolios, the decline of structured finance and volatility in high yield issuance have all reduced the supply of credit and are creating opportunities in private space. Opportunities to participate in senior loans have become more attractive as new deals are structured with less debt and more favorable terms. Opportunities in mezzanine will fluctuate with corporate access to the high yield market, the need to refinance maturing debt and sponsors looking for exits.

Distressed: Distressed opportunities in the U.S. have diminished for the time being with economic recovery and easy monetary policy, but recession and bank deleveraging in Europe will create significant opportunities for managers who can navigate the country specific issues related to sourcing and completing deals.

Emerging Markets: In search of growth emerging markets have attracted significant interest from private equity investors. Unfortunately, fund raising has exceeded the ability of GPs to put money to work in EM and achieve an exit. In 2011, fund raising dedicated to EM reached nearly 25% of all private equity fund raising. In spite of strong economic growth, deal volume and exits in EM totaled about 10% of global private equity activity. The result is an increasing overhang of capital that will drive up acquisition prices and returns down in the intermediate term.

Energy: Our views on energy have not changed since last year's outlook. The secular need for energy investments should create an attractive supply/demand dynamic for capital. While we believe this to be true for oil, it is not true for natural gas, where capacity exceeds demand and there is little upward pressure on prices.

Exuberance of the Golden Age Means Lower Returns Today

Beginning around 2003, the lure of the high returns to private equity and the appeal of the Swensen endowment model with its large allocations to illiquid assets, led to record fund raising and leveraged buyouts as general partners continued to raise new funds. While total fund raising paled in comparison to just years earlier, it occurred during an environment in which general partners found it hard to put the money to work. At the end of 2011, global private equity funds held nearly \$600 billion in dry powder, about \$400 billion of it committed to buyouts. Current dry powder for buyout deals is nearly greater than the last two-years of global buyout deal volume!

PRIVATE EQUITY: RETURN TO THE GOLDEN AGE OR A NEW NORMAL?

Vintage 2006-08 funds have called less than 2/3 of their committed capital and 2009 vintage funds less than 1/3.

These funds face pressure to put capital to work or return it to limited partners and forego management fees and the prospects of carried interest. They also face pressure from strategic buyers who see their best opportunities to grow through acquisition rather than organically. As would be expected, purchase price multiples, which fell to 6.5X EBITDA in 2009 climbed back to near record highs of 9.0X in 2011.

Additional downward pressure on returns will come from the lesser use of leverage to finance deals. Access to leverage in the current cycle is harder to come by, at least for the majority of buyout deals of less than \$1 billion. Smaller deals saw their use of leverage fall to 46% from a long-term average of 56%. Buyout deals in excess of \$1 billion still have access to leverage and fund deals with over 60% debt, but deals of this size are fewer than in the past.

The need by many general partners to put money to work would seem to provide an attractive exit opportunity for funds sitting on mature portfolio companies and needing to provide liquidity to its limited partners. The problem is that earlier vintage year funds accumulated nearly \$2 trillion of unrealized investments, 1.5X the amount of dry powder in PE funds; the majority of the unrealized capital is in 2006-2008 vintage investments made at peak value before the downturn.

General partners took advantage of the need for capital to be put to work by finalizing 420 exits in 2011, totaling \$104 billion. At the same time, however, nearly 1,100 new deals were made. The inventory of companies held by private equity investors climbed to 5,968 from just 2,234 in 2004 with over 900 of these with vintage years between 2000-2004 and another approximately 4,000 purchased between 2005-2008. Increasing sales to strategic buyers who are flush with

cash and find organic growth challenging in a low growth environment could provide a source of exit for general partners needing to liquidate their portfolio companies. And while private equity-strategic buyer transactions are on the rise, they are not climbing fast enough, which will likely lead to increased holding periods and reduced returns.

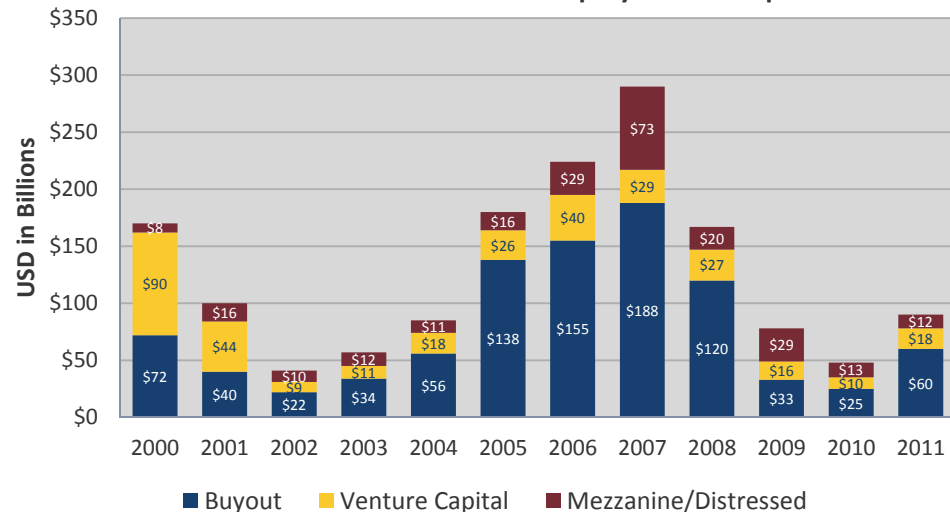
Conclusion

As a group, limited partners in 2006-2011 vintage funds face a very different investment environment than those invested in earlier funds. High purchase price multiples, weak economic growth and longer holding periods for portfolio companies all put downward pressure on potential returns. Conditions have changed little for those considering new commitments. Many firms raised new capital but found it hard to put their existing commitments to work, leading to a large overhang of dry powder. There was also rapid growth in private equity held companies which is likely to put downward pressure on exit multiples. For limited partners considering new commitments, manager selection is critical. Considerable due diligence effort should be spent reviewing the attribution of general partners' past returns. Given the potential inability to add value by buying at low prices and using leverage, the ability to add value through strategic control becomes essential.

GLOBAL ECONOMIC WEAKNESS FAILS TO SLOW PRIVATE EQUITY FUND RAISING

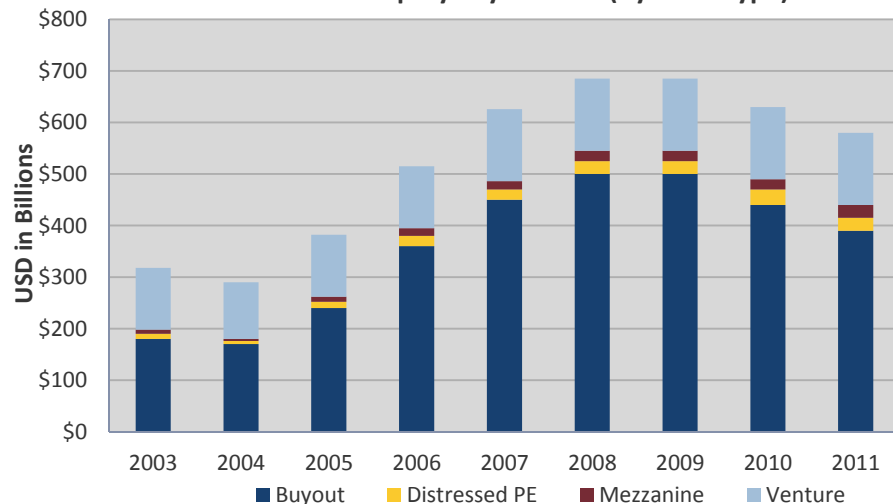
- The explosive growth in private equity fund raising and deal volume that occurred beginning in 2002 came to a crashing conclusion in 2007-2008 with the onset of the financial market crisis and global recession.
- Despite the economic downturn that began in 2008, general partners continued to raise new funds in an environment difficult to put money to work; global fund raising and commitments continued to exceed deal volume, leading to rising dry powder.
- At the end of 2011, global private equity funds held nearly \$600 billion in dry powder, close to \$400 billion of it committed to buyouts. Current dry powder for buyout deals is almost more than the last two-years of global buyout deal volume!

Commitments to US Private Equity Partnerships

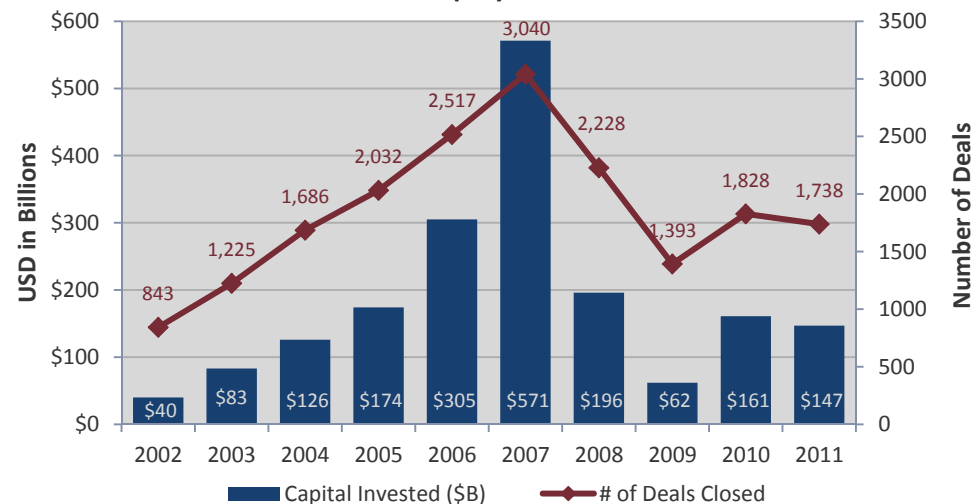


Source: Pitchbook

Private Equity Dry Powder (By Fund Type)



Private Equity Deal Volume



Source: Pitchbook

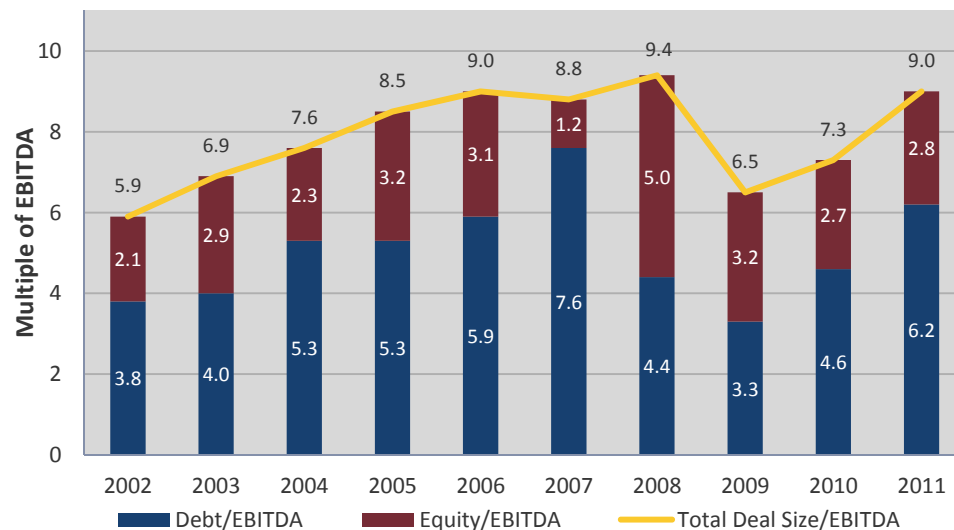
Source: Pitchbook*

*Pitchbook is a Private Equity Database

BUYOUT: OVERHANG OF DRY POWDER PUSHES PRICES UP

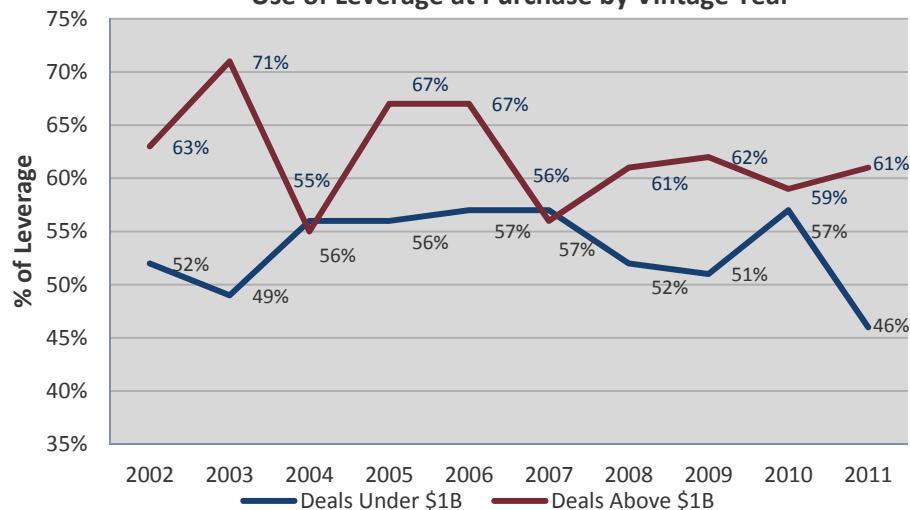
- As would be expected, with record amounts of capital to put to work, GPs competing for deals pushed acquisition prices up. Purchase price multiples for large cap buyout, which fell to 6.5X EBITDA in 2009 climbed to near record highs of 9.0X in 2011.
- Purchase price multiples for small and mid-cap buyout deals, which in earlier years matched those for large cap buyouts have not recovered to similar levels, due in part to reduced access to leverage.
- Access to leverage in the current cycle is harder to come by for the majority of buyout deals which tend to be less than \$1 billion. Smaller deals saw their use of leverage fall to 46% from a long-term average of 56%. Larger buyout deals have greater access to and make greater use of leverage.

Large Buyout Purchase Price Multiples

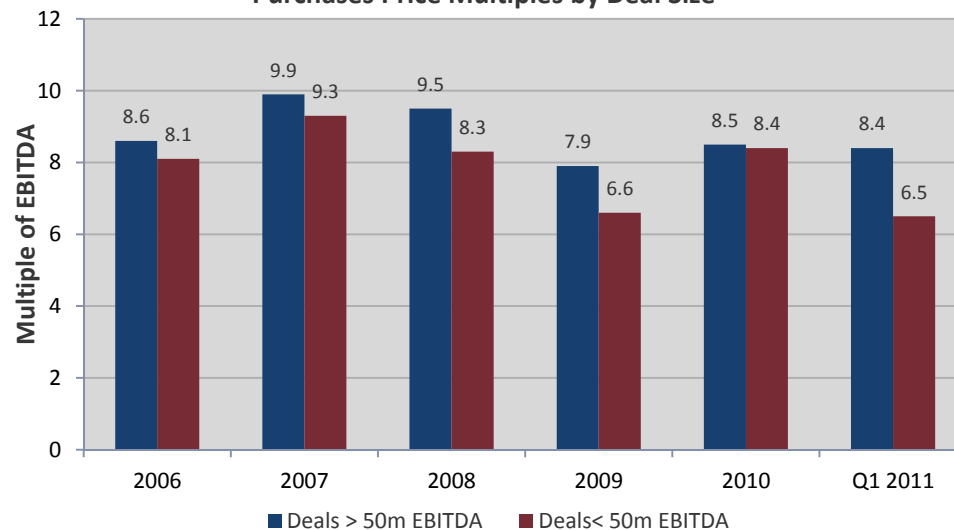


Source: Pitchbook

Use of Leverage at Purchase by Vintage Year



Purchases Price Multiples by Deal Size

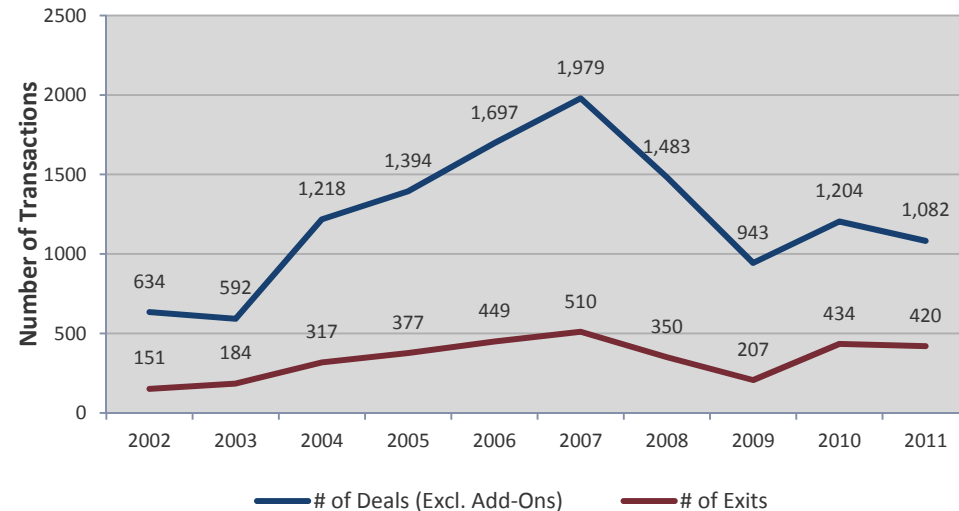


Source: Pitchbook

EXIT MARKETS: ATTRACTIVE PRICES BUT LONGER HOLDING PERIODS HURT RETURNS

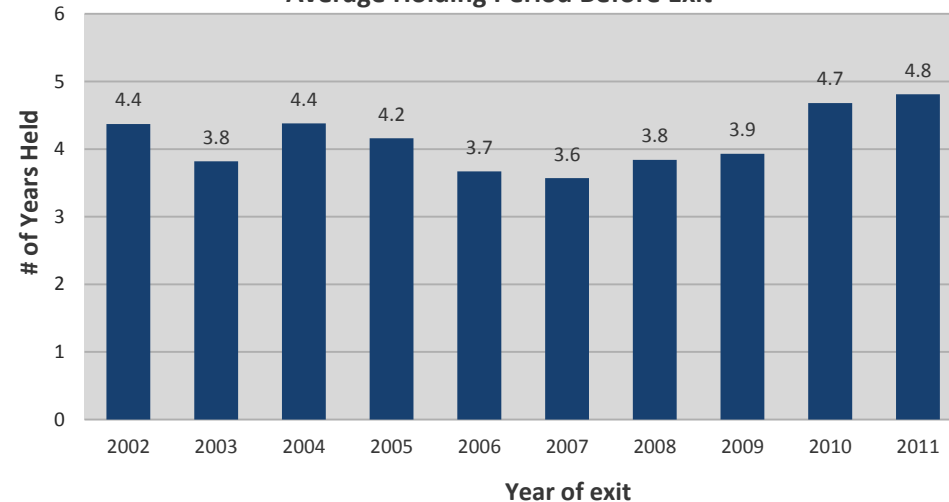
- The need by many general partners to put money to work would seem to provide an attractive exit opportunity for funds sitting on mature portfolio companies and needing to provide liquidity to their limited partners.
- General partners took advantage of the need for capital to be put to work by finalizing 420 exits in 2011, totaling \$104 billion.
- At the same time, however, 1,082 new deals were made. The inventory of companies held by private equity investors climbed to 5,968 in 2011 from just 2,234 in 2004 with over 900 of these with vintage years between 2000-2004 and another approximately 4,000 purchased between 2005-2008.
- With the growth in ownership of portfolio companies, earlier vintage year funds are sitting on nearly \$2 trillion of unrealized investments, 1.5X the amount of dry powder in PE funds. The majority of the unrealized capital is in 2006-2008 vintage investments made at peak value before the downturn.
- With weak economic growth and record ownership of portfolio companies, GPs have been forced to own companies for longer periods. Seventy percent of the companies owned by PE firms represent investments that are at least three years old and 40% have been held for over five years. In 2007, the median holding time for a company being sold was 3.6 years; in 2011 it was 4.8 years.

Equity Purchases versus Sales



Source: Pitchbook

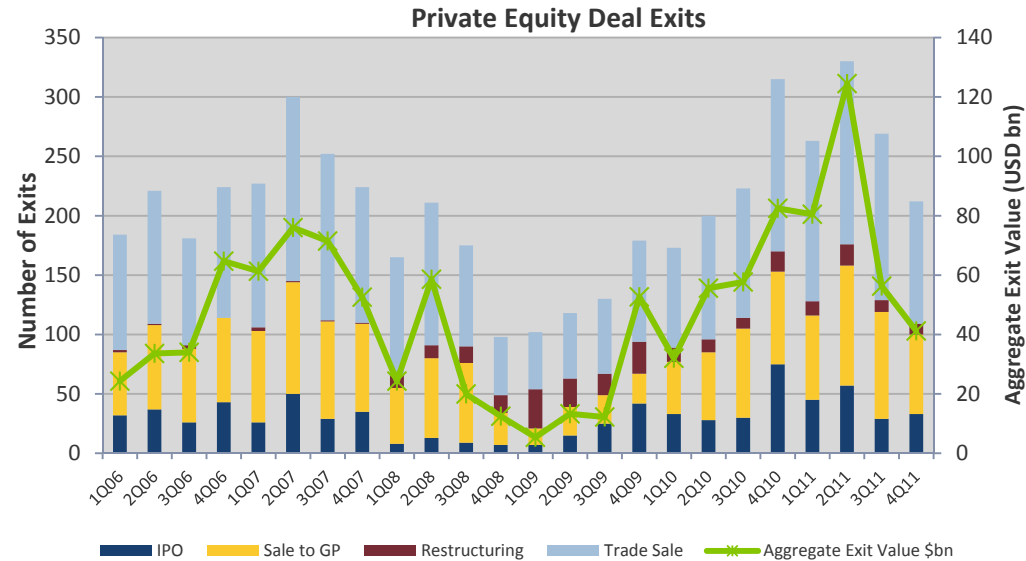
Average Holding Period Before Exit



Source: Pitchbook

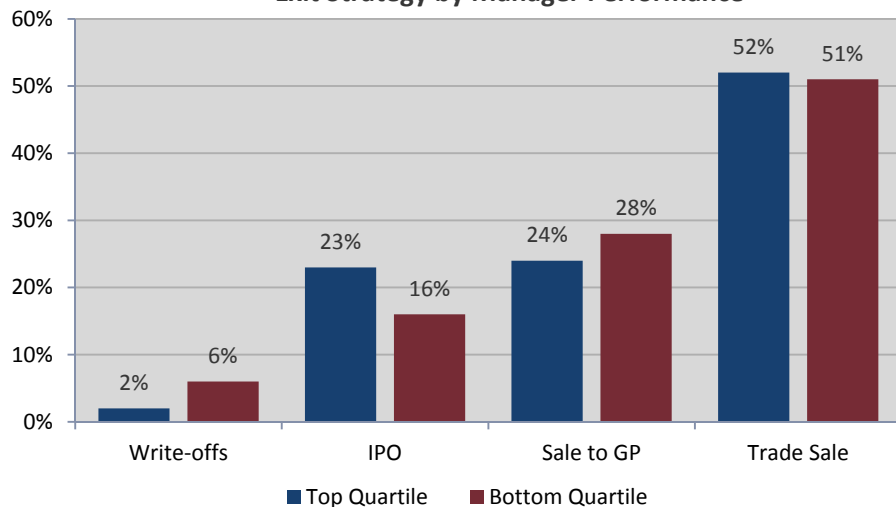
EXIT MARKETS: ATTRACTIVE PRICES BUT LONGER HOLDING PERIODS HURT RETURNS

- With record portfolio holdings being held for longer periods, GPs exit strategies will be critical to returns. Evidence suggests top quartile managers are better at avoiding write-offs and exiting their holdings via IPOs.
- Increasing sales to strategic buyers could provide a source of exit for general partners. While the transactions are on the rise, they are not climbing fast enough to reduce the overhang of companies needing exits. This will likely lead to continuation of longer holding periods and reduced returns.
- So in spite of being able to sell into a rising public equities market, longer holding periods effectively reduced the IRR of 2005-2007 vintage funds and will potentially depress returns for years to come.



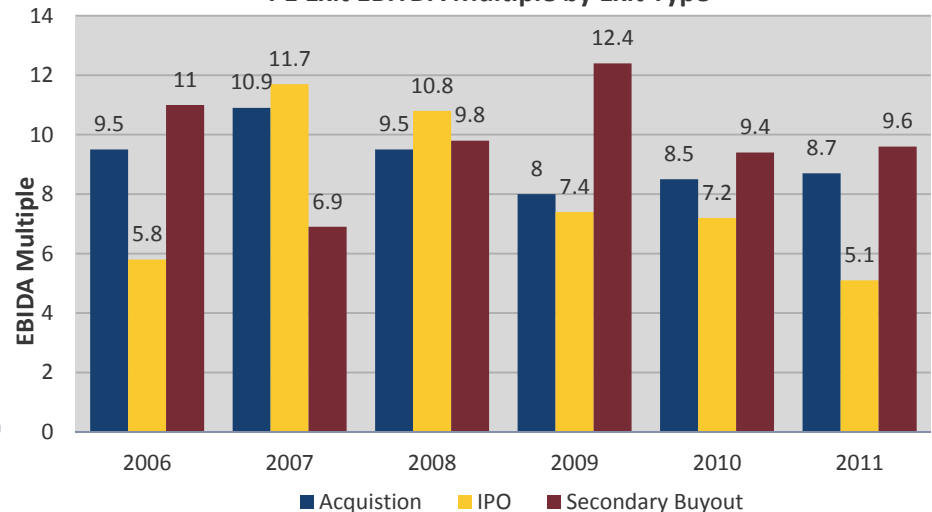
Source: Pitchbook

Exit Strategy by Manager Performance



Source: Preqin

PE Exit EBITDA Multiple by Exit Type

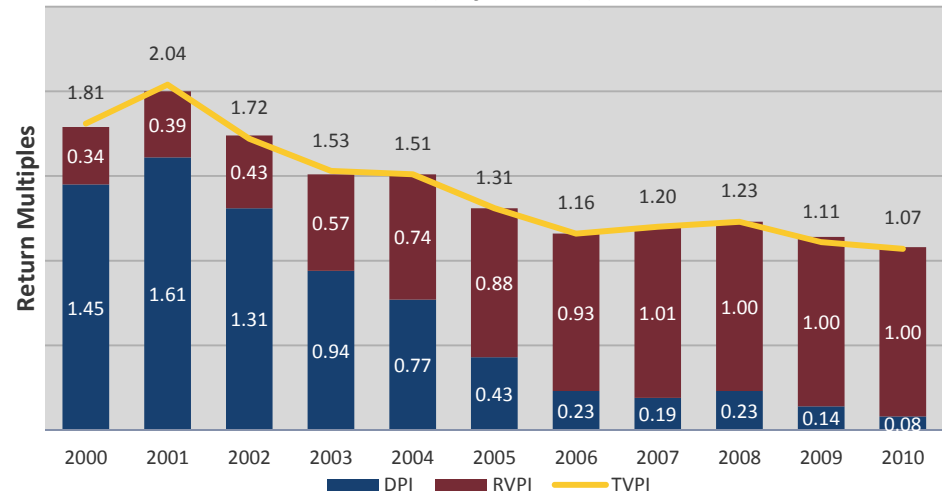


Source: Pitchbook

PRIVATE EQUITY RETURNS

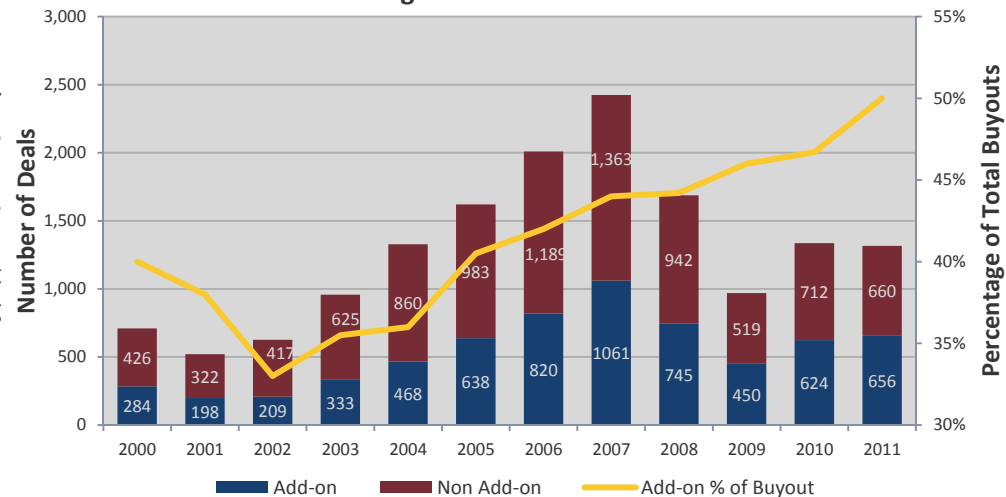
- TVPI (Total Value to Paid-in Capital), a measure of private equity returns has been trending down, and the share of returns that are unrealized has been rising. RVPI (Residual Value to Paid-in Capital) is expected to be high for recent vintage funds, but evidence suggests it is rising among mature funds as GPs hold portfolio companies for longer periods of time. DPI (Distributions to Paid-in Capital) measures the ratio of capital returned to capital paid-in.
- As the use of leverage falls, so will its contribution to total returns. The implication is that the gap between the best and worst performing managers is likely to widen, making identification of top quality managers much more critical.
- As deals shrink in size, equity contributions rise and economic growth slows, the ability of general partners to create value through strategic decisions involving their portfolio companies grows in importance. This ability is likely to explain a growing portion of the difference in performance between the best and worst performing managers.
- One approach GPs have employed to increase the value of their portfolio companies is through acquisition: acquiring new companies and bolting them on to their existing companies with the expectation that the “whole” is more valuable than the sum of the parts. This value-creating approach is growing. PE-backed companies acquired 656 companies last year; with an average acquisition size of just \$80 million, they represented 50% of all private equity buyouts during the year.

Average Private Equity Return Multiples by Vintage Year (Buyout & VC)



Source: Pitchbook

Strategic Add-on Transactions

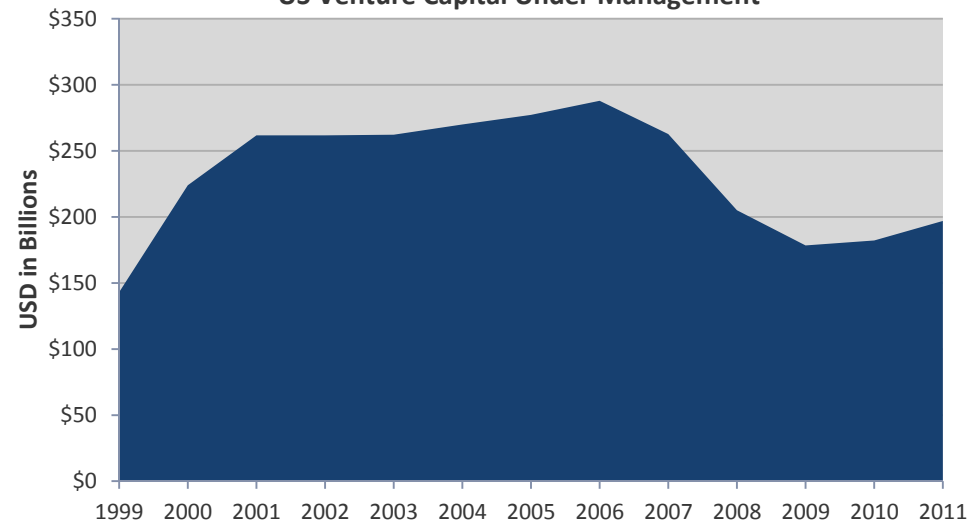


Source: Bain Capital

VENTURE CAPITAL: INDUSTRY DYNAMICS CHANGING

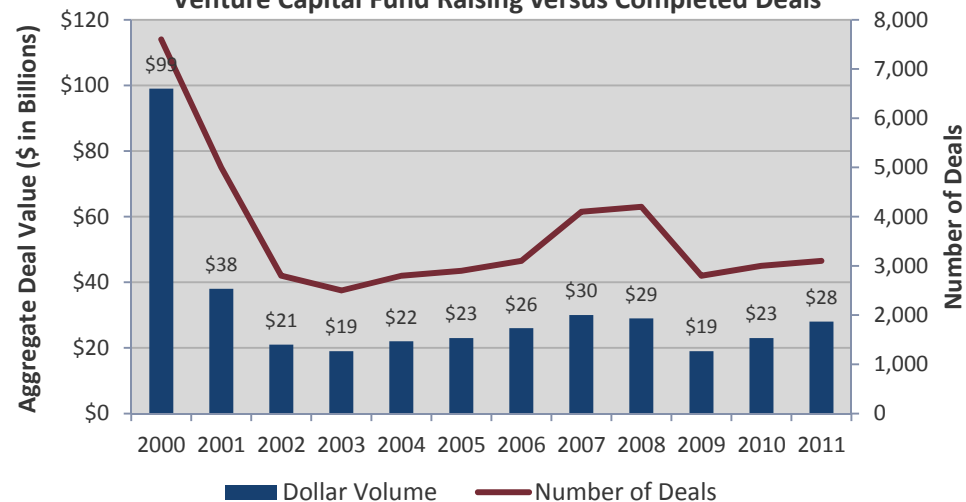
- Venture capital was out of favor with investors for over a decade due to poor returns, the result of enormous amounts of investments being made at unfavorable terms. Venture capital assets under management have fallen from a peak of over \$250 billion in 2006 to less than \$200 billion today as deal exits have exceeded new commitments until recently.
- Commitments have fallen as the realization that deal failure rates are high, and historically, the majority of returns to venture each year come from only a handful of deals. Limited partners must be in the few funds that have invested in these deals, and the differences between the best and worst performing venture funds can be large. The result is significant consolidation around the short list of venture capital firms that have consistently performed; the number of funds raising capital declined by half in the last four years.
- After the poor performance of early stage investments, investment dollars have rotated away from a focus on early stage deals in the mid-2000 to today's focus on later stage or "growth equity" deals. Growth equity companies have revenue and profitability that can be forecasted, reducing the probability of investing in failing companies.

US Venture Capital Under Management



Source: NVCA

Venture Capital Fund Raising versus Completed Deals



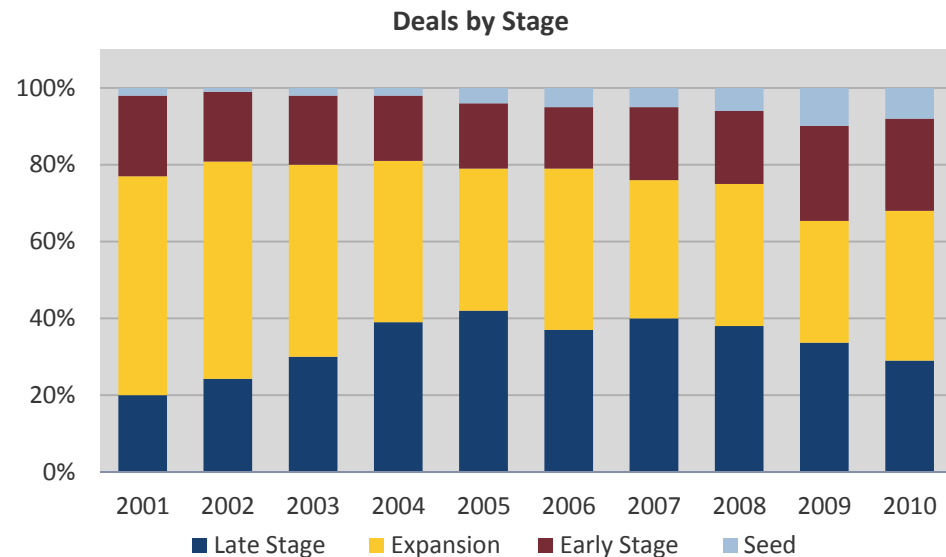
Source: NVCA

VENTURE CAPITAL: CHALLENGES AHEAD DESPITE CHANGES

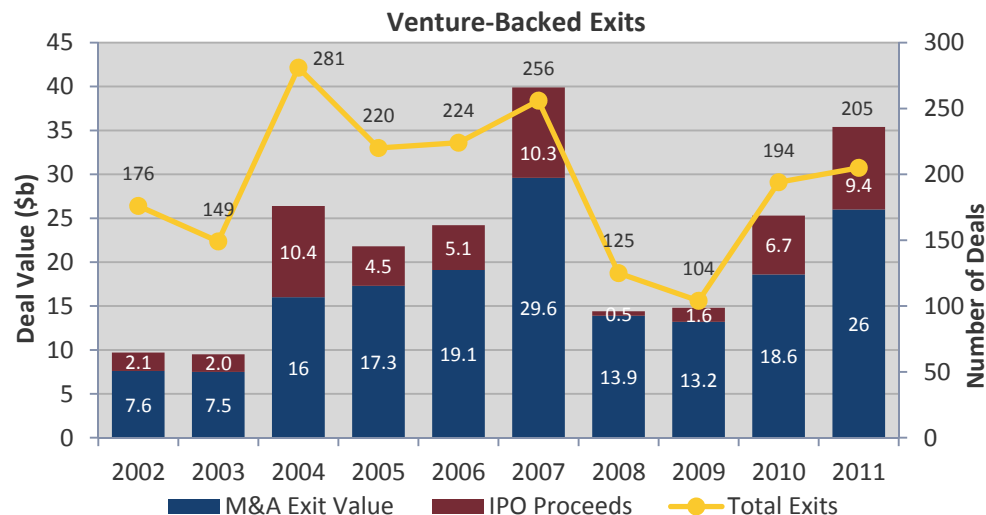
- GPs appear to have learned from earlier mistakes regarding funding and timing of exit.
- Funding by round has fallen dramatically since 2000, as GPs invest smaller amounts of capital until companies have proven products and appear ready to grow revenues.
- And at the exit stage, GPs are selling companies that are far stronger and more profitable than those sold in 1999. 2011 IPO valuations are similar to those in 1999, but company revenues are on average five times higher.
- This changing dynamic has contributed to the development of a secondary market for venture capital, as asset managers, anticipating owning these companies once they are public have stepped into the private market to acquire shares.
- Returns to venture capital depend on the robustness of the IPO and M&A markets. In 2011, many IPOs were put on hold. Today, many strategic buyers have large cash positions to potentially fund M&A activity. Historically, M&A represented about 90% of exits.

Venture Capitalization by Round Type			
(Median/\$)	2000	2010	% Change
Seed Round	1.4m	0.8m	-63%
First Round	6.5m	3.0m	-54%
Second Round	15.0m	5.0m	-67%
Later Round	20.0m	7.1m	-65%

Source: Dow Jones – VentureSource



Source: NVCA Yearbook 2011

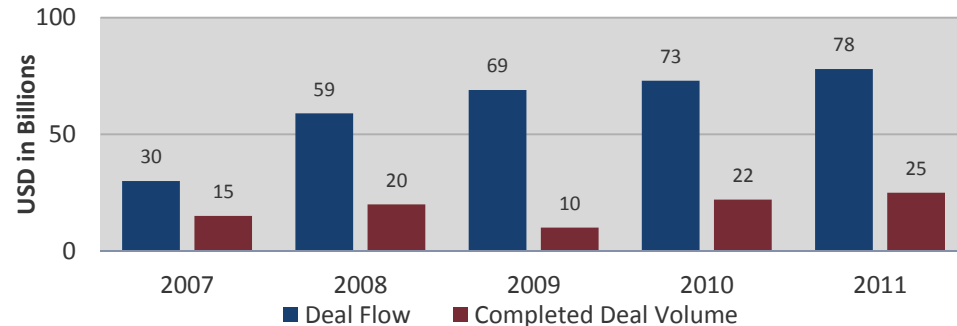


Source: NVCA Yearbook 2011

SECONDARY MARKET: SUPPLY STILL GREATER THAN DEMAND

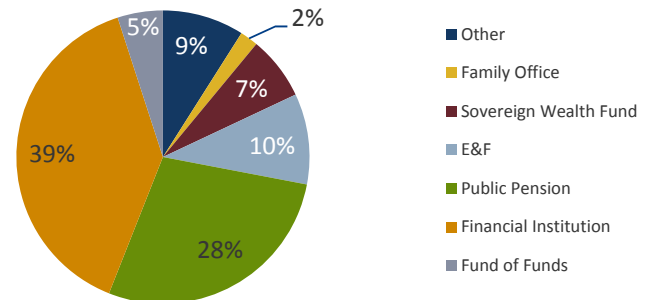
- While buyout and venture fund raising and deals have failed to recover to pre-2008 peaks, secondary transaction fund raising and deal volume continues to grow. Secondary deal flow increased from \$30 billion in 2007 to over \$73 billion in 2010. While a large number of secondary funds are being raised, completed deal volume in 2010 was \$22 billion: the supply-demand imbalance continues to favor buyers.
- Limited partners are choosing to sell their interests (1) for liquidity; (2) to reduce unfunded commitment liabilities; (3) to free up allocations for new commitments; (4) to rationalize non-core GP relationships; and (5) to reduce overweight allocations to private equity. Some selling is driven by the poor performance of private equity funds that have been slow to return capital, leading LPs to allocate away from private equity and to consolidate their remaining commitments in fewer, better performing managers.
- Secondary transactions are appealing to private equity investors for a number of reasons. Among them, the ability to (1) avoid the risks associated with investing in blind pools; (2) diversify their portfolio by industries, regions, and vintages relative to direct private equity funds; and (3) to circumvent the “J-curve” effect by owning companies closer to the portfolio’s value creation stage.
- In the last several years, secondary funds have rotated to purchasing positions that are more than 50% funded. Evidence shows that purchasing interests closer to the harvesting phase, produces a faster return of capital compared to direct funds; secondary funds distributed 41% of their investors’ capital by the fourth year of their investment compared to 22% for primary funds.

Secondary Buyout Deal Flow and Completed Deal Volume



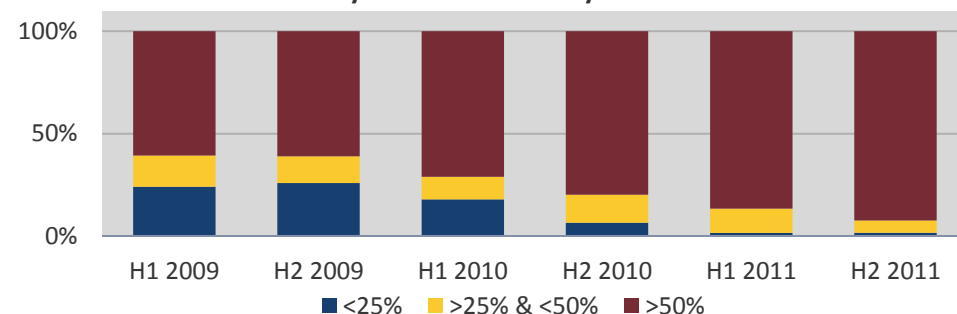
Source: Cogent

Secondary Buyout Sellers By Transaction Value



Source: Cogent

Secondary Market Volume by Percent Funded

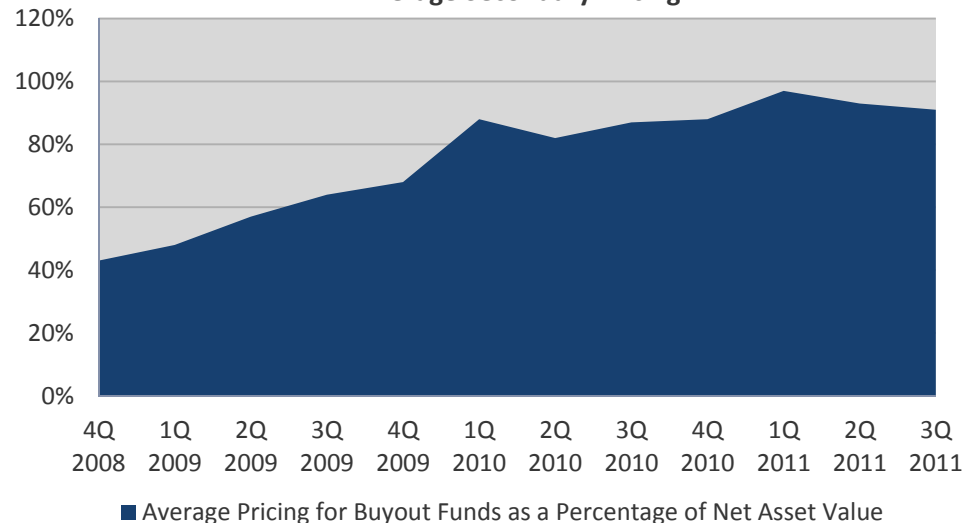


Source: Cogent

SECONDARY MARKETS: SUPPLY STILL GREATER THAN DEMAND

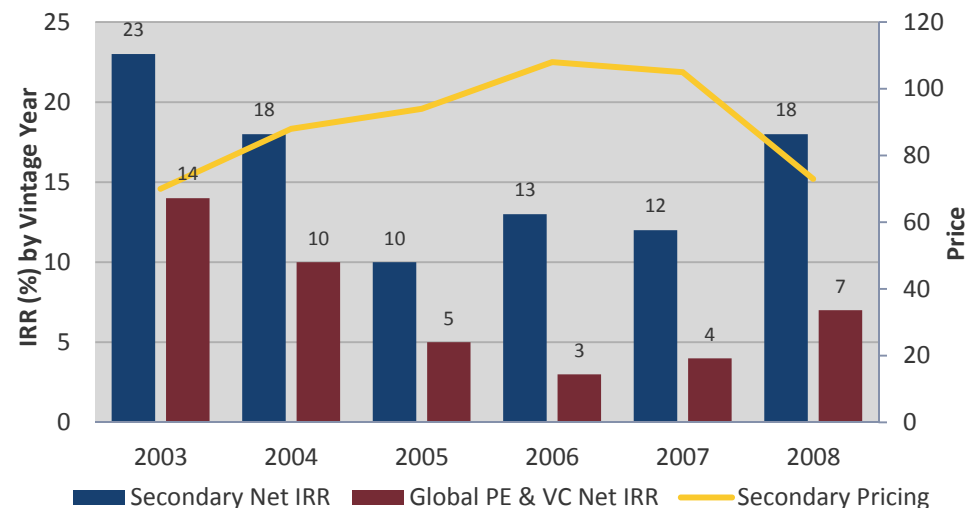
- Following the 2008 financial market crisis and recession, many limited partners with liquidity needs became distressed sellers. The result was a collapse in secondary pricing, which allowed patient general partners and investors in secondary funds to enjoy outsized returns.
- Large discounts to NAV are mostly gone. Current pricing suggests secondary transactions are slightly cheap with prices softening, possibly due to forced selling by financial institutions in the US and by European banks needing to raise capital. Average secondary pricing indicates that venture capital portfolios are trading at a larger discount compared to buyout portfolios.
- The ability of secondary managers to outperform in the current market environment will depend on a number of factors including access to proprietary deal flow and the ability to identify and purchase interests in funds where risks are low and the portfolio companies are generating strong EBITDA growth. Others suggest, however, it is discounts to NAV and not EBITDA growth that drive secondary returns.
- When compared to buyouts, secondary transactions appear attractive. Buyout managers own a portfolio of companies. Because of the economic environment, many companies have been held for longer than normal. Secondary managers have the luxury of bidding on interests underwritten to desired rates of return and with lower risk. Because many buyout funds have been slow to return capital, limited partners are often willing to sell at prices that raise the expected return to the secondary buyer.

Average Secondary Pricing



Source: UBS

Secondary Market Pricing and IRRs

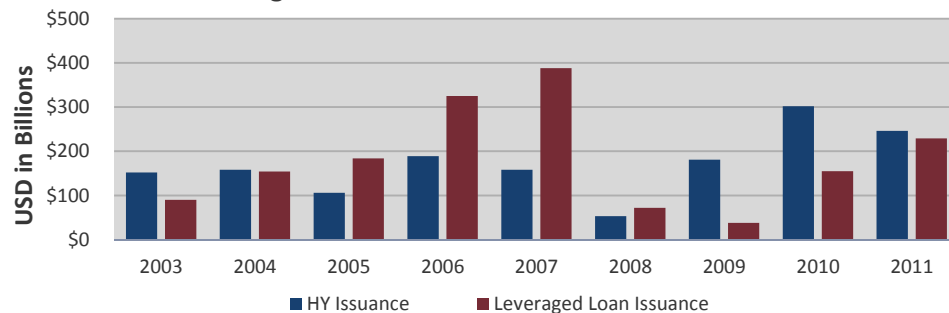


Source: Cogent

DOMESTIC CREDIT OPPORTUNITIES

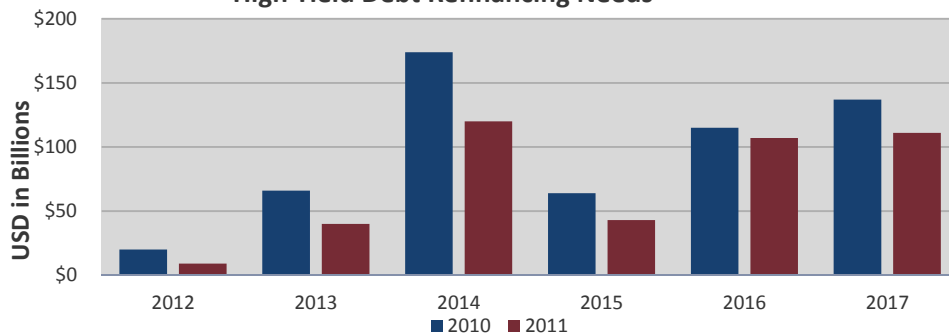
- Private Debt:** Opportunities in private debt remain attractive, driven by a structural supply and demand imbalance in the debt markets. These imbalances suggest a favorable environment for mezzanine and leveraged loan lending, a more favorable environment for structured finance, and more opportunities to acquire loan portfolios in the secondary market.
- The imbalances were brought about by a number of factors which reduced the supply of financing. First, the financial crisis of 2008 led to regulations that imposed stricter capital requirements restricting banks' ability to invest in risk assets and placing pressure on banks to sell loans off their balance sheets. Second, the financial market crisis also led to a significant decline in the supply of debt from CLO funds. Finally, high yield issuance has shown itself susceptible to macroeconomic uncertainty; coming to a stand-still in the second half of 2011 over macroeconomic concerns.
- Distressed Credit:** Private equity investments in distressed debt enjoyed several very strong years of performance. The Merrill Lynch High Yield Master II index, a proxy for distressed returns, produced returns of 55% in 2009 and 15% in 2010. But with economic recovery the opportunity set in U.S. distressed debt has diminished.
- Economic recovery has allowed corporations to refinance and extend debt maturities, strengthen balance sheets, dramatically reducing the high yield distress ratio and default rate. The dollar value of global defaulted debt, \$628b in 2009, fell to \$76b in 2009. The often discussed "Maturity Wall", the amount of debt that needs to be refinanced, has fallen significantly. Expected 2014 refinancing needs of nearly \$175b in 2010 have fallen to just over \$100b as of 2011.

High Yield Bond and Levered Loan Issuance



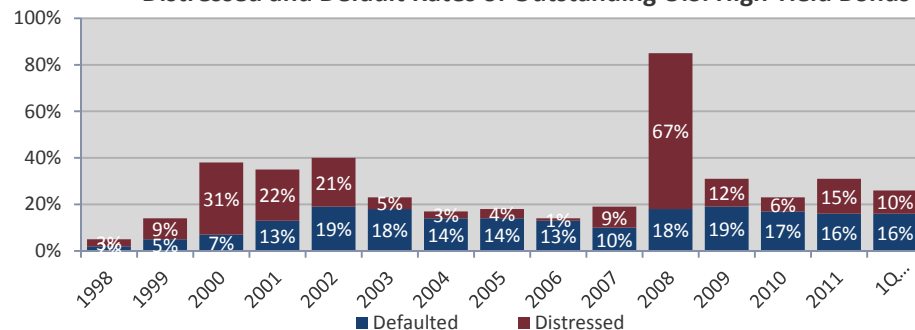
Source: S&P LCD

High Yield Debt Refinancing Needs



Source: S&P LCD

Distressed and Default Rates of Outstanding U.S. High Yield Bonds

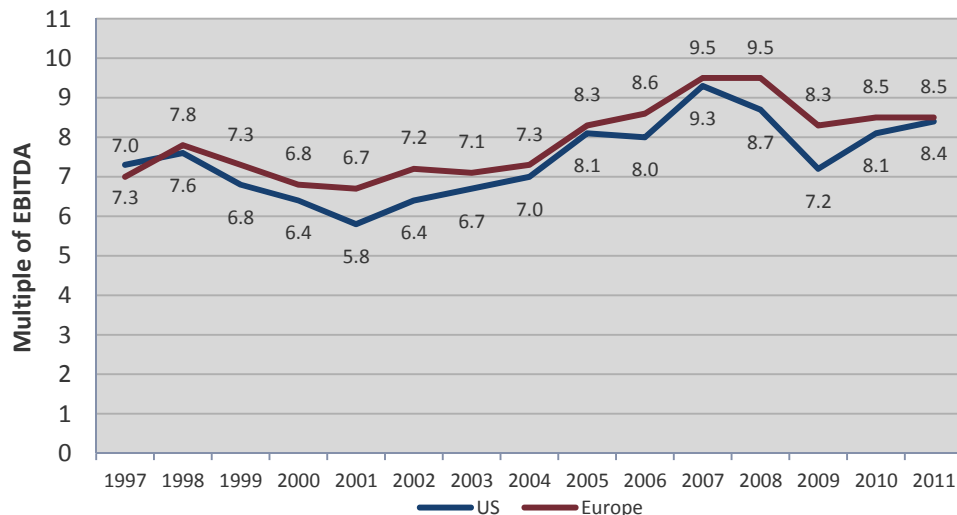


Source: Edward Altman

PRIVATE EQUITY IN THE REST OF THE WORLD: WHAT ABOUT EUROPEAN BUYOUT?

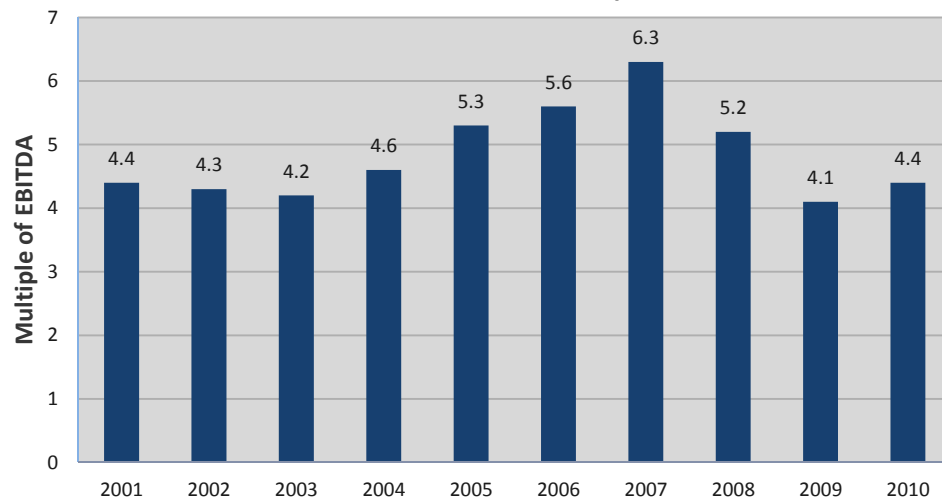
- Europe appears to have just about everything going against it as a place to invest: a shrinking economy, difficult credit markets, rising equity contributions and high purchase prices.
- Coming out of the global recession, fund raising and deal volume for European dedicated investments began to pick up in 2010 and the first half of 2011 before pressures from the European debt crisis slowed all activity. Looking at its make-up reveals that deals exceeding \$1 billion that once dominated European buyout are now a small part of overall activity, with middle market deals now the largest share of the market. The data also reveals that 80% of deal flow is in a handful of Europe's strongest economies.
- Purchase price multiples have begun to come down, but still remain high by historical standards due to the large amount of committed capital (150 billion euros) that remains to be put to work. Only lower mid-market deal pricing remains nominally attractive (8X EBITDA), possibly because access to debt financing is harder to come by and more expensive. Leveraged finance volumes (senior, mezzanine, high yield) which exceeded 150 billion euro in 2007, fell to less than 50 billion euro in 2011, forcing debt financing down and equity contributions up.
- Like the US, private equity-backed exits began to recover in 2010-11, but the slow return of capital and longer holding periods for portfolio companies have led to steadily declining IRR for European buyout. As a result Europe is not currently an attractive place for buyout deals and exits.

Average Purchase Price Multiples of All LBOs



Source: S&P LCD

Debt/EBITDA Ratios for European LBOs

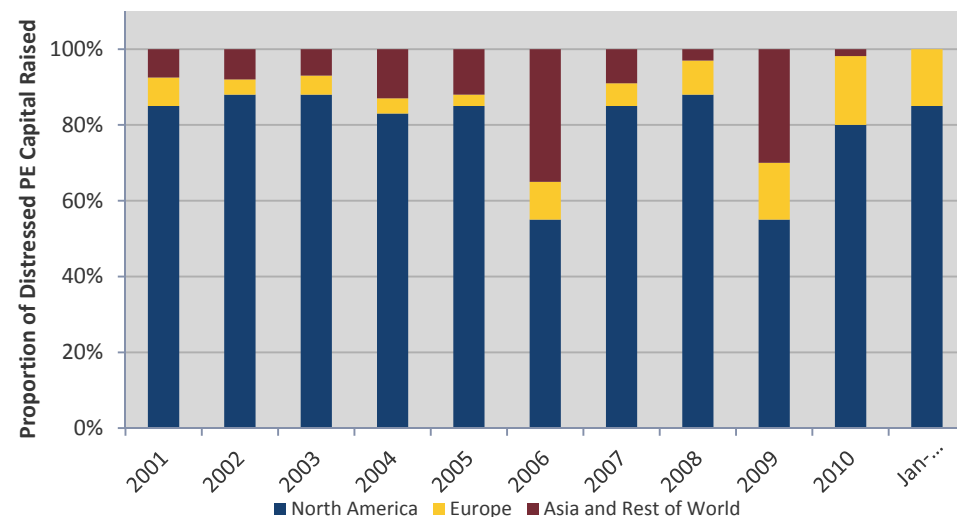


Source: S&P LCD

DISTRESSED INVESTING IN EUROPE: IS IT TIME?

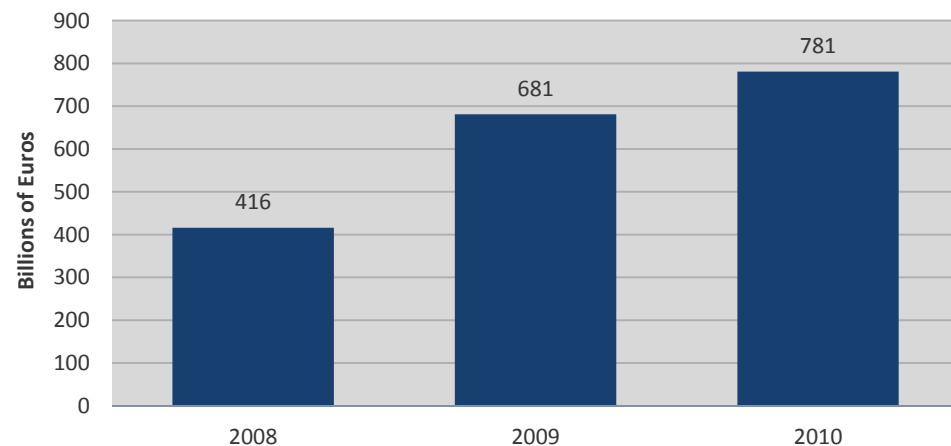
- Europe may not currently be an attractive place for buyout deals and exits, but as an opportunity for distressed investments it has drawn considerable attention.
- The catalysts for distressed opportunities in Europe are: (1) regulatory changes that will force financial institutions to sell non-performing and non-core assets, (2) a looming wall for European maturity, (3) and the disappearance of its traditional buyers. The longer Europe's issues remain unresolved, the greater the imbalance between supply and demand of financial assets and the greater the opportunity for investors. The question investors must answer is not if Europe will be an attractive place for distressed assets, but when.
- European banks are expected to sell at least 1.7 trillion euros of assets over the coming years and another 800 billion euros of nonperforming assets. However, there are a number of reasons to believe banks will be slow in selling assets. This includes the recent European Central Bank LTRO program which provided banks with over 1 trillion euros of liquidity, reducing the pressure to sell assets at discounts large enough to induce distressed credit investors to step in.
- In order to avoid disappointing performance, the importance of country specific experience in accessing deal flow as well as successfully navigating rules that influence the ability to complete complex investments must be considered in picking GPs. While an economic union, Europe is still comprised of multiple countries with separate laws and rules governing financial transactions. Few managers have teams deep and experienced enough to oversee investments throughout Europe.

Distressed Private Equity Fund Raising



Source: Preqin

Non-Performing Loans on European Bank Balance Sheets

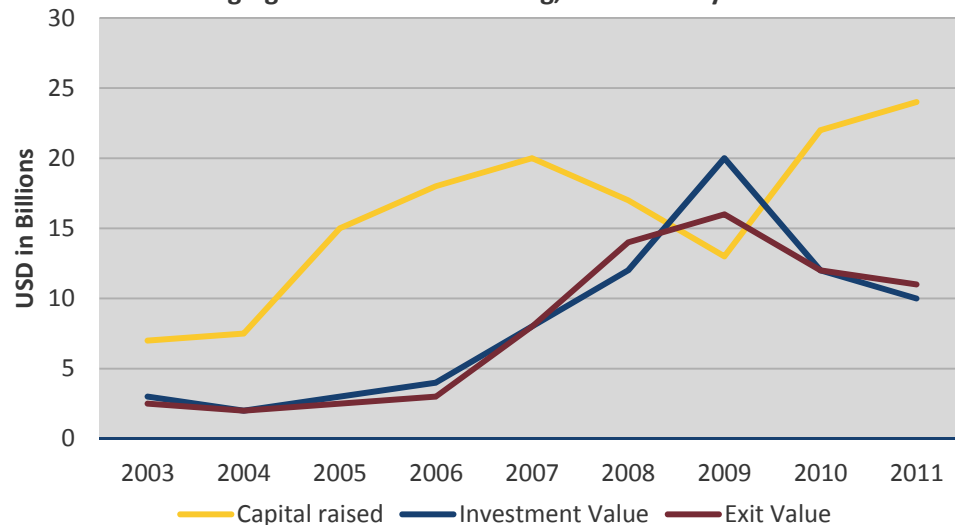


Source: Preqin

EMERGING MARKETS: ARE FAST GROWING MARKETS AN OPPORTUNITY?

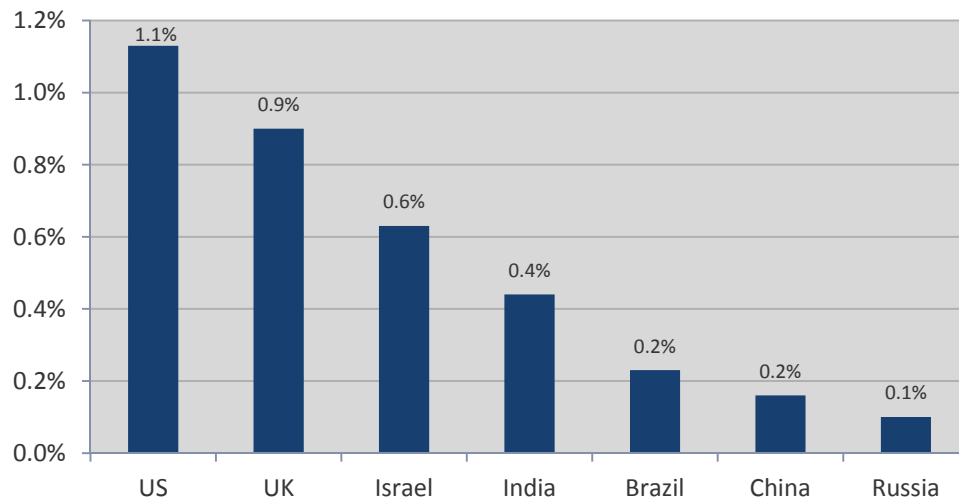
- In the face of slow US economic growth, likely European recession, and an overhang of committed capital that needs to be put to work, the lure of rapidly growing emerging markets economies continues to attract private equity investors. Unfortunately, the reality of emerging markets private equity investing has failed to meet expectations. It turns out it is easier to raise capital for emerging markets deals than it is to actually put money to work and achieve an exit. Capital commitments to emerging markets almost doubled from 2009 to 2011.
- The share of global private equity fund raising dedicated to emerging markets continues to rise, reaching nearly 25% in 2011. In spite of strong economic growth, emerging markets deal volume and exits totaled about 10% of total global private equity activity. The result has been an increasing overhang of dry powder dedicated to emerging markets investing.
- Why is it that rapidly growing emerging markets economies are unable to put more private equity capital to work? It turns out factors other than absolute growth influence investment decisions. What emerging markets appear to lack are companies of the “right size”, specifically companies with annual revenues exceeding \$250 million.
- China, due both to growth and privatization of previously state-owned enterprises has a growing supply of companies that attract investor interest, but it has been slow to be put to work. There is now over \$40 billion in dry powder targeted toward China.

Emerging Markets' Fund Raising, Deal Activity and Exit Value



Source: Bain Capital

Private Equity Penetration as a % of GDP



Source: Emerging Market Private Equity Association

MATRIX OF OPPORTUNITIES

	Buyouts	Venture	Secondary Market	Credit	Emerging Market	Distressed (European)
Fundraising Environment	Fundraising has slowed but the overhang remains equal to several years of capital	Fundraising appears to have turned up after a decade of decreasing volumes	Inflows continue to increase, but so has flow of deal volume	Commitments continue to lag demand for credit given expected changes in bank lending, decline in CLO market and volatility in high yield/levered loan issuance	Emerging market commitments continue to climb as a share of total private equity fund raising	Investors expressing interest but commitments remain slow over concerns that it is too early in the cycle
Pricing Conditions	Decreased use of leverage reducing potential returns.	Decrease in commitments and improved industry dynamics producing more favorable pricing.	Maturation of market and auction process leading to more efficient pricing, but regulatory changes and concentration of GP relationships leading to increasing deal flow and improved pricing for those with proprietary deal flow.	High yield spreads have narrowed, but supply/demand imbalances have created favorable pricing for mezzanine, senior debt and secondaries.	Strong fund raising relative to opportunity set is leading to large capital overhang and rich pricing	With a long window before needing to exit, European banks are demanding high prices.
Exit Conditions	Record dry powder and strategic buyers creating strong exit market for mature funds	Strategic buyers with lots of cash seeking strategic growth and improving IPO market creating more favorable exit conditions.	Strong M&A conditions and improving IPO market creating more favorable exit conditions.	Improving corporate balance sheets leads to improving pricing and exits	Exit market remains under developed.	Resolution of European debt and economic crisis will ultimately influence exit conditions
Manager Alpha Outlook	Impact on returns from capital overhang and longer holding periods may overwhelm manager's ability to add value through strategic control	Decline in fund raising has led to an industry shakeout with skilled managers surviving	Managers with access to proprietary deal flow and strong underwriting efforts will outperform	Positive for managers with access to proprietary deal flow and strong underwriting skills	Strong competition for limited volume of deals limits return prospects except for managers with strong local presence and access to proprietary deal flow	Managers with ability to negotiate country specific differences will have better access to proprietary deal flow

Outlook	Neutral/Poor	Neutral	Neutral/Positive	Neutral/Positive	Neutral	Neutral/Positive
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See 2011 PE Outlook for Energy Outlook

REAL ESTATE OUTLOOK

March 2013



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EXECUTIVE SUMMARY

Commercial Real Estate Fundamentals Slowly Improving:

- Weak US economic growth has led to the slow recovery of commercial real estate fundamentals. Aided by below normal construction, vacancy rates are approaching prerecession levels, leading to modest rent and Net Operating Income (NOI) growth.
- The uneven nature of the economy's recovery has led investors to assets with more stable income, resulting in a preference for the safety of primary markets and a divergence in cap rates across property types and regions.

Core Real Estate:

- **Multi-family:** Fundamentals remain positive for rent growth over the next several years with occupancy rates continuing to rise and new inventory not expected to exceed demand for two more years.
- **Office, Industrial and Retail:** The depth of the recession created significant excess capacity so as the economy has slowly recovered, those property types have had to work through large inventories leading to weak rent growth.
- **Cap rates:** Absolute cap rates are low, but their yields relative to Treasuries and corporate credit suggest real estate is still attractive relative to other assets, and given the Fed's commitment to low interest rates, cap rates should remain low.
- **Expected Returns:** The multi-family sector should continue to see rent growth, but retail, office and industrial probably offer greater upside given how much more room their fundamentals have for improvement.

Value-Added/Opportunistic

- The queue to invest in "Core" has led prices in primary markets to rise, creating opportunities for managers to create value by repositioning and developing non-core properties to become stable income producing core properties.

REITs:

- REITs have been strong performers during the recovery of commercial real estate, aided by easy access to equity and debt capital, and high acquisition activity. However, when measured against NAV and equity price multiples, REITs appear expensive; against corporate bonds they appear fairly valued to slightly cheap.

Real Estate Debt:

- Lending markets are slowly opening up, but mostly for stable, income producing core properties in top tier markets while properties exhibiting any kind of stress have far less access. The current environment creates opportunities for both lenders as well as value added/opportunistic investors to acquire properties at attractive prices.

“It’s all about the Economy”

Many of the asset classes investors are asked to consider today are complex, making it hard to decide if they are attractive investments. How many factors must one consider before investing in CLOs or a hedge fund trying to capture an “exotic” beta? Evaluating the attractiveness of real estate on the other hand is pretty straight forward: “It’s all about the Economy”.

The returns to core real estate depend on the strength of economic growth. It is as simple as supply and demand. The level of economic growth affects property fundamentals: what is happening to vacancy rates and rents (demand), what is the level of development activity (supply)? The level of economic growth also affects capital markets: is capital available and at what price, whether to refinance existing properties or purchase new ones? The impact of economic growth on property and capital market fundamentals impacts property prices.

As an example, in a fast growing economy with robust job creation, the demand for office space increases, driving vacancy rates down and rents up, raising net operating income and the returns to investing in core office space. In the longer-run, rising rents and income leads investors to seek new capital in order to bid for existing higher income producing assets. If their prices are bid up too high, investors may seek assets that can be repositioned to generate higher income (value-added), or land that can be developed into income producing office space (opportunistic).

But in bidding up property prices, investors drive down the yield to investing in real estate, the “cap rate” (current net operating income/property price). Understanding where the economy and real estate are in their cycles is critical to understanding what an investor can expect over the intermediate term from allocating to real estate.

The Current Environment for Core Real Estate

The US economy has been slow to recover from the 2007-2009 recession and as a result commercial real estate fundamentals are demonstrating varying signs of recovery. The recovery has been uneven; slowest in property types, regions and cities hurt most by the housing bubble, and where job growth has been the weakest. Aided by below normal construction, vacancy rates are coming down, leading to rent and NOI growth that varies by property type, quality and metropolitan area.

This bifurcated nature of the recovery in fundamentals has led to a bifurcated recovery in returns as investors seek to avoid riskier assets in favor of more certain income. The result has been a preference for the safety of primary metropolitan areas (gateway cities) and best-of-core assets where fundamentals and income growth has recovered the most. This has led to a divergence in price appreciation and thus cap rates across property types and regions.

The recession and slow recovery affected property types and metropolitan areas differently. Captured by the decline in home ownership, the end of the housing bubble forced a movement from single family to multi-family housing, resulting in rapidly improving fundamentals as witnessed in decreasing vacancies and rising rents. Office, industrial and retail spaces were not so lucky. The rise in unemployment signaled a much smaller need for office and industrial space, and as personal income growth slowed to a standstill, a decline in consumption and need for retail space. As the economy has slowly recovered, these property types have had to work through large inventories resulting in weak rent growth.

Secondary metropolitan areas including suburban have been slower to recover, leading to weaker income growth and as a result investors have steered away from these areas in favor of primary markets, leading price appreciation to vary significantly by market as well as property type.

Outlook

Core real estate has produced several years of double digit returns following two years of negative performance. When compared to historical cap rates, much of core real estate appears expensive. Investors’ aversion to risk and preference for stable income led prices of some property types in primary markets to outpace income growth the last several years. This trend should reverse itself as prices in primary markets stabilize, and vacancy rates continue to decline and rents rise, leading to continued NOI growth.

With new inventory not expected to exceed demand until 2014, the multi-family sector should continue to see low vacancy rates and good rent growth, but in primary markets, price appreciation is expected to slow as current prices are approaching pre-recession levels.

As yields of best-in-core properties in primary markets are driven down, investor demand is expected to broaden beyond best-of-core to next best quality segments. The implication is that in the years to come, core returns will be driven by property types whose fundamentals are still improving (office, retail and industrial) and in areas where job growth has further to recover.

It should also be noted that while absolute cap rates are low, yields relative to Treasuries and corporate credit suggests real estate is still attractive relative to other assets. If interest rates remain low, so should cap rates.

REITs have also enjoyed several years of strong performance. When measured against NAV, spreads to corporate bonds and equity price multiples, REITs appear expensive.

The strongest opportunities in private real estate may be in the value-added and opportunistic space. Demand for prime properties in major cities with stable income growth has led to aggressive pricing for the

available supply while investor demand for second-tier properties (quality of income or location) is weak, leading to wide spreads between the prices of core and non-core property.

Lending markets are slowly opening up, but mostly for stable, income producing core properties in top tier markets while properties exhibiting any kind of stress have far less access.

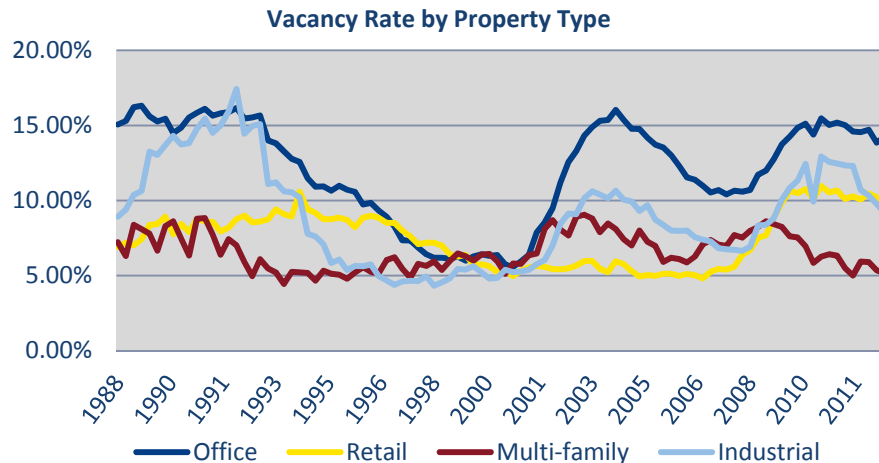
With many properties still underwater and with limited access to capital, many owners have been unable to reinvest in their properties. This environment appears to be creating opportunities for lenders and managers to create value by acquiring properties from distressed sellers at attractive prices and repositioning and developing them into more stable income producing core properties.

The risks to improving fundamentals for core properties outside of multi-family, areas outside of primary markets and opportunities for value-added and opportunistic investors? Any downturn in economic growth will lead to a weaker recovery in price and income growth.

THE STATE OF COMMERCIAL REAL ESTATE: A TOP DOWN VIEW

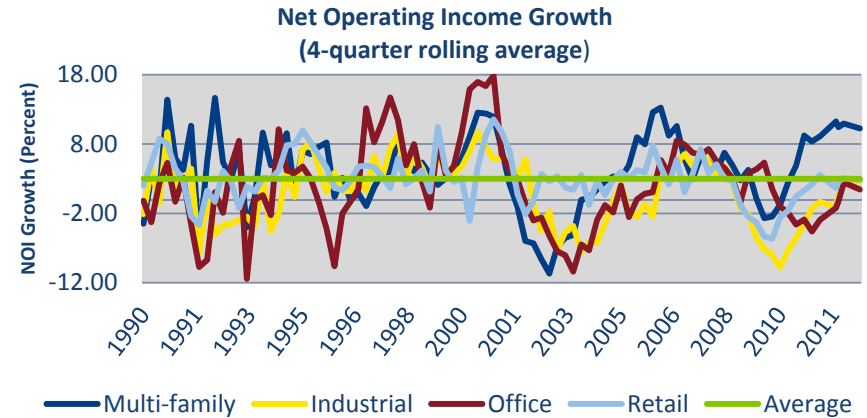
- Real estate fundamentals are showing signs of recovery. Aided in part by below normal construction across most property types (office, retail, industrial), absorption is improving, leading to a gradual reduction in vacancy rates and an upward turn in NOI growth.
- Recovery has been uneven; slowest in regions/cities hurt most by the housing bubble and where job growth has been the weakest. This dynamic has led to a bifurcated recovery, with investors preferring the safety of gateway cities and best-of-core assets.
- In property types (multi-family) and regions (gate-way) where occupancy is on the rise and rents are following, investors have bid up high quality core properties prices and pushed cap rates down.

Except for multi-family housing, the weakness of the recovery has left vacancy rates for most core property well above their historical averages.



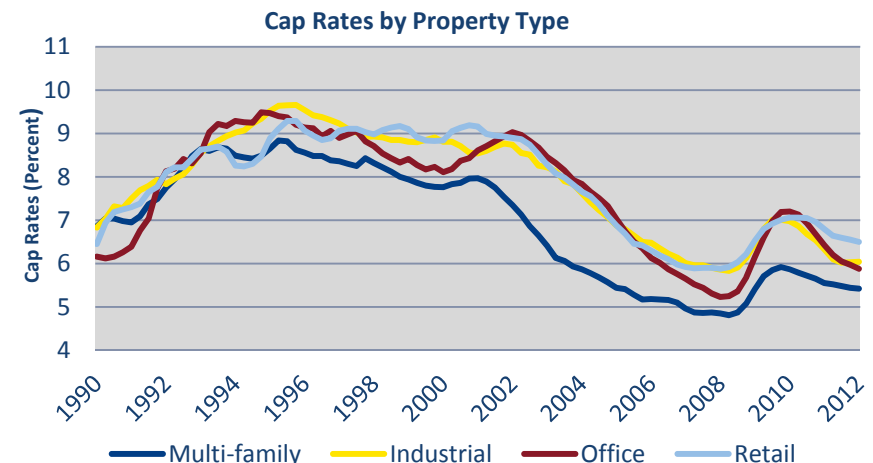
Source: NCREIF

On an aggregate basis, NOI has recovered to pre-crisis levels. NOI growth now exceeds its long-term average, but when examined by property type or region, it is clear some property types and regions are much further along in the recovery.



Source: NCREIF

Multi-family fundamentals have recovered more quickly than the other core property types; their property prices have led NOI growth, pushing down multifamily cap rates to near all time lows.



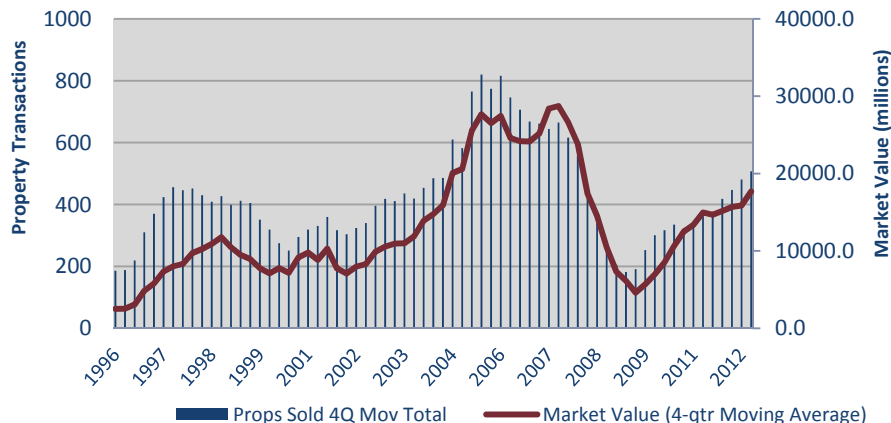
Source: NCREIF

THE STATE OF COMMERCIAL REAL ESTATE: A TOP DOWN VIEW

- On signs of recovering fundamentals, investors are stepping back in and as a result transaction volume in 2012 approached pre-bubble levels. Transaction prices are rising, which along with income growth allowed real estate to enjoy a second straight year of double digit returns.
- Given strong returns and low cap rates, is real estate still an attractive asset class? In spite of their low absolute levels, spreads between cap rates and Treasuries remain above their historical norms and attractive relative to corporate credit spreads.
- Given the Fed's commitment to low interest rates, absolute cap rates should remain low for the foreseeable future. Even if risk free rates rise, the spread between cap rates and Treasuries may narrow as investors continue to enter real estate, limiting the rise in cap rates.

Transaction volume is recovering, helping push up transaction prices and putting downward pressure on cap rates.

Real Estate Transaction Volumes



Source: NCREIF

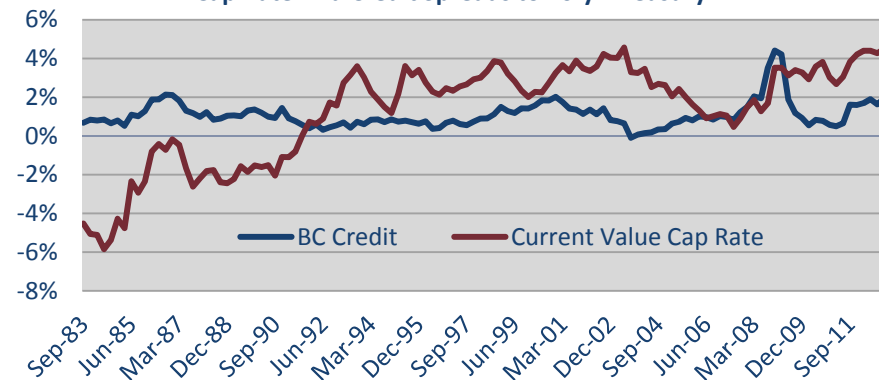
Seeking to avoid risk, investors have focused on property types where fundamentals have improved the most, leading to higher returns for multi-family housing and in the west and south where job creation is strongest.

Property Type	Annual Returns (12/31/12)				
	1-Year			3-Year	5-Year
	Total	Income	Apprec		
Apartment	11.2%	5.4%	5.6%	14.9%	3.0%
Industrial	10.7%	6.3%	4.3%	11.5%	1.4%
Office	9.5%	5.7%	3.7%	11.6%	0.9%
Retail	11.6%	6.2%	5.2%	12.7%	4.1%
Region					
East	9.0%	5.6%	3.3%	12.7%	1.8%
Midwest	9.7%	6.4%	3.1%	10.5%	2.2%
South	11.1%	6.2%	4.6%	12.0%	3.0%
West	12.0%	5.7%	6.0%	13.6%	2.0%
Total	10.5%	5.8%	4.5%	12.6%	2.10%

Source: NCREIF Property Index

Cap rates are near their lows, but with credit spreads at such low levels, real estate still looks attractive, relative to credit.

Cap Rate And Credit Spreads to 10-yr Treasury



Source: NCREIF

CORE: MULTI-FAMILY

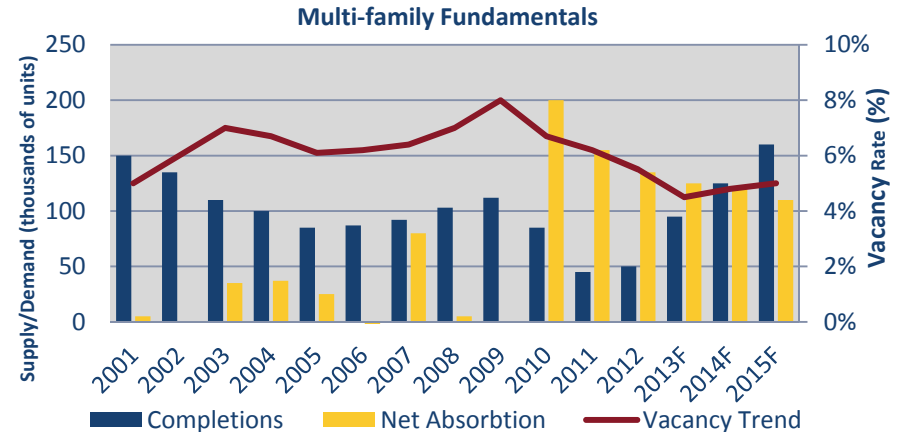
Market Environment

- Multi-family housing has been the best returning sector in real estate the last two years, aided by strong fundamentals.
- Income growth has been robust as vacancy rates fell to below 5% in 2012, aided by declining homeownership levels and weak new multi-family construction, which along with short lease terms led to strong rent growth.
- The average national rent exceeds peak rents achieved in 2007, though rents vary by city. Effective rents in cities with strong job growth are nearly 110% of their previous peak while rents in slow recovering cities remain below peak levels.

Outlook

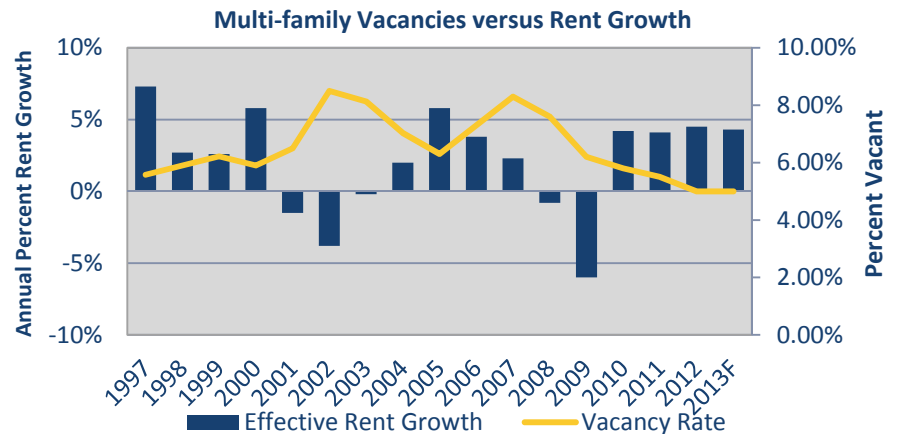
- For the next two years, new demand is expected to exceed new inventory, supporting rent growth. Positives for rent growth include an expected rise in household formation as labor markets improve and homeownership rates continue to decline.
- Constraints to rent growth over the longer term include (1) new construction leading vacancy rates to stabilize or possibly rise; and (2) a narrowing spread between the cost of renting and owning as rents rise and homeownership costs falls.
- Performance of multi-family investments will vary by metropolitan area and submarket, as differences in economic recovery and initial inventory lead to differential rent growth.
- Developers' focus on first tier metro areas where vacancies are low should rotate to second tier cities where prices have not been bid up, offering more attractive cap rates, but returns are likely to be constrained by fewer barriers to entry.
- In spite of rent growth, rising prices for multi-family properties make multi-family housing expensive on a cap-rate basis.

Multi-family fundamentals benefitted from a lack of new inventory and declining vacancy rates, but new inventory and low housing costs will put a floor under vacancies, likely slowing rent growth.



Source: REEF, REIS

Declining vacancy rates supported several years of strong rent growth, but "most" think the market has peaked and that rent growth will slow.



Source: REEF, REIS, Axiometrics

Market Environment

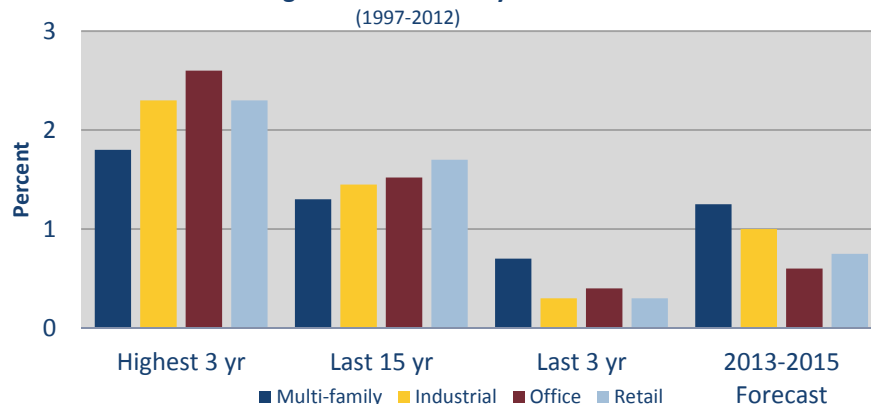
- All property types are in recovery but each sector is at a different stage of its recovery cycle. Regardless of property type, new inventory has been next to nonexistent, but excess capacity has led to weak inventory absorption and as a result weak income growth and price appreciation.

Market Outlook

- Industrial:** Leading indicators of demand (job growth, industrial production) are showing signs of improvement. New supply is nearly nonexistent (0.6% per year), but vacancy rates remain elevated; historically rents have increased as vacancies (11.5% today) dip below 10%. Property values have exhibited little growth since bottoming in 2010, and so along with weak NOI growth, cap rates have remained at more attractive levels.
- Office:** Vacancy rates remain elevated (15%) and as a result NOI growth has trailed other sectors, but improvement is expected by 2014 as leases signed during the recession expire and are renewed at market rates. Risks to recovery include declining government and defense sector spending, and more efficient use of space per worker. In 2011, about 120 square feet of space was absorbed per office job added, below the long-term average of 163 feet per office worker.
- Retail:** Occupancy remains close to historical lows, hurt by cyclical and secular trends and at the same time hiding stronger performance and opportunity in some property types. Retail has been held back by weak job and income growth as well as movement to e-commerce though high end retail (best in-class malls) have done well.
- Take-away:** As yields of best-in-core assets are driven down, investor demand is expected to broaden to next-best quality segments. The implication is that in the years to come, core returns will be driven by property types (office, retail, industrial) and markets (second-tier, suburban) whose fundamentals are still improving, though slowly.

Inventory growth over the last three-years is a fraction of normal levels and is expected to remain low for the next several years given the slow pace of growth and available inventory.

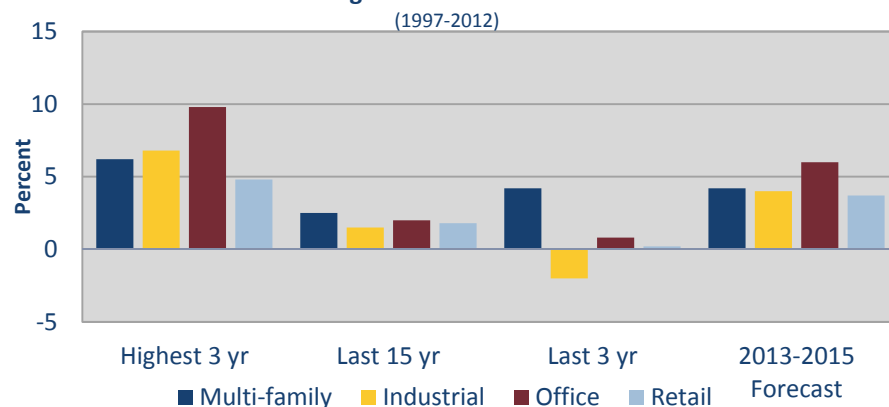
Average Annual Inventory Growth



Source: Invesco, CBRE-Econometric Advisors

In spite of limited inventory growth, rent growth has hovered near zero outside of multi-family housing. With inventory flat, rents should return to historical levels as occupancy rates increase.

Average Annual Rent Growth



Source: Invesco, CBRE-Econometric Advisors

VALUE-ADD AND OPPORTUNISTIC

Market Environment

- Investors are returning to real estate, but with the memories of the last cycle still fresh, they are focusing on high quality core properties to avoid the risks of value-added and opportunistic real estate through the more stable income that core offers.
- This dynamic has led to differences in pricing between core and non-core properties, differences in cap rates and in the availability of credit.
- On the supply side, high vacancy rates led many owners to under invest in their properties, creating an over supply of poor quality properties in need of refinancing and repositioning, estimated at over \$1 trillion in the next five years.

Market Outlook

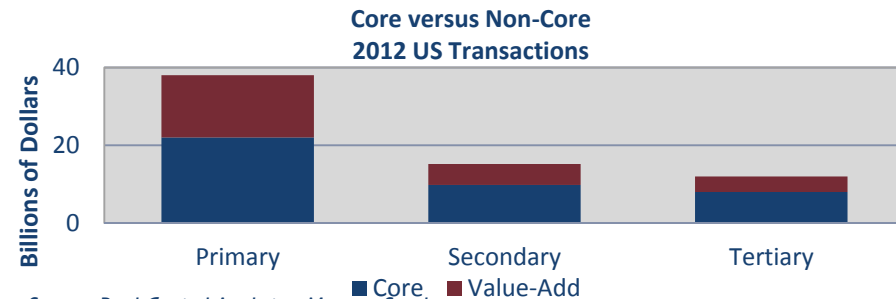
- The current environment creates several types of opportunities for valued added and opportunistic strategies. First, the markets' focus on tier-one income producing properties has led second-tier properties to be priced cheaply relative to NOI growth prospects given repositioning and the steady improvement in property fundamentals.
- Second, the lack of new inventory in the face of rising demand for tier-one core properties creates opportunities for managers to "create" core properties by purchasing lower quality properties and repositioning them in ways that leads to rising occupancy and rents.
- Third, traditional lenders have smaller appetites for illiquid, distressed assets today, creating opportunities for non-traditional lenders to step in and provide capital for refinancing or restructuring at attractive prices.
- The risks to this outcome are a downturn in the economy or rising interest rates.

Property prices have diverged, creating opportunities to acquire some properties at attractive prices as well as to create core properties in areas in need of new inventory

Index	Peak-to-Trough	Peak-to-Current	Percentage Peak-to-Trough Loss Recovered	Peak	Trough
Apartment-Major	-23.3%	-0.3%	98.7%	Jan 08	Nov-09
CBD Office-Major	-47%	-3.6%	92.3%	Dec-07	Sep -09
Office CBD	-48.1%	9.9%	79.4%	Jan -08	Sep -09
Apartment	-38.8%	-9.6%	75.3%	Jan-08	Nov-09
Major Market Aggregate	-37.5%	-11.9%	68.5%	Dec-07	Dec-09
Apartment-Non-major	-47.1%	-16.1%	65.9%	Sep-07	Jan-10
Retail-Major	-38.7%	-19.8%	48.8%	Aug-07	Jul-10
Office	-45.1%	-24.0%	46.8%	Jan-08	Dec-09
National All-Property	-39.5%	-21.7%	45.1%	Nov-07	Dec-13
CBD Office-Non-Major	-53.2%	-31.6%	40.7%	Feb -08	Oct-09
Industrial-Major	-33.6%	-20.9%	38.0%	Nov-07	Dec-09
Core Commercial	-39.9%	-25.9%	34.9%	Nov-07	Dec-09
Suburban Office-Major	-47.5%	-32.3%	32.1%	Nov-07	Apr-10
Non-Major Market Aggregate	-41.0%	-29.6%	27.9%	Oct-07	Dec-09
Industrial	-32.8%	-24.6%	24.9%	Nov-07	Sep-10
Retail	-41.9%	-34.1%	18.8%	Aug-07	Feb-11
Industrial-Non-Major	-34.7%	-28.5%	18.0%	Mar-08	Apr-13
Office Suburban	-44.4%	-38.5%	1.4%	Nov-07	Apr-10
Real-Non-Major	-43.9%	-40.1%	8.7%	Aug-07	Oct-10
Suburban Office-Non Major	-44.1%	-43.8%	0.7%	Nov-07	Feb-11

Source: Moody's Real Capital Analytics,

Seeking lower risk, core and value-added investors have focused on primary markets



Source: Real Capital Analytics, Morgan Stanley

SLOW HEALING OF COMMERCIAL DEBT MARKETS CREATING OPPORTUNITY FOR LENDERS AND OPPORTUNISTIC INVESTORS

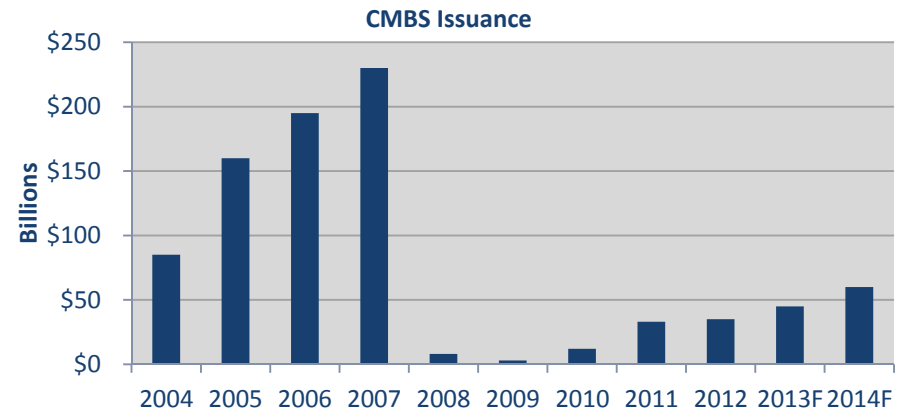
Market Environment

- During the downturn, deteriorating fundamentals led to impaired cash flow and falling property values, resulting in high loan-to-value ratios. Traditional sources of commercial real estate lending, primarily from banks and CMBS, dried up, reflecting investor unease about prospects for the asset class.
- Lending markets are slowly opening up, but mostly for stable, income producing core properties in top-tier markets while properties exhibiting any kind of stress have far less access.
- The lack of credit has led many properties to fall in quality, hurting rents and property values.
- Over the next four years nearly \$1 trillion of commercial real estate debt will need refinancing; with the slow recovery of CMBS, the decline of CDOs and higher collateral demands by lenders, it is estimated that a \$200 billion shortfall of lending could exist.

Market Outlook

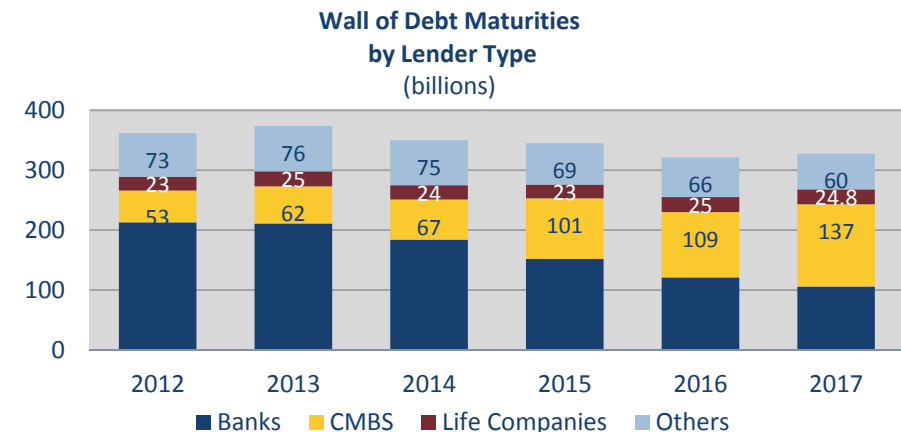
- The current environment creates opportunities for both lenders and value added-opportunistic investors. The impending financing gap will create opportunities for mezzanine lenders who are also demanding higher equity participation by borrowers.
- In providing refinancing, lenders appear focused on permanent loan resolution through property sales rather than modifications and extensions. This would likely provide opportunities for investors to acquire overleveraged properties in need of capital and repositioning at attractive prices.

Not only has CMBS issuance been slow to recover, the availability of finance is bifurcated. Credit is readily available to stable, income producing core properties in top markets while properties with any issues struggle for access to capital.



Source: Deloitte

With credit still hard to come by for many, and a large amount of loans needing refinancing, investors with dry powder will be in a position to acquire properties in need of repositioning.



Source: RREEF, Morgan Stanley

PUBLIC REAL ESTATE (REIT): STRONG RETURNS IN 2012 RAISE VALUATIONS

Market Environment

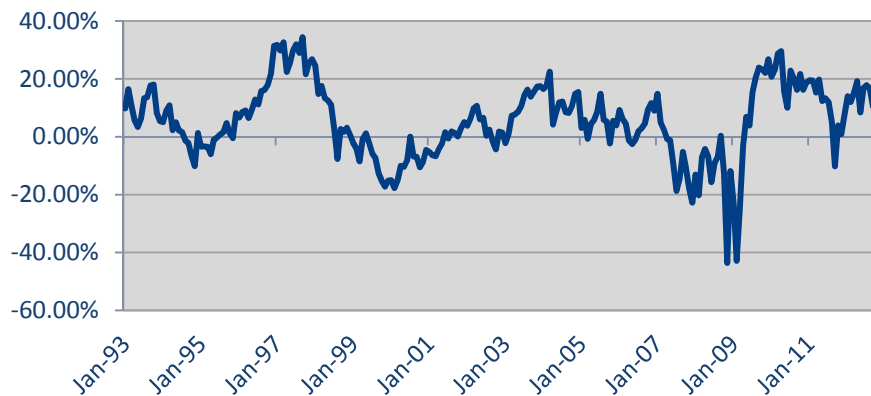
- After returning 28% in each of 2009 and 2010, REITs delivered 8.3% in 2011 and nearly 20% in 2012. REIT performance has been aided by easy access to equity and debt capital and high acquisition activity. REITs have also benefited from strong equity markets, to which their performance is highly correlated; historically, REITs have exhibited a correlation of .6 to equities.

Market Outlook

- When measured against NAV and equity price multiples, REITs appear expensive, while against corporate bonds they appear fairly valued to slightly cheap.
- REIT growth prospects depend on higher rental income. "New" capital, attracted to the sector by higher returns will push property prices up, supporting capital appreciation of existing property prices, but lowering returns to new acquisitions.
- Risks to REIT performance include declining equity markets or investors choosing to reduce their REIT exposures over valuation concerns.

Historically, the average premium of REITs to their NAV has been 5.4%. Today's REIT price premium to NAV is 11.2%. The take-away? Relative to their NAV, REITs been more expensive only about one-third of the time.

Share Price Premium to NAV



Source: Greenstreet

The current spread of REITs over Baa-rated corporate bonds is nearly 100 bp and rising; above its historically average. The take-away? Today, REITs are fairly valued to slightly cheap relative to corporate bonds, in part because corporate bonds are expensive.

REIT AFFO Yield Spread to Corporate Bonds



Source: Greenstreet

The REIT P/E premium to S&P 500 stocks is currently 44%, not far from its historical high. The take-away? Today, REITs are expensive relative to equities.

REIT P/E Premium to S&P 500



Source: Greenstreet

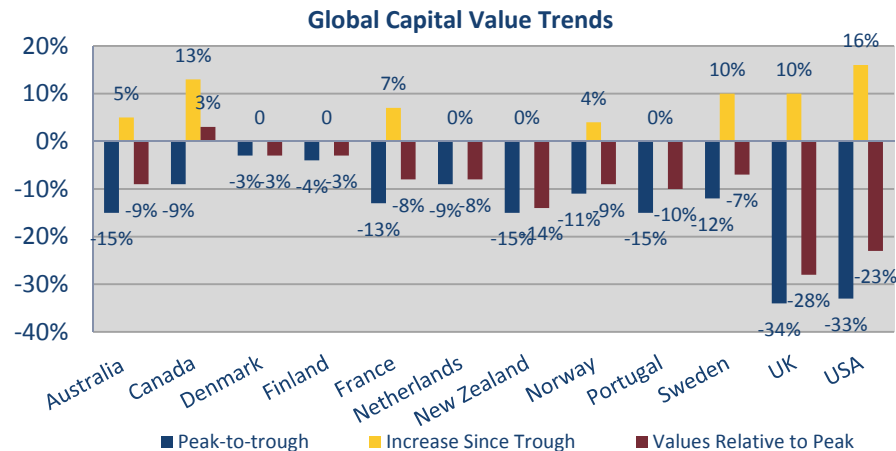
Market Environment

- The global search for yield in a low interest rate environment led global transaction levels to recover from their 2009 lows, though volumes fell in 2012 due to weakness in Europe. The gradual recovery in transaction volumes has led global cap rates to fall to under 7%.
- Europe is following a pattern very similar to the that of the US, but is earlier in its recovery cycle. Prices remain well below peak value and distressed properties abound. New construction is below historical averages, vacancies remain elevated relative to norms, and rents in most of Europe have failed to recover.
- Asia-Pacific activity is driven primarily by deals in China, but momentum slowed in 2012 over concerns about economic strength. In Japan, activity is in response to last year's natural disasters but office and retail income growth, though showing signs of life, remain challenged by excess capacity.

Market Outlook

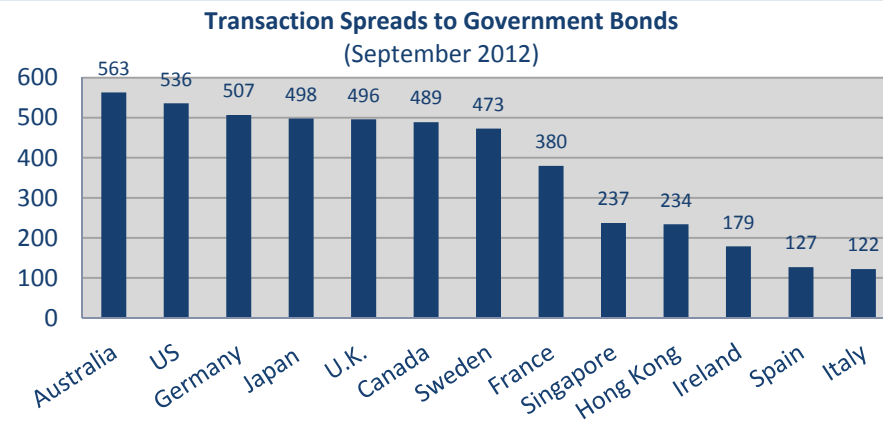
- Despite cap rates being below historic average, the premium offered by property relative to government bonds tends to be high compared to history across markets.
- Transaction cap rates tend to reflect perceived growth and risk; prime properties in cities like London, Hong Kong and Paris are trading at cap rates under 4.5 while non-core properties in slower growing cities trade at cap rates of 6 and above.
- Take-away:** Global valuations are attractive, but in a low growth environment risks still exist. Country and asset selection matters. The risks of being early are greater than the risks from being late.

Prices are recovering, but at different rates, creating opportunities for managers able to assess the prospects for price recovery across markets.



Source: REEF

Absolute cap rates remain low, but with sovereign rates low, real estate looks attractive outside of Southern Europe.



Source: Real Capital Analytics, Morgan Stanley

SUMMARY OF CONCLUSIONS

	Core Real Estate - Aggregate	REITs	Value Added	Opportunistic	Credit Opportunities
Valuations/ Pricing	- Valuation: Expensive - Cap rates below historical averages as property prices have recovered more quickly than NOI - Still attractive relative to major asset classes	Valuation: Expensive relative to equities and their own NAV; fairly valued against bonds	- Valuation: Favorable - Wide price spread between high and low quality properties - Opportunity to create value in low return environment by property repositioning	- Valuation: Favorable - Focus on income growth has led to avoidance of low quality properties and wide spreads between core and "opportunistic" property prices	- Valuation: Favorable - Pricing has improved as spreads have widened on declining liquidity to commercial real estate
Macro Considerations	- Multi-family rent growth still strong but property prices have been bid up - Significant fundraising puts pressure on prices - Prospective returns can fall in rising interest rate, slowing economic growth environment	- High 2012 returns leave REITs fairly valued relative to other equities - Returns have benefitted from easy access to equity and cheaper debt capital - Highly volatile asset class with respect to discounting economic expectations	Focus on property fundamentals (vacancy & income growth) leads to avoidance of "hairy" properties and bifurcated pricing	Weak economic growth contributes to over-supply of poor quality properties in need of refinancing and repositioning	- Traditional sources of financing (CMBS, banks) have decreased, particularly to non-core properties - CMBS delinquency rates declining across most property sectors though still high
Manager Alpha Conditions	- Bifurcated economic recovery means allocation by property type and location will be key to generating alpha - The high demand for core real estate is leading to entry queues of as long as nine months with managers demonstrating previous success.	In moderate NOI growth environment, the ability to generate alpha will depend on asset selection and managers' ability to improve cash flow through balance sheet restructuring	Lack of new inventory in the face of rising demand creates opportunities for managers to "create" core properties by purchasing lower quality properties and renovating them in ways that leads to rising occupancy and rents	Many properties are still underwater, limiting owners' access to finance, creating distressed sellers and opportunities to acquire properties at attractive prices	- Decline in financing sources leads to more favorable risk adjusted spreads - Opportunities for non-traditional lenders to step in and lend to borrowers in need of capital to reposition good assets into stable, income producing properties

Outlook	Neutral	Negative	Positive	Positive	Positive
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APPENDIX: GLOSSARY OF TERMS

Capitalization Rate (Cap Rate): a rate of return on a real estate investment property based on the expected income that the property will generate. It is calculated by dividing the income the property will generate (after fixed costs and variable costs) by the total value of the property.

Commercial Mortgage-Backed Security (CMBS): a type of mortgage-backed security that is secured by the loan on a commercial property.

Core: real estate properties that include the major property types - offices, apartments, retail, and industrial that are most liquid, most developed, and least leveraged. The assets are held for a long period of time to take full advantage of the lease and rental cash flows they provide. The majority of the returns come from the cash flows vs. value appreciation.

Current Value Cap Rate: a rate of return on a real estate investment property based on the appraised value of the property. The property valuation could be done relatively infrequently, resulting in the appraised price that could be different from the actual transaction price.

NCREIF Property Index (NPI): an index compiled by the National Council of Real Estate Investment Fiduciaries based on voluntary reporting of its members that includes pension funds, real estate investment professionals, appraisers, academics, and consultants to track performance of direct real estate investments. The NPI provides the returns for an institutional-grade real estate portfolio held by large U.S. investors. The index includes quarterly reported appraised prices of offices, apartments, retail, industrial, and hotels.

Net Asset Value (NAV): a mutual fund per share value calculated by dividing the total value of all the securities in its portfolio, less any liabilities, by the number of funds shares outstanding.

Net Operating Income (NOI): NOI is equal to a property's yearly gross income less operating expenses. NOI is equal to net rental income + depreciation + amortization + interest expense – non-reoccurring income. NOI is used in the calculation of the Cap Rate (Cap Rate = NOI/Transaction Value).

Opportunistic: real estate properties that have high risk and return profile and often require extensive development or are turnaround opportunities, including development of new properties, redevelopment of property that is in disrepair, the purchase of property in the area that is undergoing significant urban renewal. The majority of the return from these properties comes from value appreciation over a three- to five-year period.

Real Estate Investment Trust (REIT): a security listed on major stock exchanges that represent an interest in an underlying pool of real estate properties. REITs invest in the equity and / or mortgages of different real estate assets and operate similar to mutual funds.

REIT AFFO Yield: a financial performance measure that is usually equal to the real estate trust's funds from operations (FFO) after adjustments made for recurring capital expenditures used to maintain the quality of the REIT's underlying assets.

Transaction Cap Rate: a rate of return on a real estate investment property based on the prices from actual real estate transaction.

Value Added: real estate properties that usually include hotels, resorts, assisted care living, low-income housing, outlet malls and similar assets. These properties may require repositioning, renovation, redevelopment, a new marketing campaign, etc. They produce less current income and rely more on capital appreciation to produce total return.

ACTIVE MANAGEMENT ENVIRONMENT

January 2013



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EXECUTIVE SUMMARY

- **Excess returns don't like efficient markets:** Evidence suggests that the more efficient an asset class, the less of an opportunity investment managers have to generate excess returns (e.g., it is more difficult for managers to add value in US Large Cap Equities than in Emerging Market Equities).
- **Managers' ability to generate excess returns should be evaluated over a full market cycle:** Over shorter time horizons, markets may not reward managers' active bets, but over the long-term, security mispricings are corrected and risk-taking is generally rewarded. This implies that skilled active managers are more likely to add value when evaluated over longer time horizons. Evidence supports this: in evaluations over longer time horizons, excess returns are more stable and tend to be positive (gross of fees), particularly for top quartile managers.
- **Excess returns are correlated with active bet-taking:** In order to add value, managers need to take active bets. Evidence suggests that managers that take bigger active bets are better able to generate excess returns.
- **Excess returns depend on the market rewarding active bets:** In deciding whether to invest passively or with active managers, it is important to understand: 1) The relationships that influence the ability of managers to outperform their benchmarks; and 2) Whether the market is rewarding those relationships. Evidence suggests that many of these relationships are weaker today than they have been historically as a result of the market failing to reward over the near-term, thus creating headwinds for active management.
- **The current market environment has produced headwinds to the success of active management:** Active management has been hurt by: 1) Macro risks which have led to increased stock-price correlation and reduced sector dispersion; and 2) A low-growth, low-interest rate environment which has altered the relative attractiveness of securities.
- **The environment for active management should improve:** As macro risks recede, stock price correlation should decrease and sector dispersion should increase creating relative-value opportunities for active managers. Market valuations are slightly-cheap to fairly valued across asset classes, but relative-value opportunities are likely limited given slowing GDP growth and slowing corporate earnings growth.

“If you can’t identify managers who are going to perform well in the future you should be in an index fund” (*Critic of Active Management*)

“Success in utilizing active management is grounded in a view of the world that utilizes past returns as a means to uncover relationships that can be acted upon”
(2011 *Active Management Review*, Wurts & Associates)

Active versus Passive: A Framework for Analysis

The general focus of our ‘Active Management Environment’ is to identify the headwinds and tailwinds active managers face in their efforts to beat a passive benchmark. Whenever examining this environment, it seems the discussion often turns to the merits of active management. This debate over whether investors should allocate to passive or active managers has evolved over time.¹ Today, the debate is not just about picking one or the other; rather it is about choosing when passive investment or active management makes the most sense.

In deciding whether it makes sense to invest with active managers, it is first important to understand that a passive portfolio contains a variety of risks and that an actively managed portfolio repackages these risks through taking “bets,” i.e. choosing to hold assets in different proportion to their benchmark weights. The investor must decide which portfolio of risks makes the most sense given their unique liabilities and investment objectives.

Many investors will chose to invest with active managers when they believe markets are inefficient. Accordingly, they expect markets to reward security mispricings and risk exposures embedded in managers’ portfolios, meaning their portfolio will outperform its benchmark.

But before committing to active managers, investors must also consider that these managers typically start at a disadvantage to their passive counterparts. Their disadvantage is active management fees. As we will demonstrate, once fees are deducted from returns, far fewer active managers are able to outperform.

Another problem investors face is that the managers who outperform today are just as likely to underperform tomorrow. So if you can’t pick the active managers that are going to outperform tomorrow, why bother?

Why are managers unable to consistently outperform over time? The simplest explanation is that markets are fickle creatures. The price inefficiencies and risk exposures managers seek to capture may be rewarded today, but not tomorrow. “Deep Value” managers identify extremely undervalued stocks and will often hold them for three to five years while waiting for the rest of the market to subsequently recognize their true value.

Investors need to recognize that markets can react in ways which don’t match managers’ understanding and expectations of what truly drives the performance of assets in the short-run. This leads skilled managers to underperform over these shorter time periods.

Over the long-term, markets tend to reflect recognized relationships; risks are compensated as expected and mispricings are corrected. “Skilled” managers that stick to their discipline will be rewarded for their patience. Investors in active management need to recognize the inherent, short-term fickleness of markets and exercise patience with managers as they wait for mispricings to correct and risk exposures to be compensated.

But before signing on to active management, investors should consider that investing with active managers is not a guarantee of outperformance. Not all active managers are “skilled,” i.e., their active bets can be wrong and may not be rewarded by the market.

Active Management in a Slow-Growth, Low Interest Rate Environment

Today's market environment is one in which active managers, with a few exceptions, have struggled to outperform their corresponding benchmarks. Some of these struggles can be attributed to the slow growth of the global economy and policy makers' need to keep interest rates low, given the range of perceived macro risks to growth. These macro risks include likely changes to US fiscal and tax policy, threats to the stability of the Euro-zone, and a potential slowdown in the Chinese economy. This environment is challenging for active managers in several ways.

First, ultra-low interest rates can alter the relative attractiveness of assets as compared to their fundamentals by encouraging yield-seeking investors to invest in riskier assets. As the price of riskier assets is driven higher, these assets generate a higher return than their fundamentals might imply, thus hurting active managers underweight those assets.²

Second, underperforming active managers are quick to point to the market's recent focus on macroeconomic events rather than company-specific fundamentals. Investors have treated stocks like an asset class rather than individual companies with distinct fundamentals. When macro events lead investors to believe it is ok to take on risk, all stocks tend to move higher, and when macro events tell investors to shed risk, all stocks tend to move lower. Managers whose active "bets" are made on the basis of company fundamentals can find themselves overweight to factors that the market does not currently reward — causing subsequent underperformance.³

While the market environment has been unfavorable to managers in some asset classes, it has proved favorable in others. As an example, many non-US equity managers have taken advantage of their flexibility to underweight European markets given the expectation that these

economies will struggle. Many fixed income managers, confident that the Fed will keep interest rates low, are underweight government securities in favor of higher yielding credit, which allowed for outperformance.

Summary

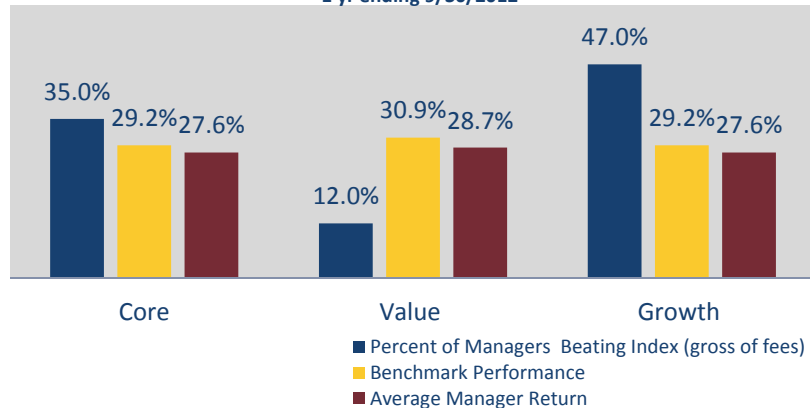
Interestingly, the fact that we can't predict when markets will reward particular mispricings and risk exposures offers helpful guidelines in considering active management. First, active managers should be evaluated not on their past performance, but on the risk exposures of the portfolio under consideration and whether or not these risks match investors' desired exposures. Second, while we can't predict or time when markets will reward mispricings and risk exposures, investors can evaluate whether these risk exposures are mispriced. By understanding when assets are over- or underpriced, investors can understand the risks they face in considering a particular active manager, as well as how patient to be during periods of manager underperformance.

Generally, the economic and market environments that active managers have faced over the last several years have presented substantial headwinds to outperformance. Macroeconomic uncertainties have led markets to focus less on valuations and more on the treatment of individual assets as an asset class. As a result, it remains difficult to generate outperformance by overweighting cheap assets and underweighting expensive assets. As these macro risks recede, the market will correspondingly focus more on valuations. Given that many assets today are cheap or expensive relative to their fundamentals, we believe the environment for active management will be more favorable in the future than has been the case over recent years.

IT HAS BEEN A GOOD YEAR FOR ASSET VALUE, AND LESS SO FOR MOST ACTIVE MANAGERS, BUT NOT ALL

Less than half of US large cap equity managers beat their benchmarks over the last year. More expensive stocks outperformed less expensive stocks.

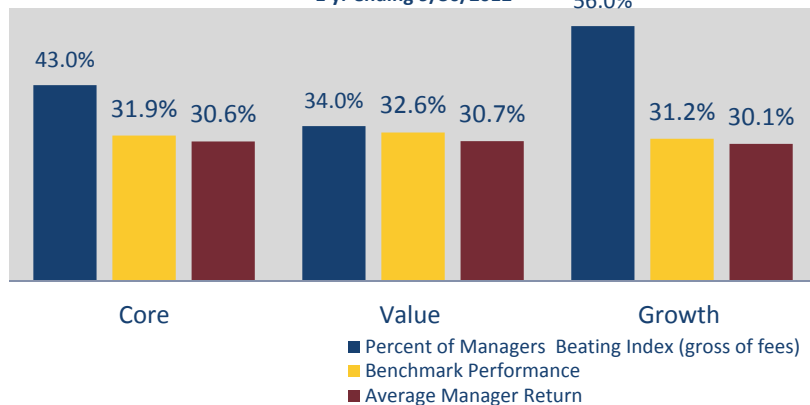
US Large Cap Equity
1 yr ending 9/30/2012



Source: eVestment Alliance

A majority of US small cap growth managers beat their benchmark last year. The market rewarded more expensive stocks and those characterized by high estimate revision.

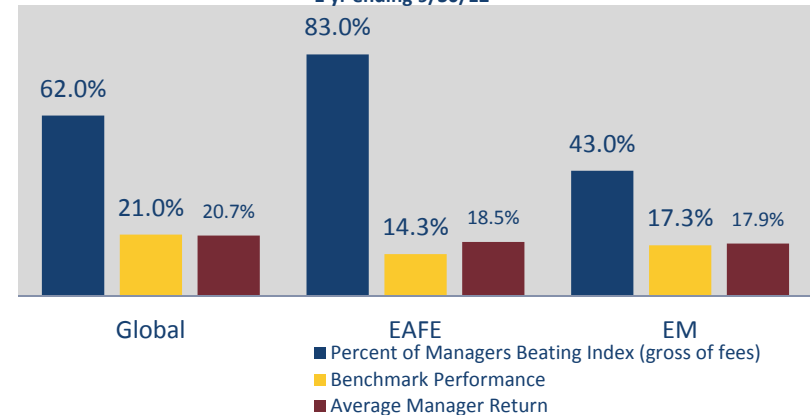
US Small Cap Equity
1 yr ending 9/30/2012



Source: eVestment Alliance

The majority of EAFE managers outperformed over the last year. Returns by country varied significantly during the period.

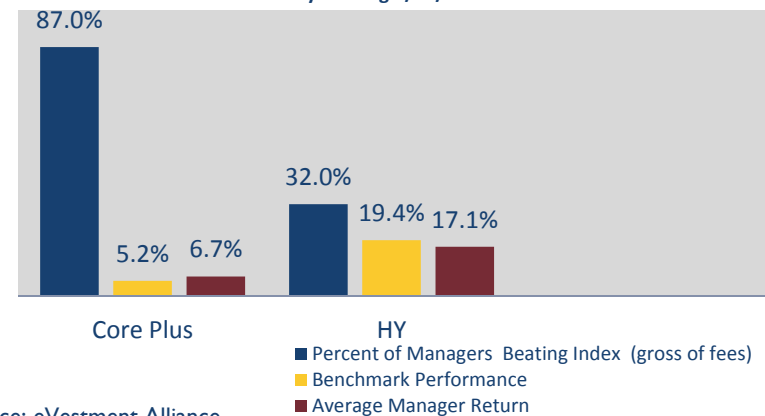
Global Equity
1 yr ending 9/30/12



Source: eVestment Alliance

Most core plus managers outperformed the Barclays Aggregate. Differences in the returns to government bonds and corporate credit benefited managers which were overweight credit.

Fixed Income
1 yr ending 9/30/12



Source: eVestment Alliance

MARKET EFFICIENCY AND FEES MATTERS IN MANAGERS' ABILITY TO GENERATE EXCESS RETURNS

- In considering whether to invest passively or with active managers, investors should consider:
 - Some asset classes offer more of an opportunity to generate excess returns;
 - After paying active management fees, far fewer managers outperform regardless of the asset class or the period of evaluation.
- As one would expect, with more manager coverage and more invested assets, US large cap stocks are more efficiently priced. As a result, US large cap managers find it more difficult to capture excess returns than US small cap or emerging markets managers.
- Not only do fewer managers outperform once fees are taken into account, if survivorship bias is accounted for (underperforming managers dropping out of the universe), even fewer managers are likely to outperform.

Over the last 20-years, the ability of the median active manager to outperform tends to vary with the efficiency of the asset class.

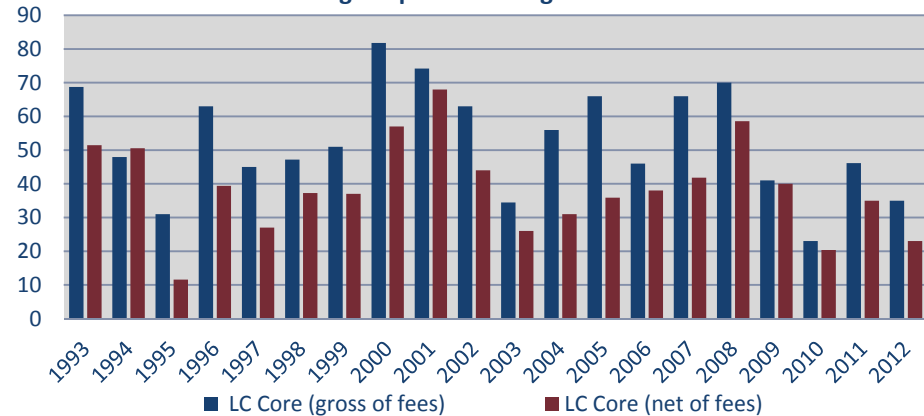
Percent of Time Median Fund Outperforms

Asset Class/Style	Gross of Fees	Net of Fees
US Large Cap Core	50%	30%
US Large Cap Value	50%	30%
US Large Cap Growth	50%	40%
US Small Cap Core	75%	45%
US Small Cap Value	75%	45%
US Small Cap Growth	85%	45%
Global	85%	60%
Non-US Developed	65%	50%
Emerging Markets	80%	40%

Source: eVestment Alliance

Once their active management fees are accounted for, 10% to 20% fewer managers outperform each year.

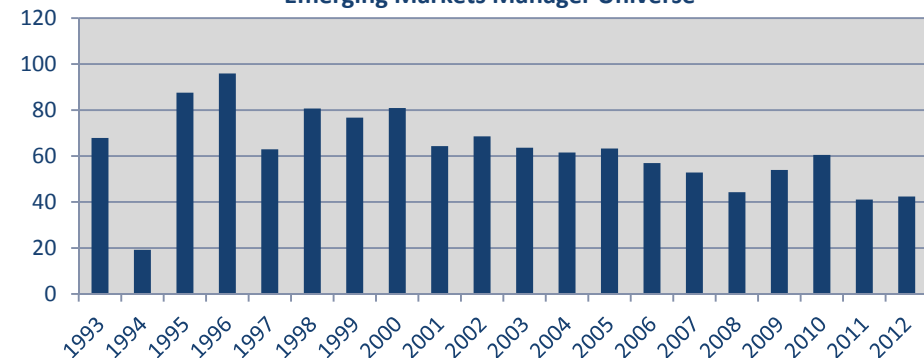
Percent of Managers Beating Their Benchmark
US Large Cap Core Manager Universe



Source: eVestment Alliance

The share of emerging markets managers beating the benchmark appears to be trending down. Over time, more assets and managers have invested in the asset class.

Percent of Managers Beating Their Benchmark
Emerging Markets Manager Universe

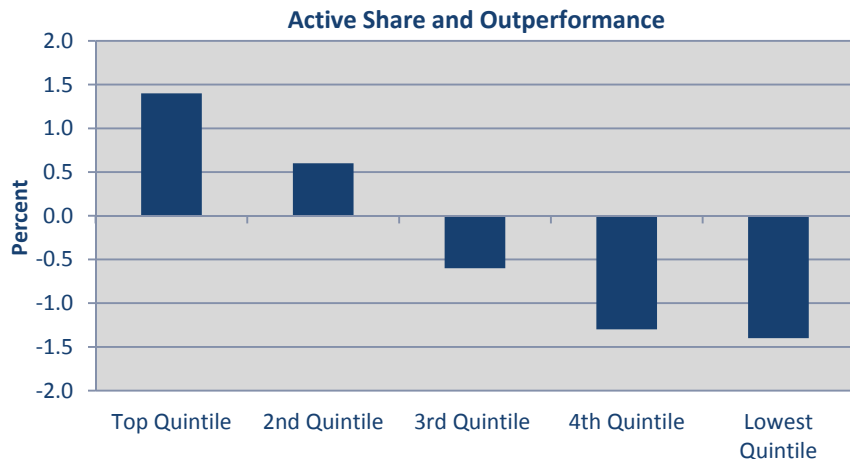


Source: eVestment Alliance

EXCESS RETURNS ARE CORRELATED WITH HOW MUCH PORTFOLIOS DEVIATE FROM THEIR BENCHMARK

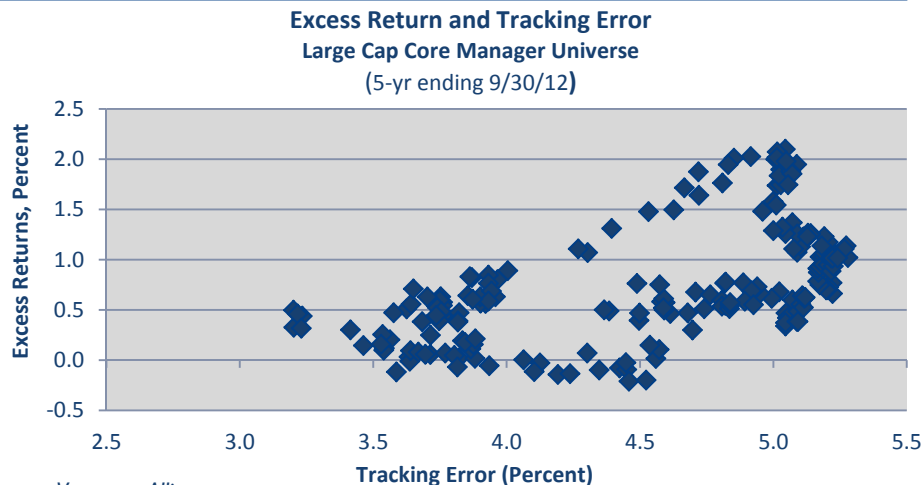
- “Active share,” or the difference between a portfolio’s holdings and its benchmark’s holdings, has been shown to be positively correlated to manager outperformance.
- “Tracking error” (the standard deviation of excess returns) is a proxy for “active share.” The more a portfolio deviates from its benchmark, the larger tracking error is likely to be.
- A review of equity managers reveals that regardless of their style, capitalization or geographic focus, excess returns vary positively with tracking error.
- High active share or tracking error is not a guarantee of outperformance:
 - The market may not reward the bets managers take;
 - Managers may lack skill, i.e., they are bad stock pickers.
- Investors considering active management must accept that the desire to earn greater excess returns comes at a cost of higher performance volatility.

Research shows that managers in the top quintile of active share (corrected for survivorship bias) outperformed their benchmarks by 1.4% after fees.



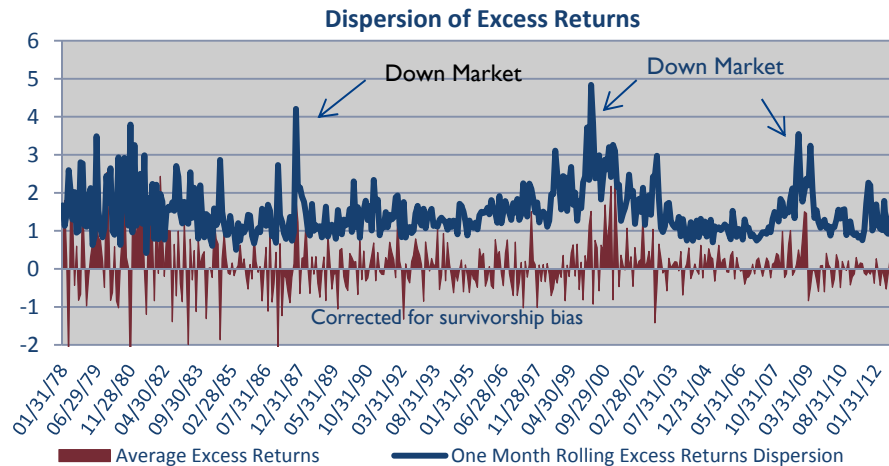
Source: Cremers and Petajisto, 2007

While not a perfect proxy for “active share,” excess returns do appear to vary positively with tracking error.



Source: eVestment Alliance

During down markets (1987, 2001 and 2008), dispersion of excess returns across managers appears to increase.

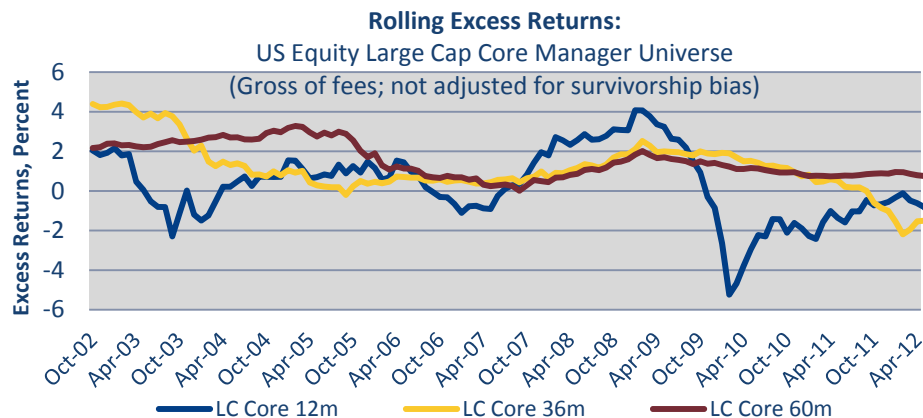


Source: eVestment Alliance

MANAGERS' ABILITY TO GENERATE EXCESS RETURNS SHOULD BE EVALUATED OVER A FULL MARKET CYCLE

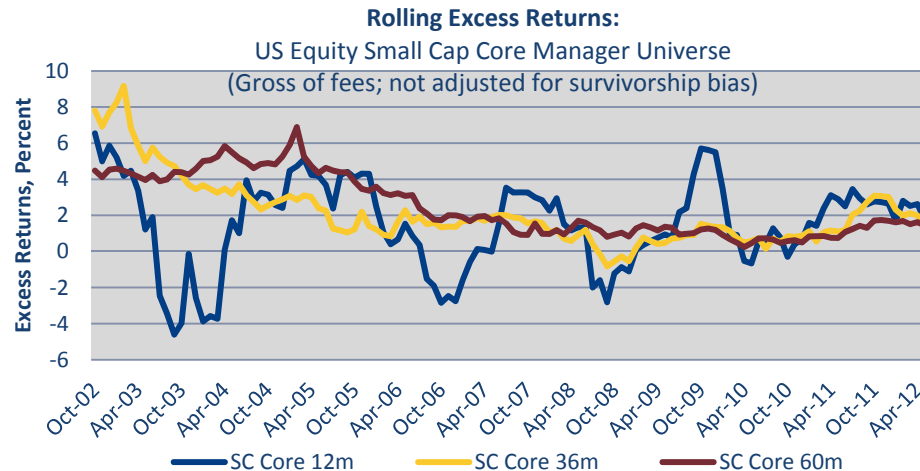
- For managers to outperform their benchmarks, markets must reward the mispricings and risks that active managers take in their portfolios.
- Over shorter periods of time, markets may not reward security selection or particular risk exposures, meaning excess returns can be volatile.
- Investors in active managers need to recognize the short-term fickleness of markets and remain patient as managers wait for mispricings to be arbitrated away and risk exposures compensated.
- Regardless of the asset class, excess returns are more stable when evaluated over a longer time horizon (60-months) that more closely reflects a full market cycle rather than shorter time horizons (12-months).
- The implication here is that managers skill should only be evaluated over a full market cycle.

Excess returns for the universe of large cap core managers have been negative for the last several years. One explanation for this is that stock price correlations have been high and stock price dispersion low during this period.



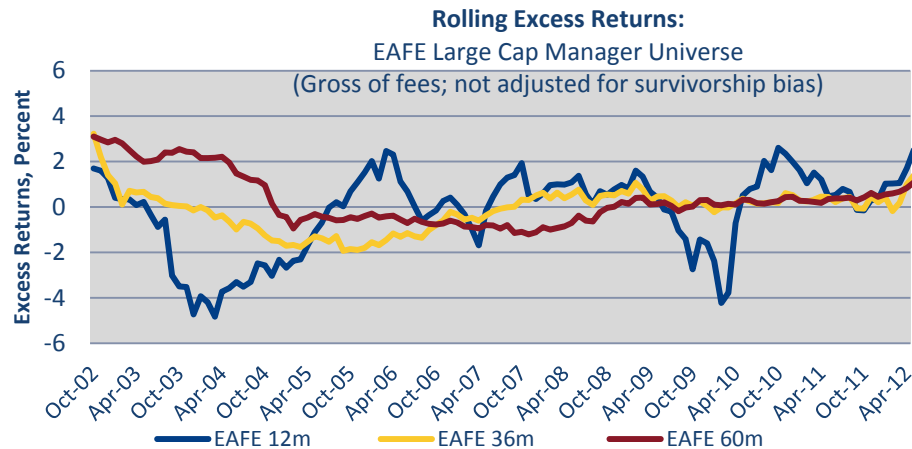
Source: eVestment Alliance

Small cap manager excess returns are more stable over longer time horizons, but do appear to be declining over time.



Source: eVestment Alliance

Excess returns for EAFE managers have been rising over the last 18 months. During this period, dispersion in country returns has been high.

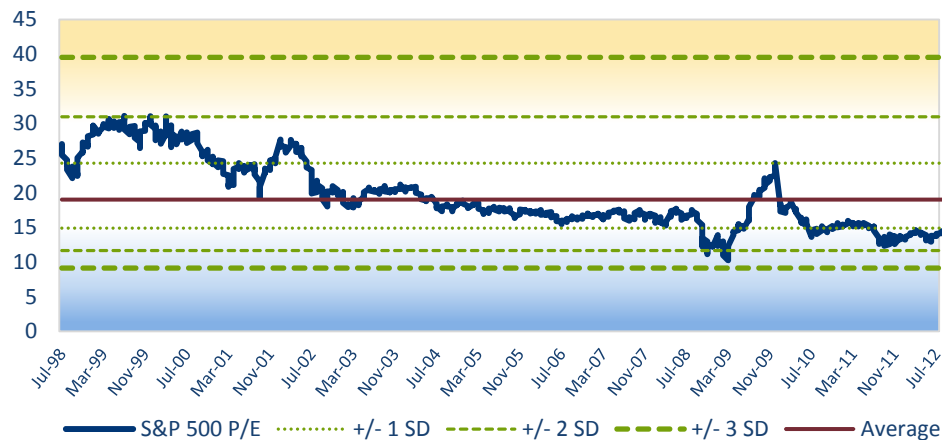


Source: eVestment Alliance

VALUATIONS ARE HELPFUL IN UNDERSTANDING RISK EXPOSURES

- The successful use of active management requires an understanding of the risk exposures in managers' portfolios and whether or not these exposures are mispriced.
- By understanding when assets are over- or underpriced, investors can understand the risks they face in considering a particular active manager, as well as how patient to be with periods of manager underperformance.
- Valuations appear to be a factor that captures managers' ability to earn excess returns. A review of US and global equities reveals that subsequent excess returns vary directly with misvaluations.
- When markets are fairly valued, there are fewer opportunities for managers to identify mispriced securities. Thus, managers who recognize mispricings have the opportunity to capture excess returns.

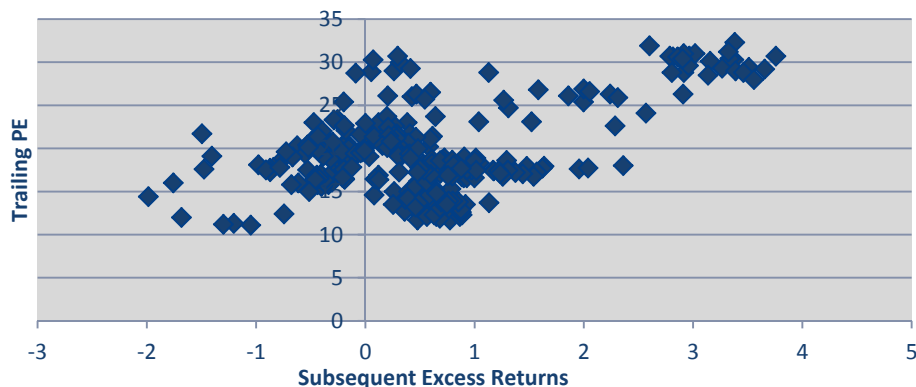
US equity markets are cheap, but few managers have generated excess returns. One explanation is that opportunities to capture mispricings have been limited by continuing high equity price correlations.



Sources: Bloomberg, Wurts

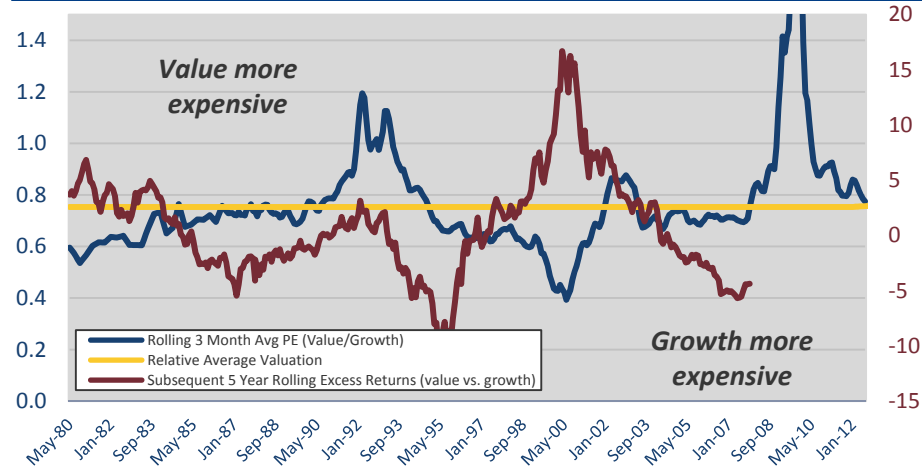
At valuations close to historical fair value, US large cap equity managers have less opportunity to capture alpha.

Valuation and Excess Returns
US Equity Large Cap Core Manager Universe



Source: eVestment Alliance

In the last year, few value managers have outperformed. One explanation for this is that value stocks are fairly valued relative to growth stocks.



Source: Russell, Wurts & Associates

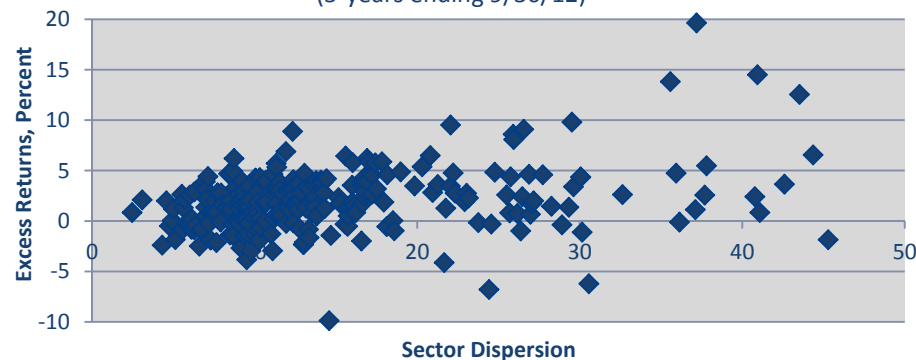
YOU CAN'T GENERATE EXCESS RETURNS IF ASSET PRICES ALL BEHAVE THE SAME WAY

- To add value, managers' portfolios must look different than that of their benchmarks, and the market must reward those bets.
- One way for active managers to add value is to take sector bets if returns vary across sectors. The evidence supports this idea as, historically:
 - Excess returns are positively correlated with dispersion in sector returns, a relationship shown in Wurts & Associates' *2011 Active Management Environment*;
 - The bigger managers' sector bets, the larger the excess returns tend to be.
- More recently, the positive relationship between the size of managers' sector bets and their outperformance has been weak.
- One explanation for the falling dispersion in returns across sectors is that stock-price correlations have risen in response to macro risks.
- As stock-price correlations have risen, the market has "narrowed," i.e., the return difference between the best and worst performing stocks has been smaller than that of its historical average.
- During the "risk-on," "risk-off" market that has led to rising stock-price correlations and narrowing stock price dispersion, large cap stocks tended to outperform. When large cap stocks outperform, "market breadth," i.e., the percent of stocks outperforming the cap-weighted benchmark, tends to fall.
- As market breadth falls, it becomes harder to identify outperforming assets. In 2012, when large cap stocks were outperforming, barely 40% of S&P 500 stocks outperformed.

Recently, taking larger sector bets in US large cap equities has generated limited outperformance. One explanation for this is that dispersion in sector returns fell as stock price correlations rose.

Excess Returns and Sector Dispersion within a Portfolio

US Large Cap Equity Manager Universe
(5-years ending 9/30/12)

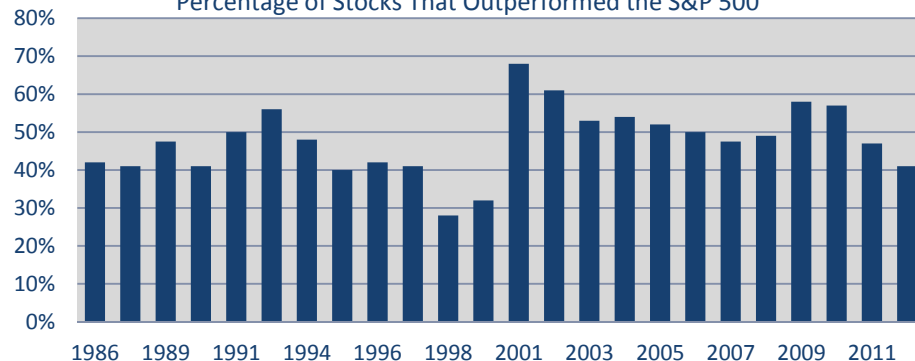


Source: eVestment Alliance

When less than half of large cap stocks outperform, there is less opportunity for managers to earn excess returns.

Market Breadth

Percentage of Stocks That Outperformed the S&P 500

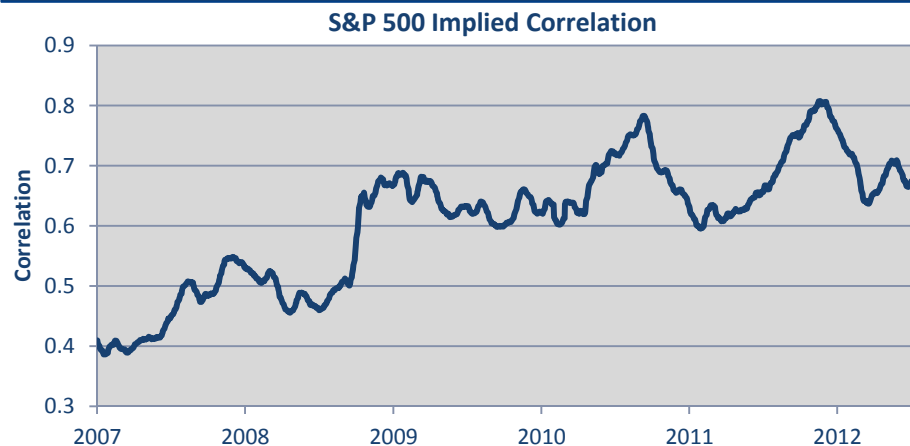


Source: BOA/ML

MARKET VOLATILITY DOES NOT ALWAYS CREATE OPPORTUNITIES TO EARN EXCESS RETURNS

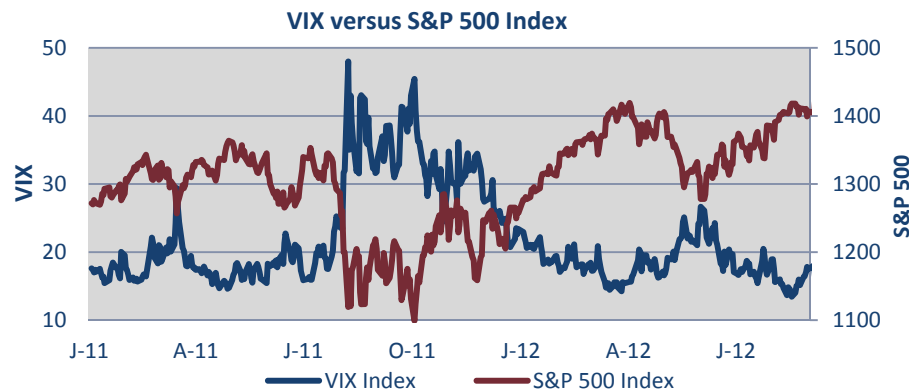
- Market volatility is thought to provide a tailwind for active managers because security prices can move away from their intrinsic values. The long-term positive relationship between volatility and excess returns was demonstrated previously in Wurts & Associates' *2011 Active Management Review*.
- Markets have been volatile, but few managers have been successful at capturing excess returns. One explanation is that volatility has been associated with macro-risks and "risk-on", "risk-off" markets.
- Volatility has increased as macro risks rise, but rather than create individual asset mispricings, security prices have moved together. All stocks, good and bad, have fallen when perceived risks increased ("risk-off") and rallied during "risk-on" markets.
- When stock prices move together due to the market's focus on risks, as opposed to fundamentals and valuations, stock-price correlations rise.
- As previously discussed, stock-price correlations have increased for several years, a period during which the market has narrowed, i.e., the return difference between the best and worst performing stocks is smaller than its historical average. This has undoubtedly created a headwind for active management.

Stock-price correlations have come down, but remain elevated relative to their history. As macro risks recede and stock price correlation falls, the environment for active security selection should improve.



Sources: Bloomberg, Wurts

Market volatility has fallen as macro risks recede. Correspondingly, equity prices have rallied. But as long as markets continue to be driven by macro -risk, stock price correlation will remain elevated - a challenge for active managers.



Sources: Bloomberg, Wurts

US EQUITY MARKET ENVIRONMENT: LOW-GROWTH & LOW RATES ALTERS RELATIVE ATTRACTIVENESS OF ASSETS

- One theme running throughout this review is that we are unable to predict when markets will reward particular mispricings and risk exposures. As a result, we cannot predict whether active managers are more or less likely to outperform in the future.
- But what we can do is evaluate the current economic and market environments and assess the level of risk associated with specific portfolio exposures and then gauge whether or not they are mispriced.
- By understanding when assets are over- or underpriced, investors can understand the risks they face in considering a particular active manager and how patient to be during periods of under-performance.
- In a global economy characterized by low growth and low interest rates, investors are encouraged to seek yield, thus altering the relative attractiveness of assets as compared to their fundamentals. This makes it challenging for managers to outperform, when their portfolio construction decisions are driven by fundamentals.
- As macro risks recede, the spreads between top and bottom quartile characteristics are likely to widen to historical levels which can create an environment for skilled managers to add value.
- The million dollar question is, what factors is the market likely to reward in the year ahead, and what type of active strategies does that favor?

In a low growth, low interest rate environment, the market rewarded stocks that demonstrated the highest dividend growth while ignoring stocks with high foreign earnings exposure.

Factor Performance	YTD (12/31/12)	Factor Performance	YTD
Div Growth	25.40%	Earnings Yield	15.60%
Price Momentum (1-yr)	29.00%	Positive Earnings Surprise	13.60%
Low P/B	29.40%	ROA	13.20%
High Beta	21.70%	High EPS Variability	12.30%
Price Momentum (3m)	20.80%	Low EV/EBITDA	11.40%
EPS Momentum	21.20%	Div Yield	11.20%
High LT EPS Growth	19.80%	ROE	11.10%
DDM Valuation	16.30%	Foreign Exposure	5.80%

Source: BoA, Merrill Lynch, Russell Investment Group

Markets provided similar returns to stocks with different characteristics. As an example, high and low P/E stocks generated similar returns. One explanation for performance not behaving as expected is the persistence of high-stock price correlation.

Returns by Factor Quintile: US Large Cap Core (Russell 1000)

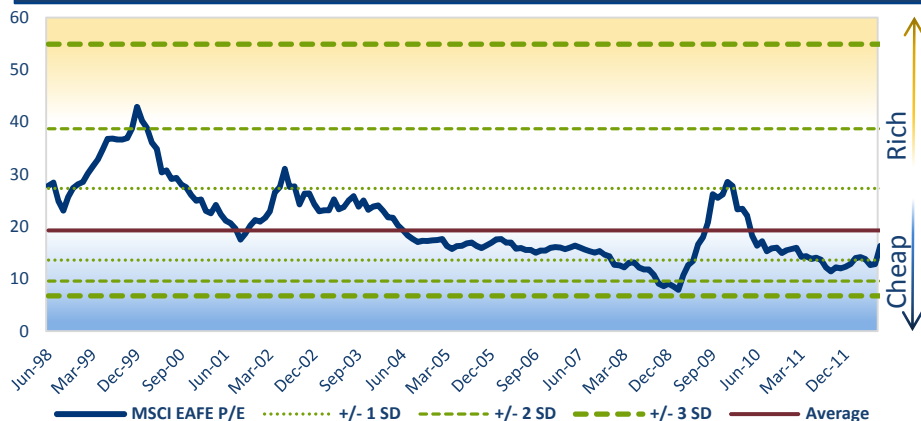
Performance (YTD, 12/31/2012)	Market Cap	P/E	ROE	LTG	Beta
Q1 (qnt., high)	15.7%	18.7%	16.4%	18.20%	25.9%
Q2	17.3%	10.1%	16.1%	21.20%	18.5%
Q3	17.7%	16.3%	14.7%	20.30%	16.7%
Q4	19.2%	20.4%	19.1%	13.40%	16.4%
Q5 (low)	21.2%	16.9%	22.2%	10.60%	11.8%

Source: BoA, Merrill Lynch, Russell Investment Group

DISPERSION IN RETURNS ACROSS COUNTRIES CREATES OPPORTUNITIES FOR NON-US EQUITY MANAGERS

- Non-US equity markets, particularly in emerging markets, are believed to be less efficient than that of US equity markets. The take-away here: active managers start with a tailwind for outperformance.
- Add to this the fact that growth rates and market returns by country can vary significantly, and active managers willing to take country bets start with another advantage in their efforts to outperform.
- So, is the current environment favorable to active management? Yes and no. Global equities are cheap which creates opportunities, but until growth accelerates, markets may fail to reward these mispriced securities.
- Nations are at different points in their economic recoveries and business cycles though, which suggests there are opportunities to add value through country selection.

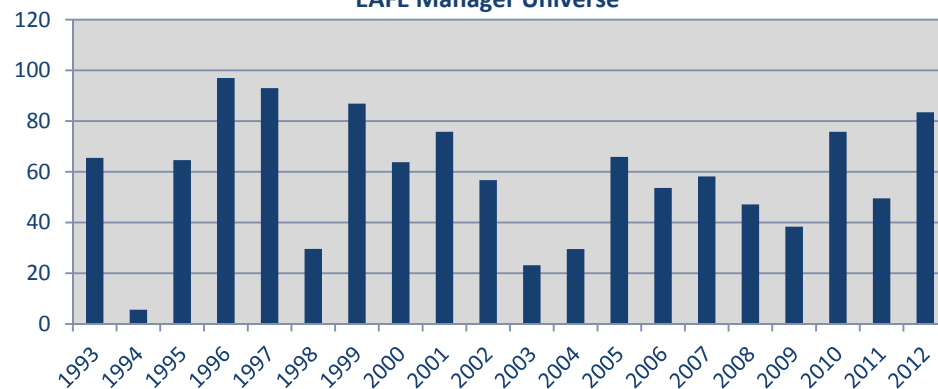
PE ratios are slightly cheap, but given the recession in Europe and slowing growth in the emerging markets, markets may not immediately reward any mispriced securities.



Sources: Bloomberg, Wurts

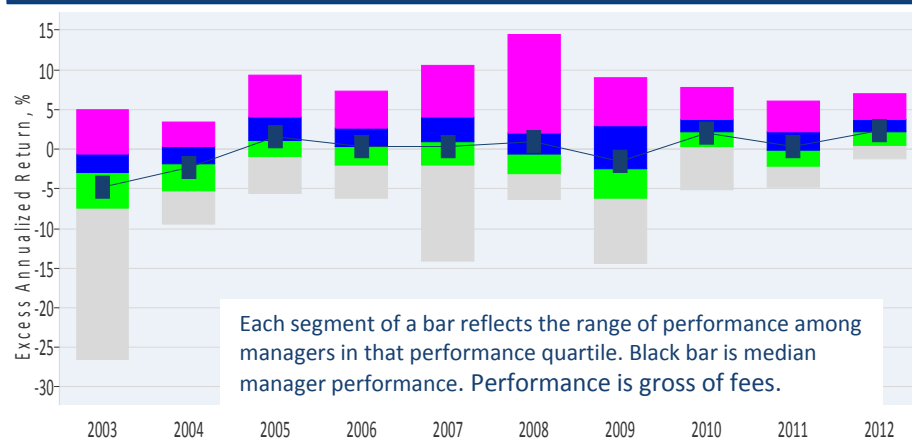
The majority of EAFE managers beat their benchmark over the last three years. Dispersion in returns across countries has been wide, a reflection of where each nation is in its business cycle.

Percent of Managers Beating Their Benchmark
EAFE Manager Universe



Source: eVestment Alliance

The median EAFE manager may or may not produce outperformance from year to year, but the range of performance between the top and bottom performing managers makes it clear manager selection matters.



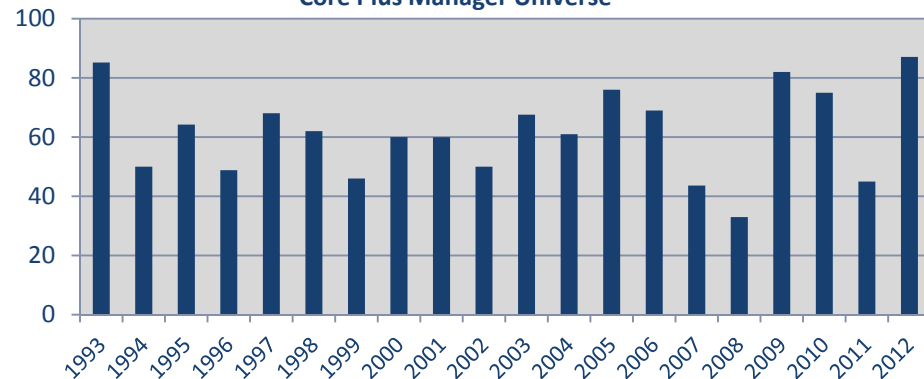
Source: eVestment Alliance

LOW-RATE ENVIRONMENT CREATES OPPORTUNITIES TO ADD VALUE THROUGH DURATION AND SECTOR BETS

- Like non-US equities, active core plus managers start with a tailwind in their efforts to add value. The benchmark's heavy allocation to high quality government securities provides for the ability to add value through sector and duration bets.
- The expectation that Central Banks will keep interest rates low for some time creates an opportunity for managers to add value through sector selection by acquiring higher yielding investment grade and high yield bonds, in spite of the fact that absolute rates and spreads are low.
- Though absolute rates are low, differences in where industries and nations are in their business cycle means there may be opportunities to add value through sector and country selection.
- The ultra-low rate environment and the market's search for yield has led to a situation where bonds are viewed as overvalued, thus creating an opportunity for managers to add value in security selection.

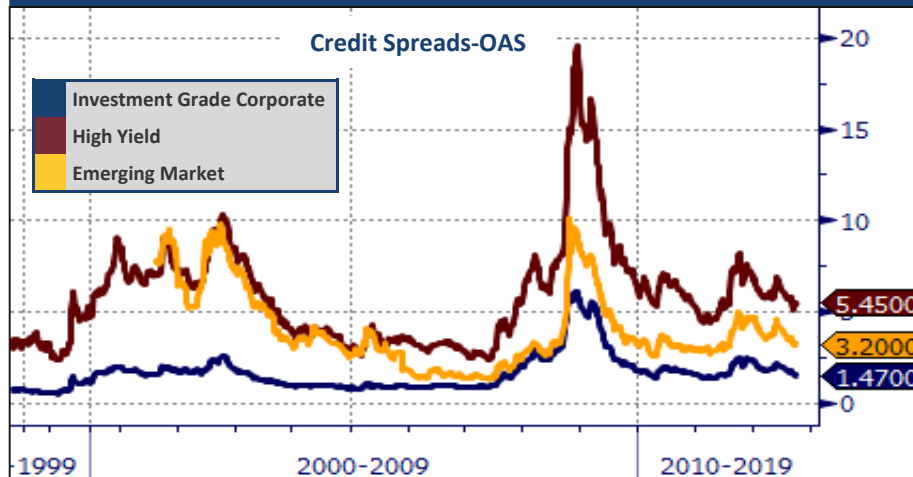
Given the benchmark's preponderance of government securities, core plus managers as a group have had an easy time beating their benchmark by taking sector and duration bets.

**Percent of Managers Beating Their Benchmark
Core Plus Manager Universe**



Source: eVestment Alliance

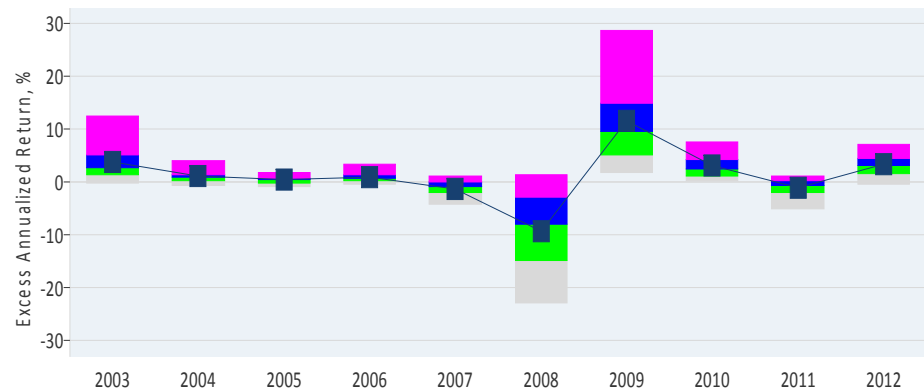
Yields are near all time lows and spreads are near historical levels, limiting tail winds to earn excess returns for "average" managers.



Sources: Bloomberg, Wurts

It has been feast or famine for core plus managers over the last several years. In 2008 and 2011 nearly every manager underperformed, while in 2009, nearly every manager outperformed.

Core Plus Annual Excess Returns by Quartile



Source: eVestment Alliance

SUMMARY

	US Large Cap	US Small Core	Non-US Core	US Core Plus Fixed
Valuation	PE ratios are slightly cheap relative to their history, but there is likely limited upside in the next year given slowing GDP and corporate earnings growth; a neutral indicator	PE ratios are slightly cheap relative to their history and have come down relative to US large cap stocks, but there is limited upside given weakening earnings growth	PE ratios are slightly cheap relative to their history, but there is likely limited upside in the next year given recession in Europe and slowing growth in the emerging markets.	Credit spreads are at fair levels relative to their history, creating opportunity for managers to identify over and under-valued assets
Volatility	Volatility has been low as macro-uncertainties recede, but correlations have been falling too, which is a net plus for alpha	Volatility has been low as macro-uncertainties recede, but correlations have been falling too, which is a net plus for alpha	Volatility continues to be high over macro-economic uncertainties, a positive for alpha generation	Rate volatility is near average levels and will likely remain that way given expansionary monetary policy
Sector Dispersion	Sector dispersion continues to remain low relative to history, but is improving as stock correlations recede along with macro-uncertainties	Sector dispersion remains low, but is widening as stock correlations recede	Country and sector dispersion is likely to remain high in response to differential macro-economic risk and growth across the globe, a plus for generating excess returns	Sector dispersion is relatively low but could widen as cyclical sectors struggle in a period of slowing growth
Cyclical/Special Considerations	Alpha opportunities are aided by declining stock price correlation and marginally attractive valuations, but but are hampered by slowing earnings growth and an ultra low interest rate environment which distorts traditional valuation metrics	Alpha opportunities are aided by declining stock price correlation and marginally attractive valuations, but but are hampered by slowing earnings growth and an ultra low interest rate environment which distorts traditional valuation metrics	Differences in where nations are in their business cycle creates opportunities to add value through country selection	Excess return opportunities are aided by a benchmark that is relatively easy to beat given government related securities dominate the index
Active Management Strategic Outlook	Neutral (Improving)	Neutral (Improving)	Positive	Neutral

Endnotes

1. The theoretical case against active management often starts and finishes with William Sharpe's persuasive article "The Arithmetic of Active Management." It asserts that: 1) "before costs, the return on the average actively managed dollar will equal the return on the average passively managed dollar;" and 2) "after costs, the return on the average actively managed dollar will be less than the return on the average passively managed dollar." It affirms that these conclusions will hold for any time period as "they depend only on the laws of addition, subtraction, multiplication and division. Nothing else is required."

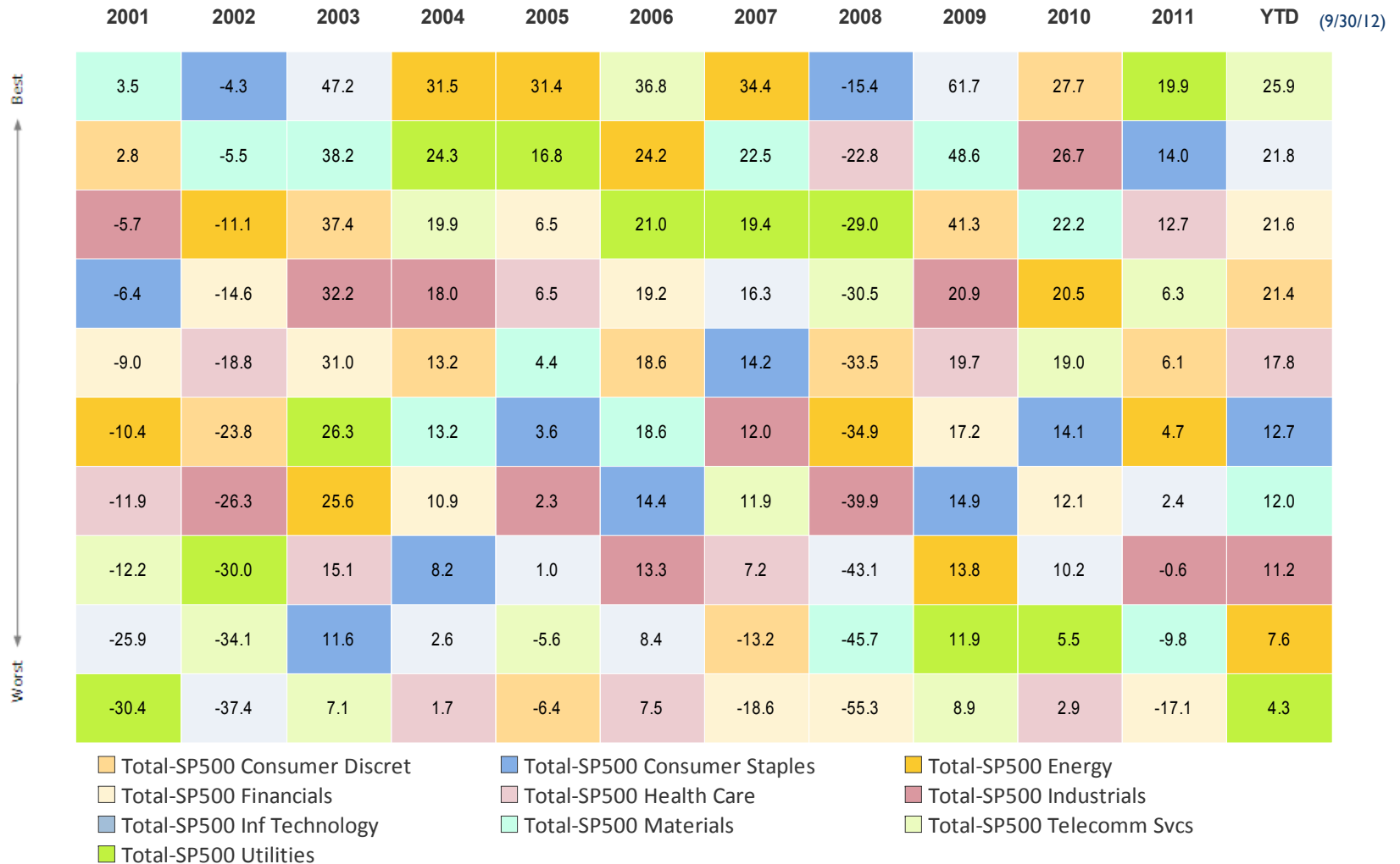
But before closing the book on the debate, let's recall that in that same article, Sharpe suggested it was possible for some active managers to beat their benchmark and that investors could identify a portfolio of active managers that could outperform: "It is perfectly possible for some active managers to beat their passive brethren even after costs...it is also possible for an investor to choose a set of active managers that, collectively, provides a total return better than that of the a passive alternative, even after costs. Not all the managers in the set have to beat their passive counterparts; only those managing a majority of the investor's actively managed funds."

2. The recent struggles of active managers can also be attributed to the implications of the prolonged, low-interest rate, low-growth environment on what constitutes "value." Low interest rates influence the attractiveness of assets in a number of ways that impact the prices investors are willing to pay for assets. As an example, low rates can make companies with consistent earnings growth and dividend payouts more attractive, driving their price-to-earnings multiples up relative to what investors have historically paid. Companies characterized by consistent earnings growth tend to be larger capitalization companies; and recently meg-cap stocks have outperformed smaller cap stocks. Low interest rates also increase the attractiveness of companies with leveraged balance sheets; these companies have also tended to outperform. A low growth environment also raises the risk of recession; this not only makes investors hesitant to own cyclical stocks, hurting their values, but also the risk of market volatility. The specific take-away is that today's low-growth, ultra-low interest rate environment may make it difficult for managers to outperform because it will likely continue to effect asset prices in a manner which stands in contrast to managers' traditional decision-making.

3. There is some evidence to support this explanation. Stock-price correlations have been very high and stock-price dispersion low for most of the year, meaning that high quality, cheap companies and highly indebted companies with weak fundamentals can generate similar performance. Traditional risks factors like value and size have not "worked", i.e., more expensive stocks have outperformed cheaper ones, larger cap companies have outperformed smaller cap companies, and companies with weak earnings have outperformed companies with strong balance sheets. Managers whose active bets are determined by company fundamentals find themselves overweight factors the market is not rewarding and underperforming. It can be seen in the recent narrowness of "market breadth", i.e., a smaller percentage of companies in an index are outperforming than is historically the case. Managers whose active bets are determined by company fundamentals find themselves overweight factors the market is not rewarding and underperforming.

APPENDIX

S & P 500 SECTOR RETURNS



FIXED INCOME SECTOR RETURNS

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	YTD
Best	9.5	16.6	29.0	11.8	11.9	11.8	11.6	13.7	58.2	20.8	22.5	8.5
	8.5	16.5	28.8	11.1	5.7	10.5	9.5	13.7	44.9	15.1	13.6	NA
	8.4	15.4	12.5	9.3	5.3	7.3	9.0	10.2	28.1	11.8	9.8	NA
	7.9	14.8	11.0	8.6	2.9	6.6	9.0	8.4	25.9	10.2	9.8	NA
	7.7	14.2	8.4	8.5	2.8	5.4	7.7	4.8	17.0	10.0	9.2	NA
	7.3	11.8	8.0	5.6	2.8	4.9	6.9	4.8	11.4	9.6	7.7	NA
	6.7	11.8	5.9	5.5	2.8	4.3	6.6	-2.4	6.9	6.3	6.9	NA
	6.7	10.1	4.7	4.3	2.7	4.2	6.5	-4.0	5.1	5.9	6.5	NA
	5.3	8.9	2.7	4.1	2.6	3.1	5.7	-9.7	2.0	5.9	5.6	NA
	2.6	6.4	2.2	3.5	1.9	3.1	4.6	-22.7	1.9	5.5	5.0	NA
	1.6	1.1	2.2	3.5	1.8	2.7	1.9	-26.2	-3.6	5.4	1.8	NA
Worst	-0.8	-1.4	2.1	1.5	-4.5	0.4	1.9	-28.8	-3.6	4.0	1.7	NA

Barclays Aggregate Bond Treasury TR
Barclays Treasury TR USD
Barclays US Treasury US TIPS TR USD
Barclays Global Aggregate TR USD
JPM EMBI Plus TR USD
Barclays US Govt/Mortgage TR USD
Barclays CMBS IG TR USD
BofAML US Domestic Master 1-3Y TR USD
Barclays US Govt/Credit Long TR USD
Barclays US Corporate High Yield TR USD
Credit Suisse Leveraged Loan USD
eA Core Plus Fixed Income Average

The Cost of Market Timing Managers (hiring/firing) for Plan Sponsors

	Number of Years Before Firing			Number of Years After Firing		
	-3 to 0	-2 to 0	-1 to 0	0 to 1	0 to 2	0 to 3
Fired Firms	2.0	-1.6	-0.1	1.8	3.1	4.3
Hired Firms	11.6	7.6	4.5	1.3	2.3	3.2
Return Differential (Hired - Fired)	9.5	9.1	4.6	-0.5	-0.9	-1.0

Even institutional investors are guilty of failed market timing activities. More specifically, research indicates plan sponsors tend to chase performance, firing poor performing and hiring top performing managers. Overall this practice has cost plan sponsors money.

Source: *The Selection and Termination of Investment Management Firms by Plan Sponsors*: Amit Goyal & Sunil Wahal

SAMPLE PERFORMANCE REVIEW



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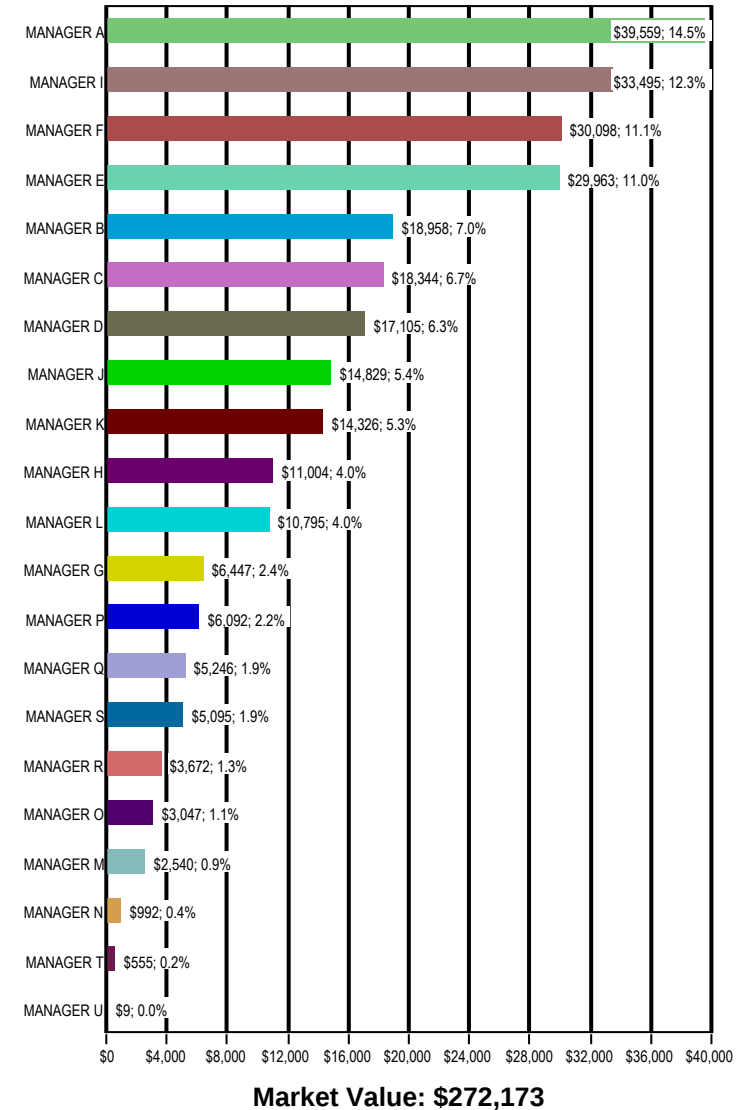
SAMPLE CLIENT

EXECUTIVE SUMMARY

Period Ending: June 30, 2011

	Quarter		YTD		One Yr		Three Yrs		Five Yrs		Ten Yrs	
	Rtn	Rnk	Rtn	Rnk	Rtn	Rnk	Rtn	Rnk	Rtn	Rnk	Rtn	Rnk
Total												
Total Fund												
TOTAL FUND (G)	1.1	50	5.3	27	22.2	24	5.1	37	5.4	32	5.9	33
Policy Index												
POLICY INDEX	1.0	57	4.7	51	21.0	35	3.5	69	4.7	56	6.0	30
Domestic Equity												
Domestic Equity												
TOTAL U.S. EQUITY (G)	0.0	45	6.7	42	32.6	49	4.3	48	3.1	57	3.8	53
S & P 500 INDEX	0.1	43	6.0	50	30.7	62	3.3	58	2.9	59	2.7	69
International Equity												
International Equity												
TOTAL INT'L EQUITY (G)	1.0	62	5.0	42	30.7	57	-3.0	70	-0.1	80	6.0	47
MSCI ACWI ex U.S. GROSS	0.6	74	4.1	59	30.3	62	0.1	28	4.1	21	7.9	22
Domestic Fixed Income												
Domestic Fixed Income												
TOTAL U.S. FIXED (G)	2.1	41	3.9	18	6.8	15	11.2	2	9.6	1	4.3	84
BC AGGREGATE INDEX	2.3	24	2.7	48	3.9	60	6.5	44	6.5	30	5.7	20
Real Estate												
Real Estate												
TOTAL REAL ESTATE (G)	3.6	46	7.9	45	24.2	31	-11.0	58	-2.0	59		
NFI-ODCE INDEX	4.6	31	8.8	37	20.5	43	-7.7	46	0.0	45		
Alternative Investment												
Alternative Investment												
TOTAL ALTERNATIVES (G)	-0.7	31	1.4	16	15.3	11	5.4	2	6.4	5		
HFRI FOF COMPOSITE INDEX	-1.2	40	-0.3	30	6.7	44	-1.8	46	1.5	39		

Asset Allocation by Account - (000's)



SAMPLE CLIENT

INVESTMENT MANAGER PERFORMANCE

Period Ending: June 30, 2011

		Performance For Periods Ending 6/30/2011 (Returns for periods greater than one year are annualized)								Calendar Year Returns				
	Market Value (000's) / (%)	Quarter	YTD	One Yr	Three Yrs	Five Yrs	Ten Yrs	Since Inception	Inception Date	2010	2009	2008	2007	2006
Total Manager														
TOTAL FUND (G)	\$272,173	1.1%	5.3%	22.2%	5.1%	5.4%	5.9%	8.0%	12/31/1991	14.2%	22.9%	-25.5%	8.1%	14.9%
Investment Style:Total														
Benchmark: Policy Index		1.0%	4.7%	21.0%	3.5%	4.7%	6.0%			12.7%	20.4%	-26.4%	9.3%	14.7%
Ranking -Total Funds Univ.		50th	27th	24th	37th	32nd	33rd			21st	30th	61st	47th	18th
Domestic Equity Manager														
MANAGER A (N)	\$39,559 (14.5%)	0.1%	6.0%	30.7%	3.4%	3.0%	2.7%	3.2%	3/31/2001	15.0%	26.6%	-37.0%	5.5%	15.8%
Investment Style:Large Cap														
Benchmark: S & P 500 INDEX		0.1%	6.0%	30.7%	3.3%	2.9%	2.7%	3.2%		15.1%	26.4%	-37.0%	5.5%	15.8%
Ranking -Equity Style - Large Cap (mf) Univ.		44th	37th	45th	41st	50th	55th			42nd	61st	38th	59th	39th
MANAGER B (G)	\$18,958 (7.0%)	-0.7%	4.7%	30.5%	0.0%	2.3%		12.4%	11/10/2009	13.2%	38.8%	-48.5%	23.2%	9.6%
Investment Style:Large Cap Growth														
Benchmark: RUSSELL 1000 GROWTH INDEX		0.8%	6.8%	35.0%	5.0%	5.3%		20.5%		16.7%	37.2%	-38.4%	11.8%	9.1%
Ranking -Equity Style - Large Growth Univ.		75th	75th	82nd	88th	92nd				76th	30th	94th	8th	24th
MANAGER C (N)	\$18,344 (6.7%)	0.3%	6.3%	31.0%	2.2%	0.1%		7.4%	12/31/2002	13.5%	31.3%	-43.3%	0.1%	18.5%
Investment Style:Large Cap Value														
Benchmark: RUSSELL 1000 VALUE INDEX		-0.5%	5.9%	28.9%	2.3%	1.2%		7.4%		15.5%	19.7%	-36.9%	-0.2%	22.2%
Ranking -Equity Style - Large Value (mf) Univ.		37th	41st	26th	52nd	76th				47th	19th	81st	56th	48th
MANAGER D (G)	\$17,105 (6.3%)	0.3%	10.7%	41.9%	7.4%	5.5%		12.9%	3/31/2003	27.1%	16.2%	-27.5%	-0.2%	25.4%
Investment Style:Small Cap Core														
Benchmark: RUSSELL 2000 INDEX		-1.6%	6.2%	37.4%	7.8%	4.1%		11.9%		26.9%	27.2%	-33.8%	-1.6%	18.4%
Ranking -Equity Style - Small Core Univ.		15th	5th	19th	76th	54th				47th	98th	22nd	53rd	4th
International Equity Manager														
MANAGER E (N)	\$29,963 (11.0%)	1.1%	4.7%	29.4%	2.0%	5.4%		17.5%	6/15/2009	9.7%	39.6%	-40.4%	19.2%	22.2%
Investment Style:International Equity														
Benchmark: MSCI ACWI ex U.S. GROSS		0.6%	4.1%	30.3%	0.1%	4.1%		18.7%		11.6%	42.1%	-45.2%	17.1%	27.2%
Ranking -Int'l Equity (mf) Univ.		60th	48th	70th	16th	11th				54th	22nd	19th	15th	78th

SAMPLE CLIENT

INVESTMENT MANAGER PERFORMANCE

Period Ending: June 30, 2011

	Market Value (000's) / (%)	Performance For Periods Ending 6/30/2011 (Returns for periods greater than one year are annualized)								Calendar Year Returns				
		Quarter	YTD	One Yr	Three Yrs	Five Yrs	Ten Yrs	Since Inception	Inception Date	2010	2009	2008	2007	2006
MANAGER F (N)	\$30,098 (11.1%)	0.8%	5.0%	29.9%	2.2%	6.7%		20.0%	6/30/2009	14.1%	32.9%	-41.3%	29.1%	27.2%
Investment Style:International Equity														
Benchmark: MSCI EAFE INDEX		1.8%	5.3%	30.9%	-1.3%	2.0%		18.0%		8.2%	32.5%	-43.1%	11.6%	26.9%
Ranking -Int'l Developed Market Equity Univ.		70th	50th	55th	28th	16th				30th	52nd	45th	1st	42nd
MANAGER G (N)	\$6,447 (2.4%)	1.1%	0.8%					6.1%	2/28/2011					
Investment Style:Emerging Markets Equity														
Benchmark: MSCI EMER MKTS INDEX		-1.0%	1.0%					4.8%						
Ranking -Emerging Markets Equity (mf) Univ.		3rd	29th											
Domestic Fixed Income Manager														
MANAGER H (N)	\$11,004 (4.0%)	1.9%	3.0%	5.9%	9.5%	8.9%		7.1%	1/31/2010	8.8%	13.8%	4.8%	9.1%	4.0%
Investment Style:Domestic Fixed Income														
Benchmark: BC AGGREGATE INDEX		2.3%	2.7%	3.9%	6.5%	6.5%		5.4%		6.5%	5.9%	5.2%	7.0%	4.3%
Ranking -Bond Funds (mf) Univ.		67th	35th	22nd	5th	1st				16th	38th	22nd	3rd	50th
MANAGER I (G)	\$33,495 (12.3%)	2.1%	3.0%	5.2%	9.7%	8.8%	6.7%	6.9%	3/31/1999	8.5%	27.7%	-6.2%	8.0%	4.9%
Investment Style:Domestic Fixed Income														
Benchmark: BC AGGREGATE INDEX		2.3%	2.7%	3.9%	6.5%	6.5%	5.7%	5.9%		6.5%	5.9%	5.2%	7.0%	4.3%
Ranking -Bond Style - Core Univ.		58th	43rd	45th	11th	7th	25th			24th	2nd	82nd	21st	30th
MANAGER J (N)	\$14,829 (5.4%)	0.7%	4.6%	15.6%				25.0%	4/15/2009	14.7%				
Investment Style:High Yield														
Benchmark: BC CORP HIGH YIELD INDEX		1.1%	5.0%	15.6%				30.0%		15.1%				
Ranking -Bond Style - High Yield (mf) Univ.		49th	25th	20th						22nd				
MANAGER K (G)	\$14,326 (5.3%)	3.6%	5.8%	7.7%				9.2%	5/1/2009	6.3%				
Investment Style:Real Return														
Benchmark: BC US TIPS INDEX		3.7%	5.8%	7.7%				9.2%		6.3%				
Ranking -Bond Style - U.S. TIPS (mf) Univ.		7th	6th	23rd						32nd				

SAMPLE CLIENT

INVESTMENT MANAGER PERFORMANCE

Period Ending: June 30, 2011

			Performance For Periods Ending 6/30/2011 (Returns for periods greater than one year are annualized)							Calendar Year Returns					
			Quarter	YTD	One Yr	Three Yrs	Five Yrs	Ten Yrs	Since Inception	Inception Date	2010	2009	2008	2007	2006
Real Estate Manager															
MANAGER L (G)	\$10,795	(4.0%)	4.2%	10.7%	26.7%	-11.8%	-2.6%		-0.1%	10/1/2005	19.2%	-38.7%	-12.5%	17.2%	15.0%
Investment Style:Real Estate															
Benchmark: NFI-ODCE INDEX			4.6%	8.8%	20.5%	-7.7%	0.0%		2.2%		16.4%	-29.8%	-10.0%	16.0%	16.3%
Ranking -Real Estate Funds Univ.			37th	24th	25th	61st	63rd				22nd	75th	72nd	31st	54th
MANAGER M (N)	\$2,540	(0.9%)	3.3%	7.0%	21.1%				59.5%	1/15/2010	88.3%				
Investment Style:Private Real Estate															
Benchmark: NFI-ODCE INDEX			4.6%	8.8%	20.5%				17.0%		16.4%				
Ranking -NA Univ.															
MANAGER N (N)	\$992	(0.4%)	4.8%	-1.9%	502.0%				4.1%	5/18/2010					
Investment Style:Private Real Estate															
Benchmark: NFI-ODCE INDEX			4.6%	8.8%	20.5%				21.6%						
Ranking -NA Univ.															
MANAGER O (N)	\$3,047	(1.1%)	2.0%	8.0%	19.6%				-15.3%	6/25/2010					
Investment Style:Private Real Estate															
Benchmark: NFI-ODCE INDEX			4.6%	8.8%	20.5%				23.5%						
Ranking -NA Univ.															
Alternative Investment Manager															
MANAGER P (N)	\$6,092	(2.2%)	1.6%	4.9%	13.5%	7.5%	7.4%		6.5%	6/30/2005	13.7%	23.0%	-15.5%	8.7%	5.3%
Investment Style:Absolute Return															
Benchmark: HFRI FOF COMPOSITE INDEX			-1.2%	-0.3%	6.7%	-1.8%	1.5%		3.0%		5.7%	11.5%	-21.4%	10.3%	10.4%
Ranking -Hedge Fund of Funds Univ.			4th	2nd	15th	1st	3rd				6th	5th	35th	46th	
MANAGER Q (N)	\$5,246	(1.9%)	-0.2%	1.7%	7.5%	2.5%	4.9%		5.9%	6/30/2005	7.3%	15.2%	-15.2%	12.5%	11.6%
Investment Style:Hedge Funds															
Benchmark: HFRI FOF COMPOSITE INDEX			-1.2%	-0.3%	6.7%	-1.8%	1.5%		3.0%		5.7%	11.5%	-21.4%	10.3%	10.4%
Ranking -Hedge Fund of Funds Univ.			23rd	15th	39th	9th	13th				24th	21st	34th	24th	

SAMPLE CLIENT

INVESTMENT MANAGER PERFORMANCE

Period Ending: June 30, 2011

		Performance For Periods Ending 6/30/2011 (Returns for periods greater than one year are annualized)								Calendar Year Returns				
	Market Value (000's) / (%)	Quarter	YTD	One Yr	Three Yrs	Five Yrs	Ten Yrs	Since Inception	Inception Date	2010	2009	2008	2007	2006
MANAGER R (G)	\$3,672 (1.3%)	-0.5%	3.2%	11.0%				10.4%	8/31/2009	14.4%				
Investment Style:Alternative Investment														
Benchmark: HFRI FOF COMPOSITE INDEX		-1.2%	-0.3%	6.7%				4.7%		5.7%				
Ranking -NA Univ.														
MANAGER S (N)	\$5,095 (1.9%)	0.8%	1.7%	2.4%				2.4%	7/14/2010					
Investment Style:Alternative Investment														
Benchmark: HFRI FOF COMPOSITE INDEX		-1.2%	-0.3%	6.7%				6.7%						
Ranking -NA Univ.														
Cash Manager														
MANAGER T (G)	\$555 (0.2%)	0.0%	0.1%	0.2%	0.5%	2.1%	2.0%			0.2%	0.2%	2.3%	5.4%	4.4%
Investment Style:Cash and Equivalents														
Benchmark: 90-DAY T-BILLS		0.0%	0.1%	0.2%	0.4%	2.0%	2.1%			0.1%	0.2%	2.1%	5.0%	4.8%
Ranking -Cash Funds Univ.		45th	50th	47th	66th	64th	79th			47th	76th	60th	25th	77th
MANAGER U (G)	\$9 (0.0%)	0.0%												
Investment Style:Cash and Equivalents														
Benchmark: 90-DAY T-BILLS		0.0%												
Ranking -Cash Funds (mf) Univ.		8th												

Sample Client

Investment Fund Fee Analysis

Period Ending: June 30, 2011

Fund Name	Investment Category	Assets as of 6/30/11	Ticker	Expense Ratio	Estimated Annualized Expense (\$)
Manager A	Large Cap	\$39,558,901	-	0.05%	\$19,779
Manager B	Large Cap Growth	\$18,958,113	-	0.65%	\$123,228
Manager C	Large Cap Value	\$18,344,398	-	0.52%	\$95,391
Manager D	Small Cap Value	\$17,105,401	-	0.84%	\$143,685
Manager E	International Equity	\$29,963,006	-	0.56%	\$167,793
Manager F	International Equity	\$30,098,044	-	0.78%	\$234,765
Manager G	Emerging Markets Equity	\$6,447,349	-	1.14%	\$73,500
Manager K	Fixed Income Real Return	\$14,326,466	-	0.11%	\$15,759
Manager H	Fixed Income Core	\$11,003,878	-	0.46%	\$50,618
Manager I	Fixed Income Core	\$33,494,617	-	0.20%	\$66,989
Manager J	Fixed Income High Yield	\$14,829,047	-	0.50%	\$74,145
Manager L	Real Estate	\$10,794,802	-	1.25%	\$134,935
Manager Q	Hedge Funds	\$5,245,554	-	1.25%	\$65,569
Manager M	Private Real Estate	\$2,540,400	-	First \$75 MM at 0.375% ¹	\$9,527
Manager N	Private Real Estate	\$991,908	-	1.25% ²	\$37,500
Manager O	Private Real Estate	\$3,047,088	-	1.00% ³	\$60,000
Manager P	Alternative Investments	\$6,091,936	-	0.87%	\$53,000
Manager S	Alternative Investments	\$5,095,162	-	1.50% ⁴	\$76,427
Manager R	Alternative Investments	\$3,672,289	-	1.00%	\$36,723
Manager T	Cash and Equivalents	\$555,432	-	-	-
Manager U	Cash and Equivalents	\$8,709	-	-	-
Total		\$272,172,500			\$1,539,333

WEIGHTED AVG.

0.57%

Sample Client Watch List Monitor

Period Ending: June 30, 2010

ACTIVELY MANAGED	ACTIVELY MANAGED Manager B Manager C Manager D Manager E Manager G Manager I Manager J Manager K Manager M Manager N Manager O Manager P Manager Q PRIVATE EQUITY Manager U INDEX FUNDS Manager A Manager F Manager H Manager L															
	Manager B	Manager C	Manager D	Manager E	Manager G	Manager I	Manager J	Manager K	Manager M	Manager N	Manager O	Manager P	Manager Q	PRIVATE EQUITY	Manager U	INDEX FUNDS
Performance Standard #1	✓	Ⓡ	Ⓡ	✓	Ⓡ	✓	✓	✓	Ⓡ	✓	✓	✓	Ⓡ	Ⓡ	✓	
Performance Standard #2	✓	Ⓡ	Ⓡ	✓	Ⓡ	✓	✓	✓	Ⓡ	✓	✓	✓	Ⓡ	✓	✓	
Performance Standard #3	✓	✓	✓	✓	✓	✓	✓	✓	Ⓡ	✓	✓	✓	Ⓡ	✓	✓	
Organizational Standard #4*	✓	✓	✓	✓	✓	✓	✓	✓	Ⓡ	✓	✓	✓	Ⓡ	✓	✓	
INDEX FUNDS																
Performance Standard #1																✓
Organizational Standard #2																✓
Organizational Standard #3																✓

LEGEND
No Issues
Watch
✓ At or Above
Ⓡ Below Standards

Standards: Actively Managed Funds

- 1) Fund underperforms its appropriate market index over two consecutive rolling five-year periods.
- 2) Fund underperforms the median fund in its peer universe over two consecutive five-year periods.
- 3) Fund's risk level, measured by 5-year annualized standard deviation, is greater than 25% above the benchmark's risk level and is not justified by a commensurate level of excess return (measured by a comparison of the Sharpe Ratio).
- 4) Fund experiences non-performance related issues including personnel turnover, changes in investment philosophy, excessive asset growth, change in ownership and any other reason that causes concern.

* See details on page 8, Explanatory Notes.

Standards: Index Funds

- 1) Significant quarterly performance deviation, positive or negative, from index.
- 2) Significant change in replication strategy employed by the Index Fund manager.
- 3) Significant increase in expense ratio of management fees, which would be expected to raise the tracking error of the Index Fund option.

The following excess return levels are expected for actively managed funds:

U.S. Large Cap Equities	50 Basis Points
U.S. Small Cap Equities	150 Basis Points
Non-U.S. Large Cap Equities	100 Basis Points
Non-U.S. Small Cap Equities	200 Basis Points
Emerging Markets Equities	250 Basis Points
Fixed Income	25 Basis Points

Action Steps:

Upon being placed on watch, the Investment Management Consultant will initiate a conference call with the Investment Manager to discuss the reasons behind the "on watch" status. During the duration of the watch status, the Investment Management Consultant will have regular communications with the Investment Manager to monitor progress. If the Investment Product's trailing performance does not return to acceptable performance levels within an acceptable period given market conditions, it would be considered for termination as soon as is beneficial for the Plan. In addition, an Investment Product may stay "on watch" for a number of quarters if no breakdowns in process are perceived and performance is primarily attributable to severe market conditions. Two consecutive quarters of performance in compliance with the expectations of this Investment Policy Statement are generally required for removal of the "on watch" status.

SAMPLE CLIENT

PORTFOLIO RECONCILIATION

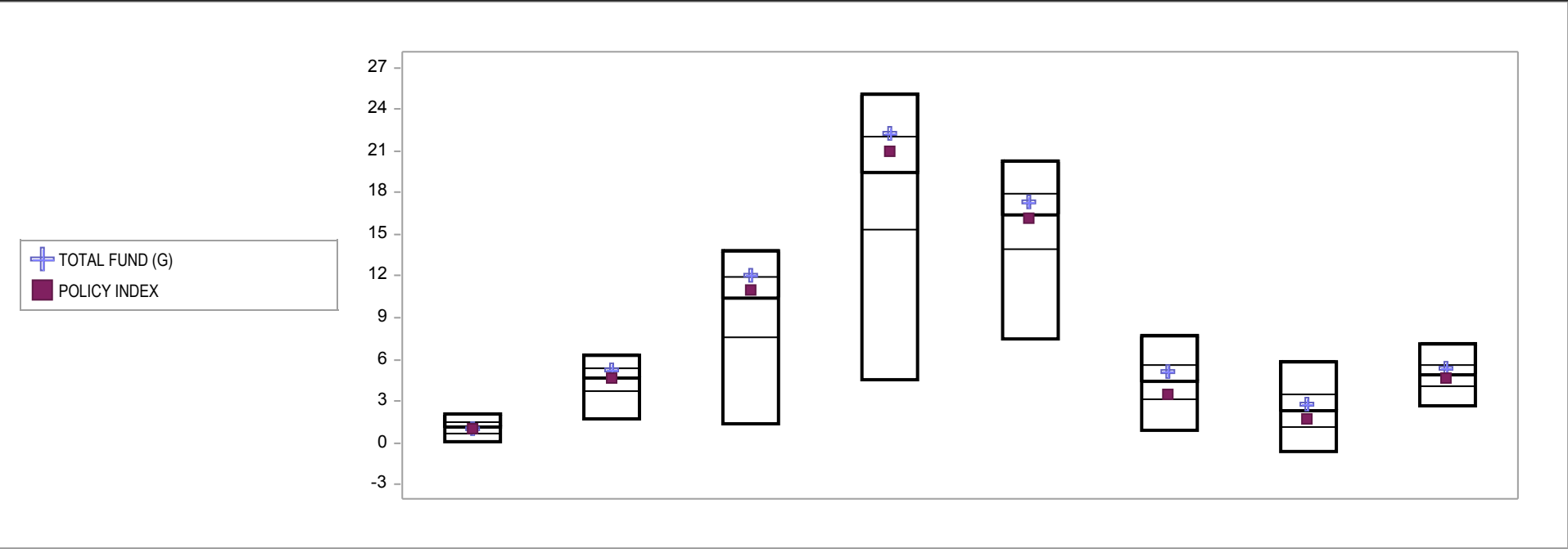
Period Ending: June 30, 2011

TOTAL FUND			
Portfolio Reconciliation			
	<u>Quarter</u>		<u>FYTD</u>
Market Value of Portfolio on: 03/31/11	\$266,595,711	06/30/10	\$211,585,135
Net Contributions/Withdrawals	\$2,408,437		\$12,577,234
Growth from Investments			
Investment Income	\$1,183,365		\$5,372,359
Change in Market Value	<u>\$1,984,988</u>		<u>\$42,637,772</u>
Total Growth from Investments	<u>\$3,168,352</u>		\$48,010,131
Market Value of Portfolio on: 06/30/11			<u><u>\$272,172,500</u></u>

SAMPLE CLIENT

CUMULATIVE PERFORMANCE COMPARISONS

Period Ending: June 30, 2011

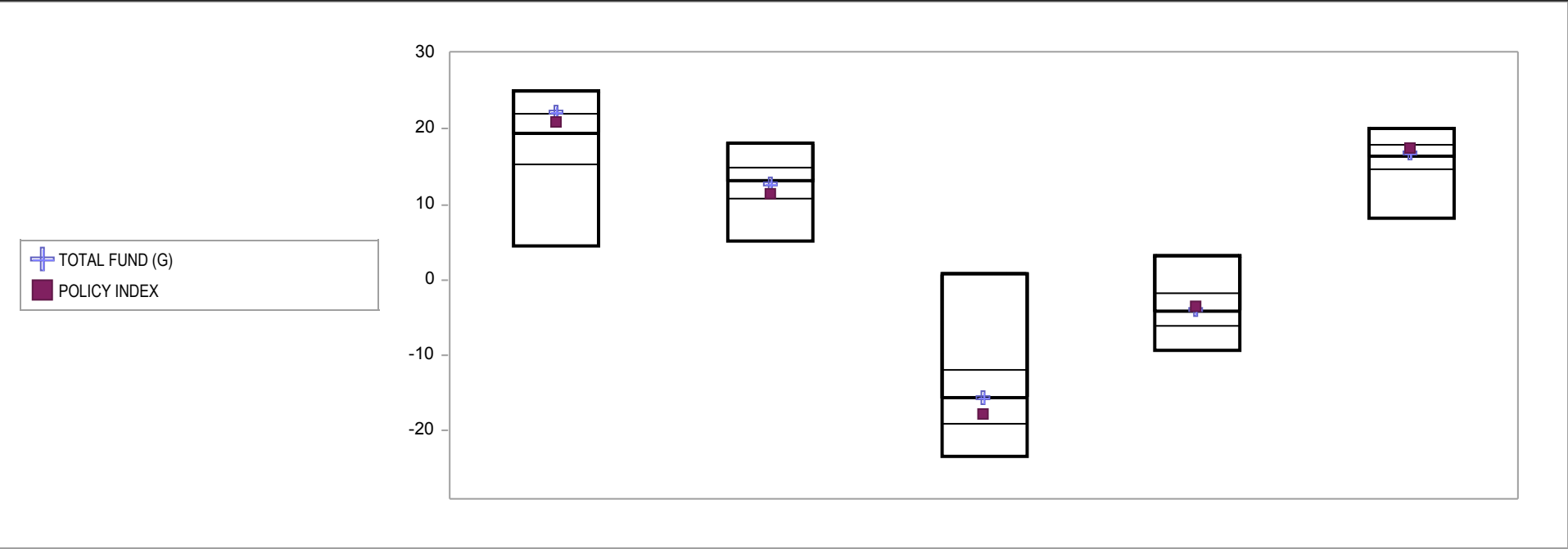


Total Funds	Last Quarter		Two Quarters		Three Quarters		One Year		Two Years		Three Years		Four Years		Five Years	
	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile	2.1		6.3		13.8		25.1		20.2		7.7		5.9		7.2	
25th Percentile	1.6		5.3		12.0		22.0		18.0		5.7		3.5		5.7	
50th Percentile	1.1		4.7		10.4		19.5		16.5		4.5		2.4		4.9	
75th Percentile	0.7		3.8		7.6		15.4		13.9		3.2		1.2		4.1	
95th Percentile	0.1		1.7		1.4		4.6		7.5		0.9		-0.6		2.6	
TOTAL FUND (G)	1.1	50	5.3	27	12.1	24	22.2	24	17.4	35	5.1	37	2.8	41	5.4	32
POLICY INDEX	1.0	57	4.7	51	11.0	40	21.0	35	16.1	53	3.5	69	1.7	64	4.7	56

SAMPLE CLIENT

CONSECUTIVE PERFORMANCE COMPARISONS

Period Ending: June 30, 2011

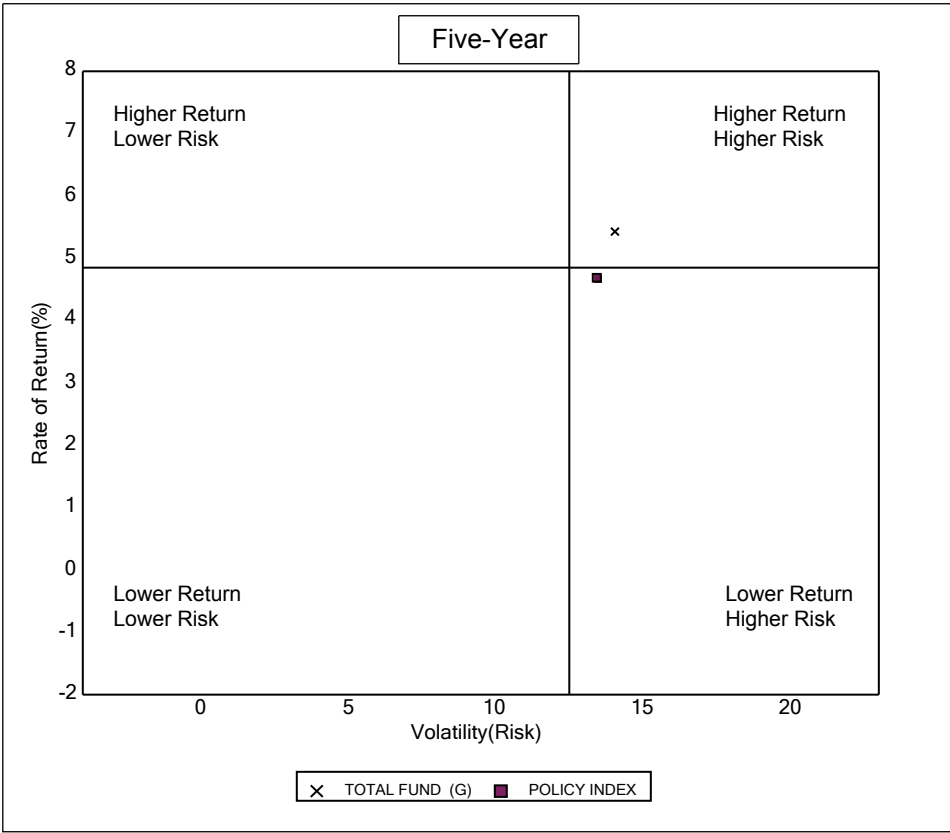
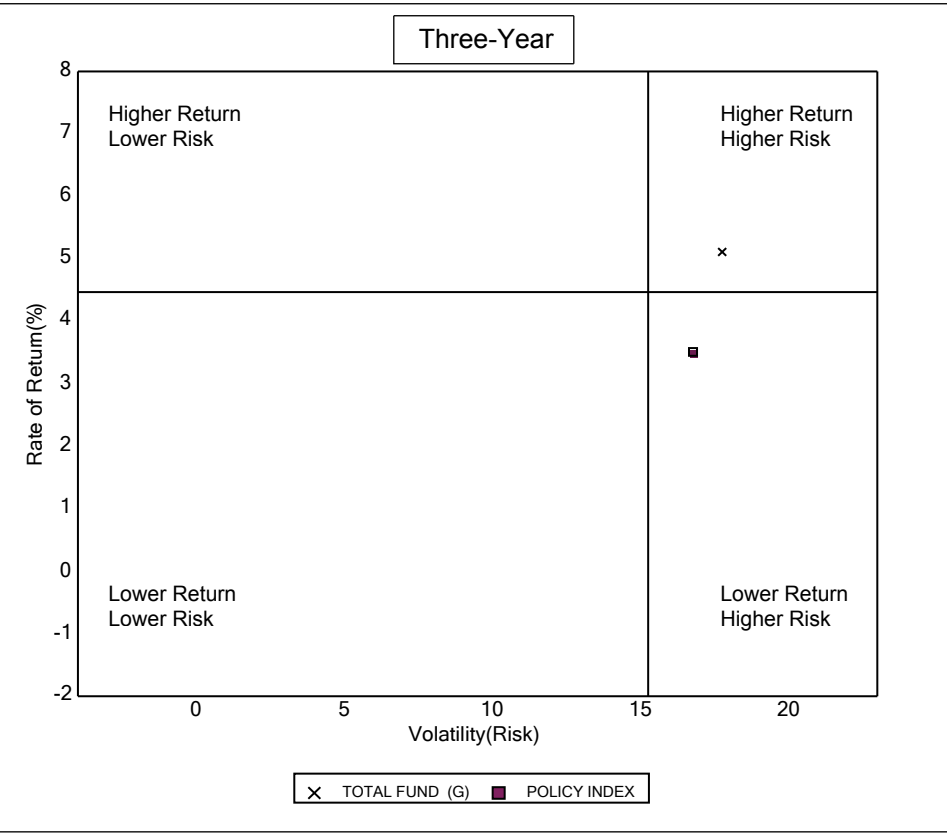


Total Funds		June 2011		June 2010		June 2009		June 2008		June 2007	
		Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile		25.1		18.1		0.8		3.3		20.1	
25th Percentile		22.0		14.9		-12.0		-1.7		17.8	
50th Percentile		19.5		13.1		-15.6		-4.1		16.3	
75th Percentile		15.4		10.7		-19.0		-6.0		14.6	
95th Percentile		4.6		5.1		-23.4		-9.3		8.3	
TOTAL FUND (G)		22.2	24	12.7	54	-15.7	51	-4.0	50	16.8	41
POLICY INDEX		21.0	35	11.5	67	-17.8	66	-3.5	44	17.5	30

SAMPLE CLIENT

RISK VS RETURN THREE & FIVE YEAR

Period Ending: June 30, 2011



Three Year Return vs Risk			Category	Five Year Return vs Risk		
Annualized Return %	Standard Deviation %	Sharpe Ratio		Annualized Return %	Standard Deviation %	Sharpe Ratio
5.1	17.8	0.3	TOTAL FUND (G)	5.4	14.0	0.2
3.5	16.8	0.2	POLICY INDEX	4.7	13.5	0.2
4.5	15.3	0.3	Total Funds Universe Median	4.9	12.5	0.2

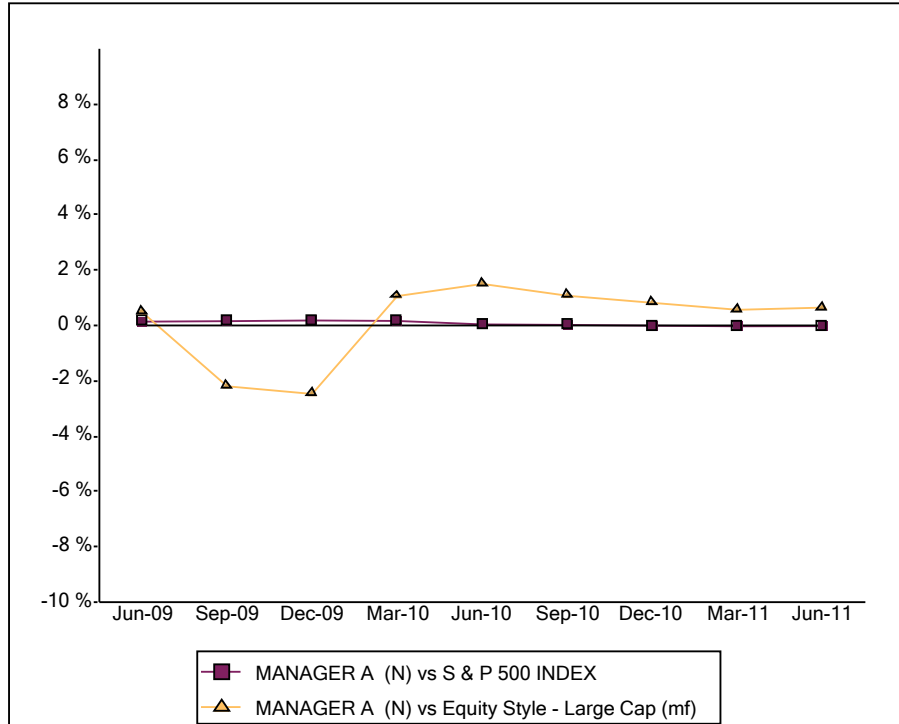
SAMPLE CLIENT

COMPARATIVE INVESTMENT PERFORMANCE RESULTS

Period Ending: June 30, 2011

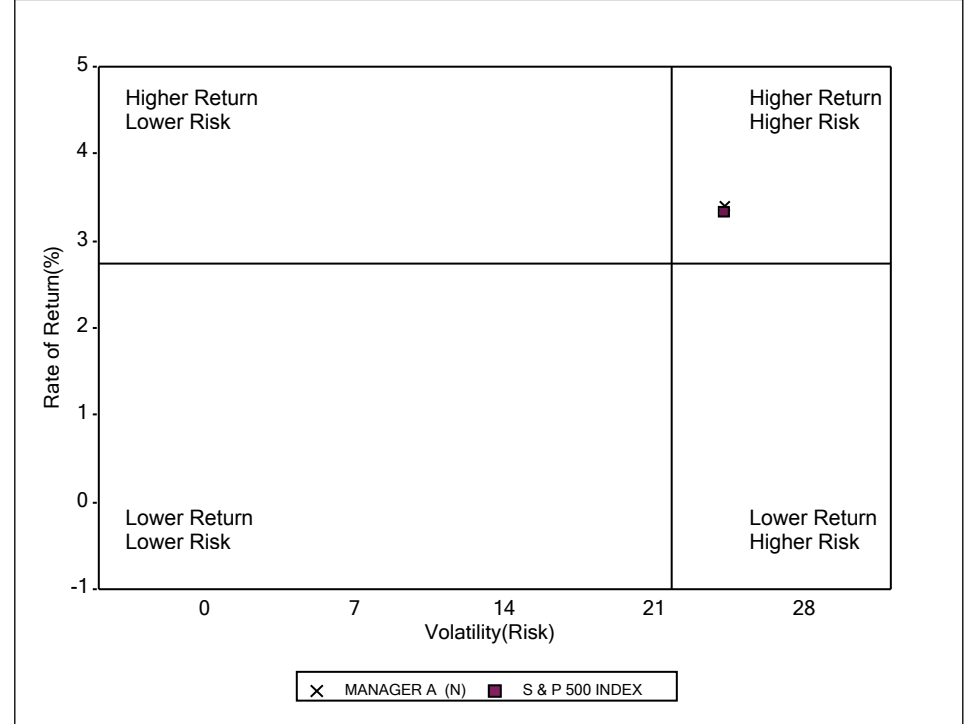
MANAGER A (N)

Rolling 1 - Year Value Added



Risk - Return Analysis

3 Years Ending June 30, 2011

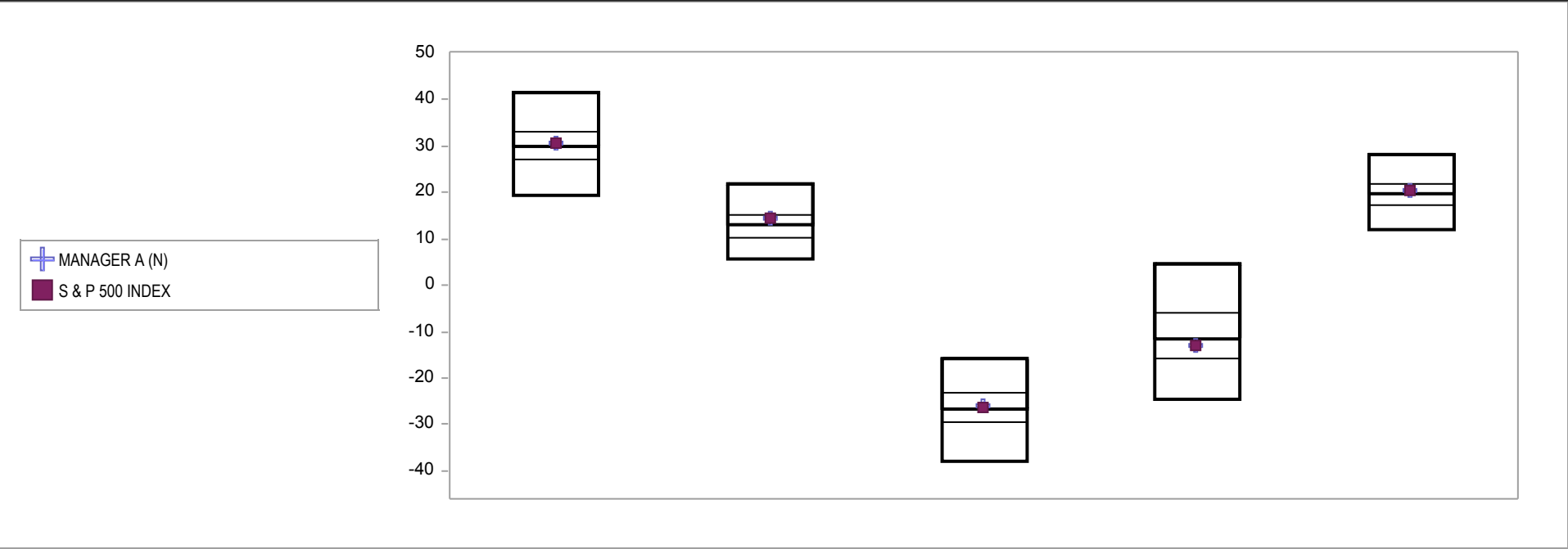


Equity Style - Large Cap (mf)	Last Quarter		Two Quarters		Three Quarters		One Year		Two Years		Three Years		Four Years		Five Years	
	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile	2.8		9.6		23.2		41.6		29.0		8.9		5.4		8.4	
25th Percentile	0.8		6.7		18.8		33.1		23.4		4.6		1.3		4.7	
50th Percentile	-0.1		5.3		16.6		30.0		21.4		2.7		-0.8		3.0	
75th Percentile	-1.1		4.1		14.6		27.2		19.3		1.0		-2.4		1.6	
95th Percentile	-4.2		0.3		8.9		19.5		15.4		-3.5		-5.7		-1.0	
MANAGER A (N)	0.1	44	6.0	37	17.4	41	30.7	45	22.3	39	3.4	41	-1.0	54	3.0	50
S & P 500 INDEX	0.1	44	6.0	37	17.4	40	30.7	45	22.3	39	3.3	42	-1.1	54	2.9	50

SAMPLE CLIENT

CONSECUTIVE PERFORMANCE COMPARISONS

Period Ending: June 30, 2011



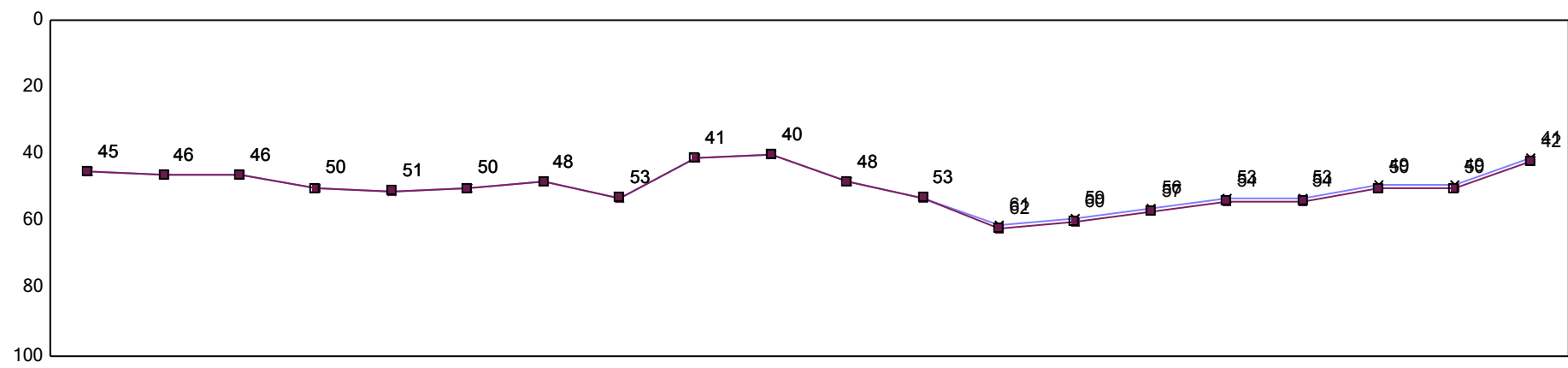
Equity Style - Large Cap (mf)	June 2011		June 2010		June 2009		June 2008		June 2007	
	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
	5th Percentile		41.6		21.9		-15.8		4.5	
	25th Percentile		33.1		15.4		-23.1		-6.0	
	50th Percentile		30.0		13.0		-26.6		-11.5	
	75th Percentile		27.2		10.4		-29.5		-15.7	
	95th Percentile		19.5		5.6		-38.0		-24.6	
MANAGER A (N)	30.7	45	14.5	34	-26.1	46	-13.1	60	20.5	40
S & P 500 INDEX	30.7	45	14.4	35	-26.2	47	-13.1	60	20.6	39

SAMPLE CLIENT

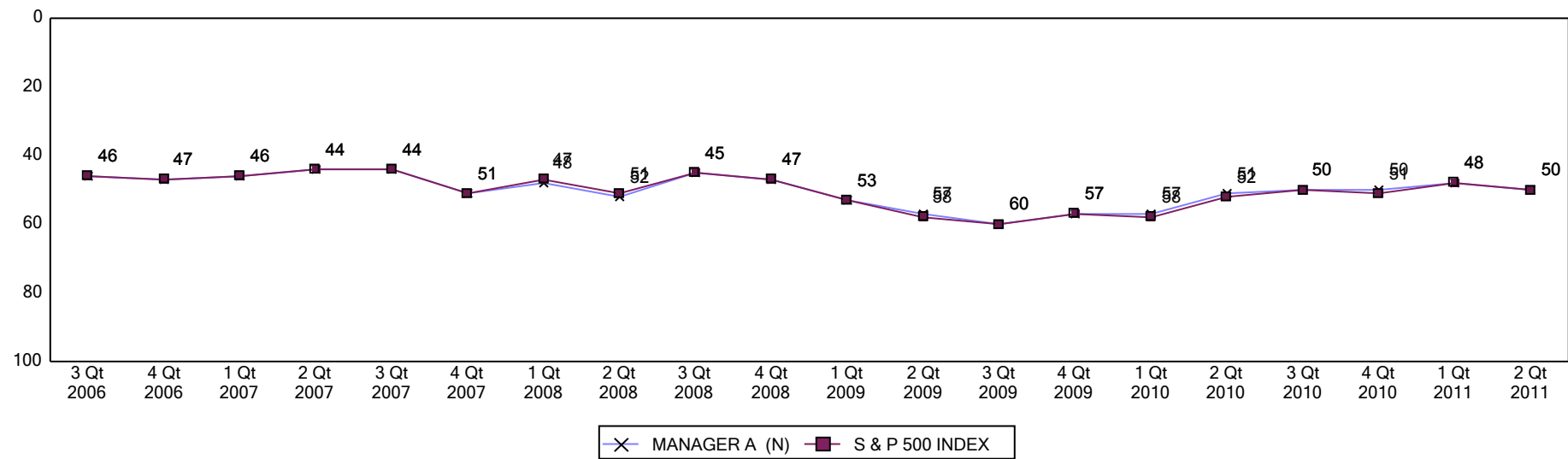
ROLLING RETURN RANKING 3 & 5 YEARS

Period Ending: June 30, 2011

Ranking Comparisons - Rolling 3 Years



Ranking Comparisons - Rolling 5 Years



Note: data is ranked against the Equity Style - Large Cap (mf) Universe

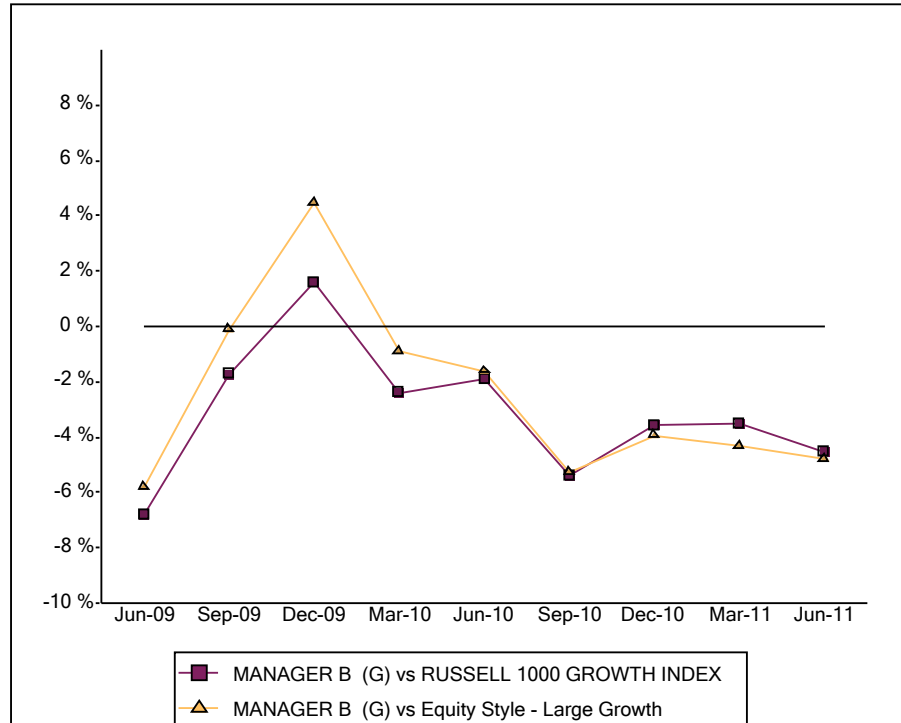
SAMPLE CLIENT

COMPARATIVE INVESTMENT PERFORMANCE RESULTS

Period Ending: June 30, 2011

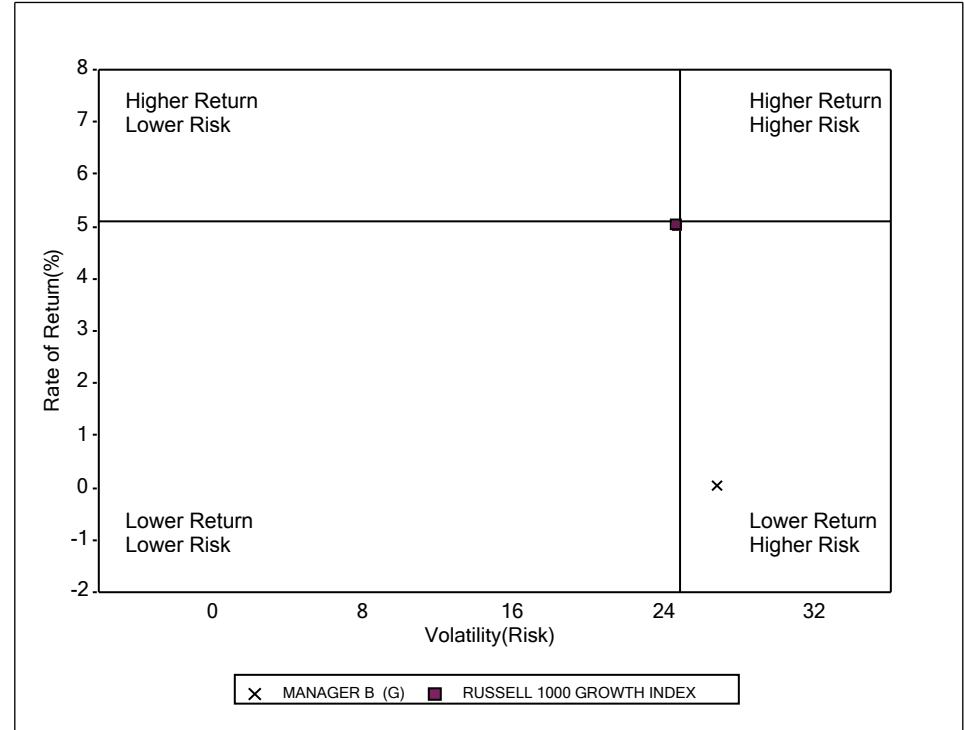
MANAGER B (G)

Rolling 1 - Year Value Added



Risk - Return Analysis

3 Years Ending June 30, 2011



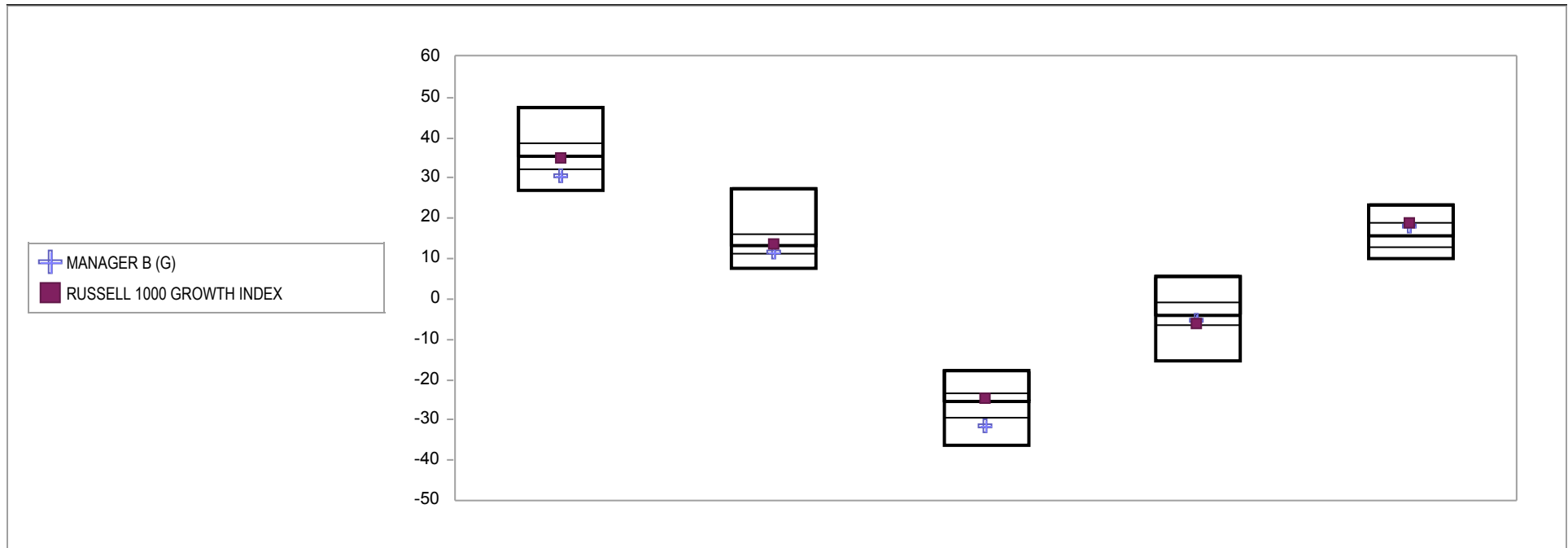
Equity Style - Large Growth

	Last Quarter		Two Quarters		Three Quarters		One Year		Two Years		Three Years		Four Years		Five Years	
	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile	3.6		10.4		25.6		47.7		36.8		11.7		8.5		9.8	
25th Percentile	2.0		8.0		21.2		38.5		26.5		6.6		4.2		6.6	
50th Percentile	0.8		6.4		19.4		35.3		24.1		5.1		2.7		5.2	
75th Percentile	-0.7		4.7		17.5		32.3		22.1		2.3		0.8		4.0	
95th Percentile	-2.8		2.3		13.6		27.0		18.2		-1.3		-1.8		2.0	
MANAGER B (G)	-0.7	75	4.7	75	17.8	72	30.5	82	20.7	82	0.0	88	-1.3	92	2.3	92
RUSSELL 1000 GROWTH INDEX	0.8	50	6.8	43	19.5	49	35.0	52	23.8	53	5.0	51	2.2	57	5.3	47

SAMPLE CLIENT

CONSECUTIVE PERFORMANCE COMPARISONS

Period Ending: June 30, 2011



Equity Style - Large Growth

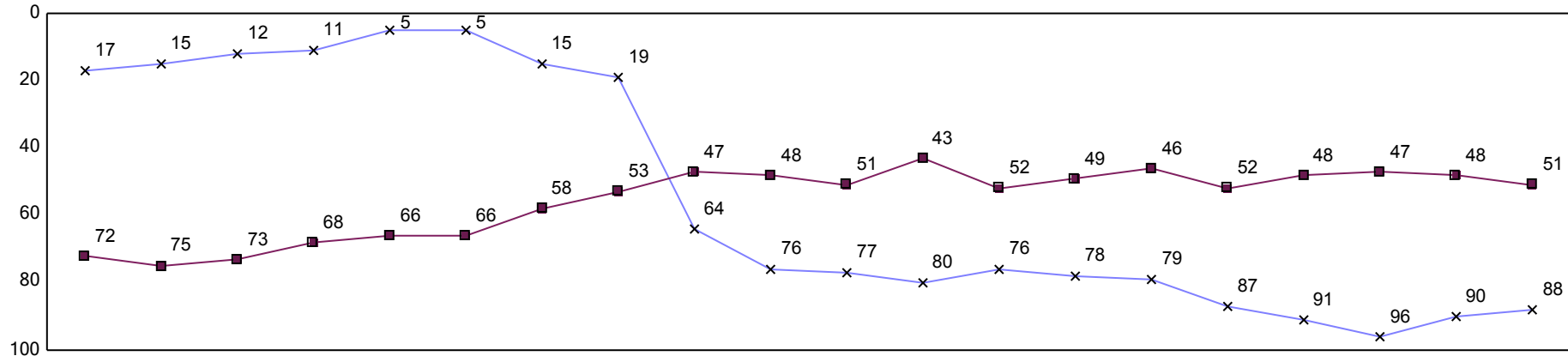
	June 2011 Return Rank		June 2010 Return Rank		June 2009 Return Rank		June 2008 Return Rank		June 2007 Return Rank	
5th Percentile	47.7		27.2		-17.7		5.8		23.3	
25th Percentile	38.5		16.2		-23.3		-0.7		18.7	
50th Percentile	35.3		13.3		-25.5		-4.1		15.5	
75th Percentile	32.3		11.2		-29.3		-6.6		13.0	
95th Percentile	27.0		7.7		-36.4		-15.5		10.1	
MANAGER B (G)	30.5	82	11.7	69	-31.3	81	-5.4	62	18.2	29
RUSSELL 1000 GROWTH INDEX	35.0	52	13.6	48	-24.5	39	-6.0	68	19.1	24

SAMPLE CLIENT

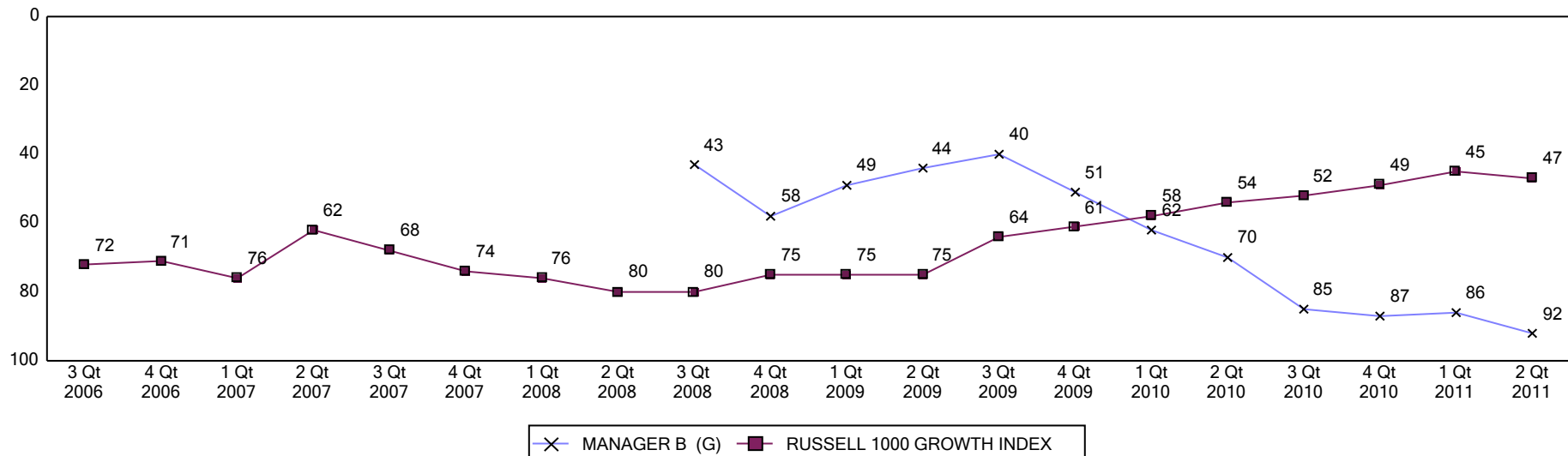
ROLLING RETURN RANKING 3 & 5 YEARS

Period Ending: June 30, 2011

Ranking Comparisons - Rolling 3 Years



Ranking Comparisons - Rolling 5 Years



Note: data is ranked against the Equity Style - Large Growth Universe

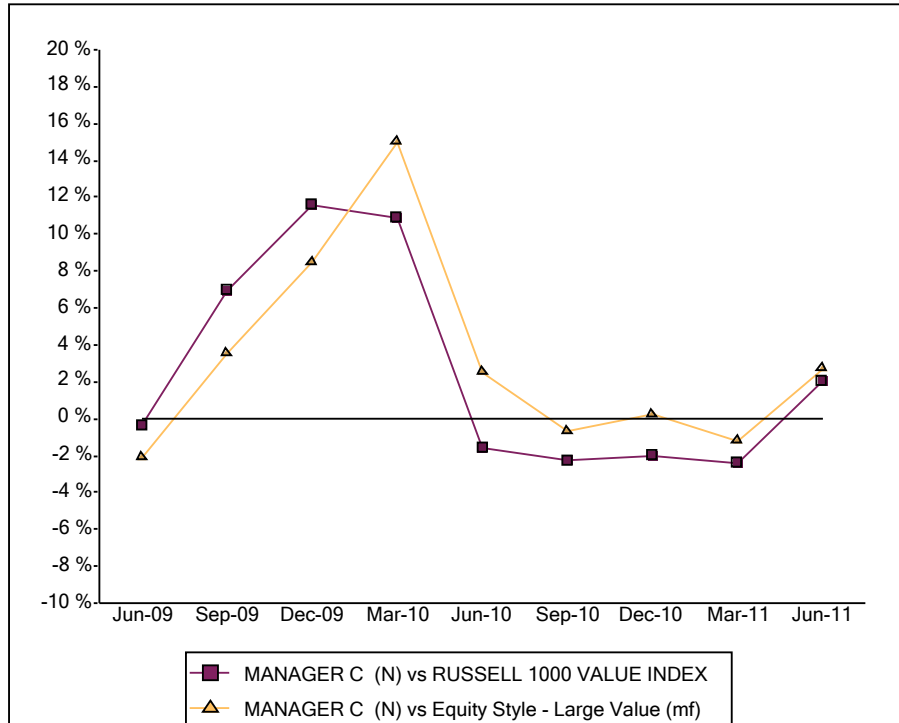
SAMPLE CLIENT

COMPARATIVE INVESTMENT PERFORMANCE RESULTS

Period Ending: June 30, 2011

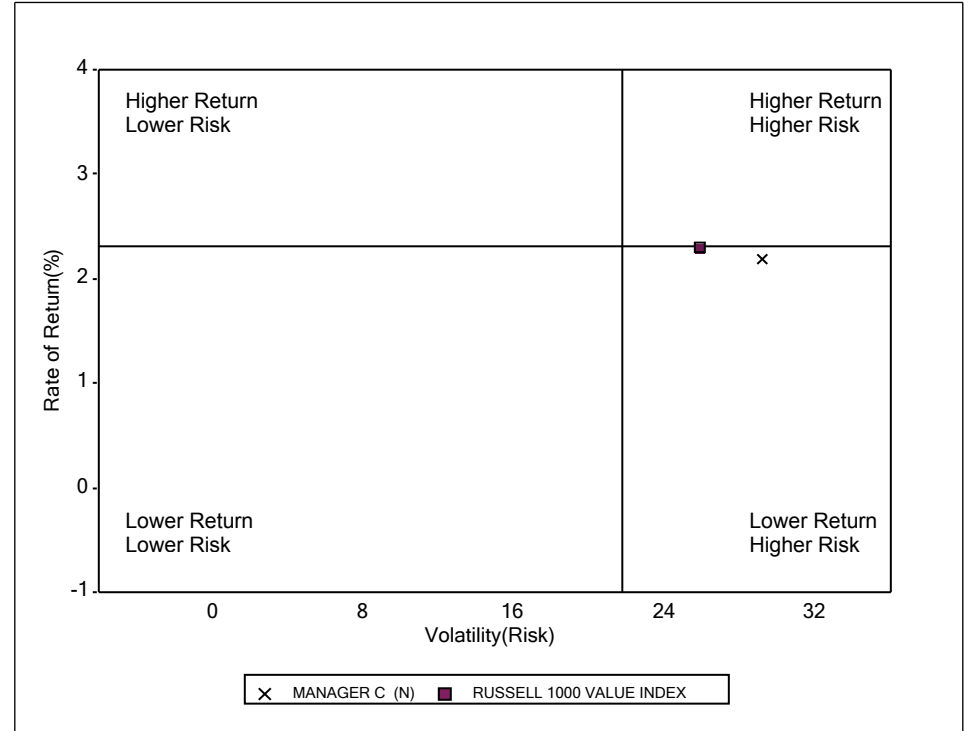
MANAGER C (N)

Rolling 1 - Year Value Added



Risk - Return Analysis

3 Years Ending June 30, 2011



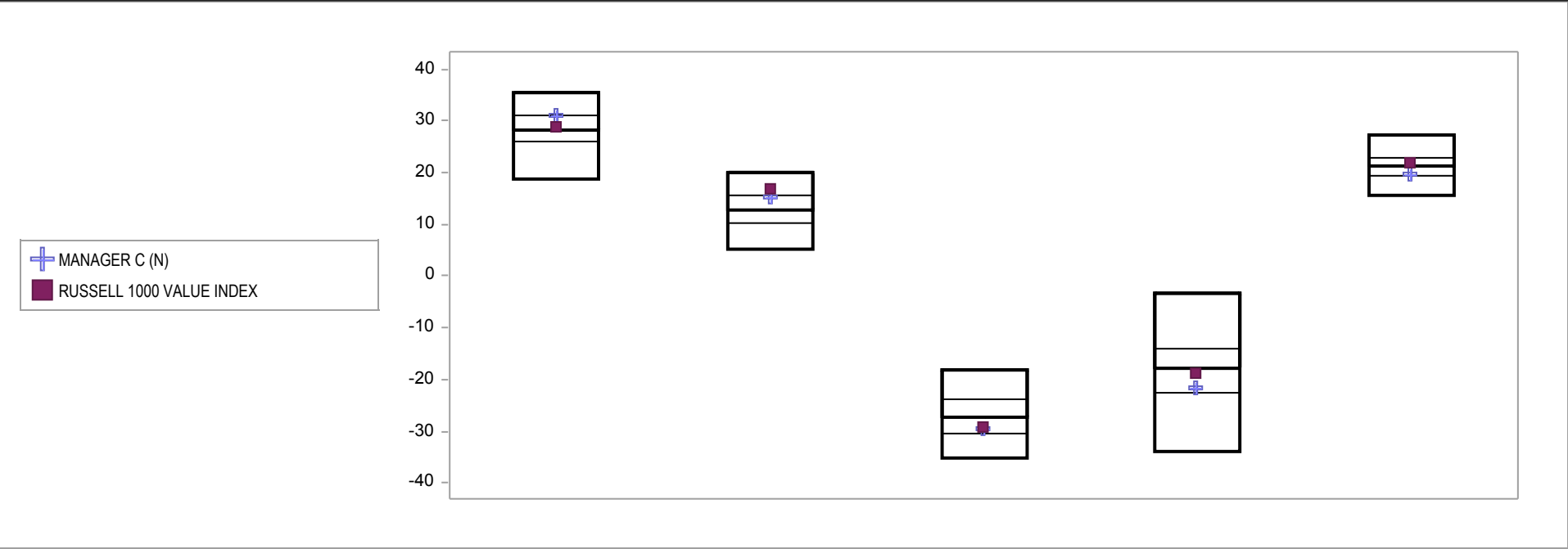
Equity Style - Large Value (mf)

	Last Quarter		Two Quarters		Three Quarters		One Year		Two Years		Three Years		Four Years		Five Years	
	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile	2.6		9.7		20.6		35.5		25.8		7.1		2.2		5.7	
25th Percentile	0.9		7.4		18.2		31.1		22.6		4.2		-1.1		3.1	
50th Percentile	-0.3		5.7		16.2		28.3		20.7		2.3		-2.7		1.7	
75th Percentile	-1.3		4.2		14.2		26.0		18.9		0.4		-4.4		0.3	
95th Percentile	-4.0		0.0		8.1		18.6		13.2		-3.5		-8.0		-2.8	
MANAGER C (N)	0.3	37	6.3	41	18.2	25	31.0	26	22.9	23	2.2	52	-4.3	74	0.1	76
RUSSELL 1000 VALUE INDEX	-0.5	55	5.9	47	17.1	39	28.9	44	22.8	24	2.3	50	-3.4	61	1.2	60

SAMPLE CLIENT

CONSECUTIVE PERFORMANCE COMPARISONS

Period Ending: June 30, 2011



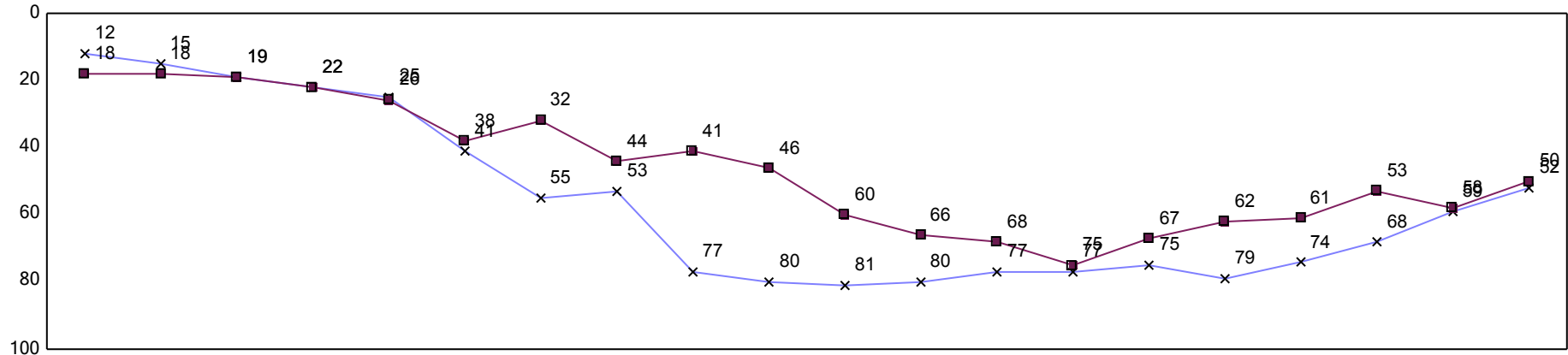
Equity Style - Large Value (mf)		June 2011 Return Rank		June 2010 Return Rank		June 2009 Return Rank		June 2008 Return Rank		June 2007 Return Rank	
5th Percentile		35.5		20.1		-18.0		-3.2		27.2	
25th Percentile		31.1		15.5		-23.8		-14.1		22.8	
50th Percentile		28.3		12.8		-27.3		-17.7		21.2	
75th Percentile		26.0		10.4		-30.4		-22.4		19.2	
95th Percentile		18.6		5.3		-35.1		-33.9		15.6	
MANAGER C (N)		31.0	26	15.3	27	-29.4	67	-21.4	70	19.7	68
RUSSELL 1000 VALUE INDEX		28.9	44	16.9	19	-29.0	64	-18.8	56	21.9	39

SAMPLE CLIENT

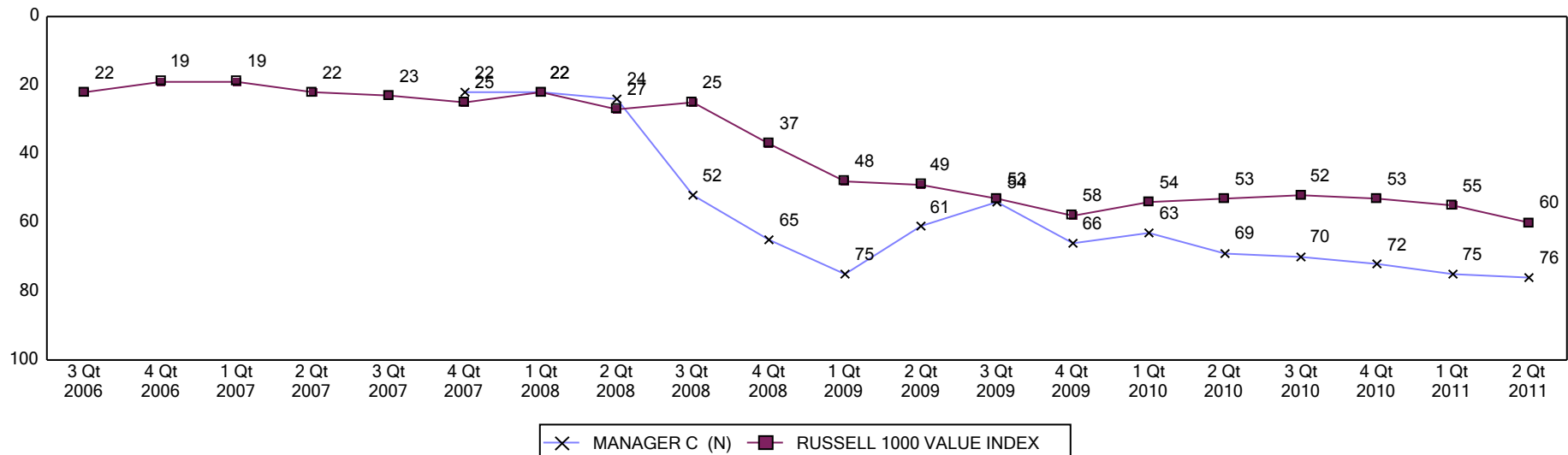
ROLLING RETURN RANKING 3 & 5 YEARS

Period Ending: June 30, 2011

Ranking Comparisons - Rolling 3 Years



Ranking Comparisons - Rolling 5 Years



Note: data is ranked against the Equity Style - Large Value (mf) Universe

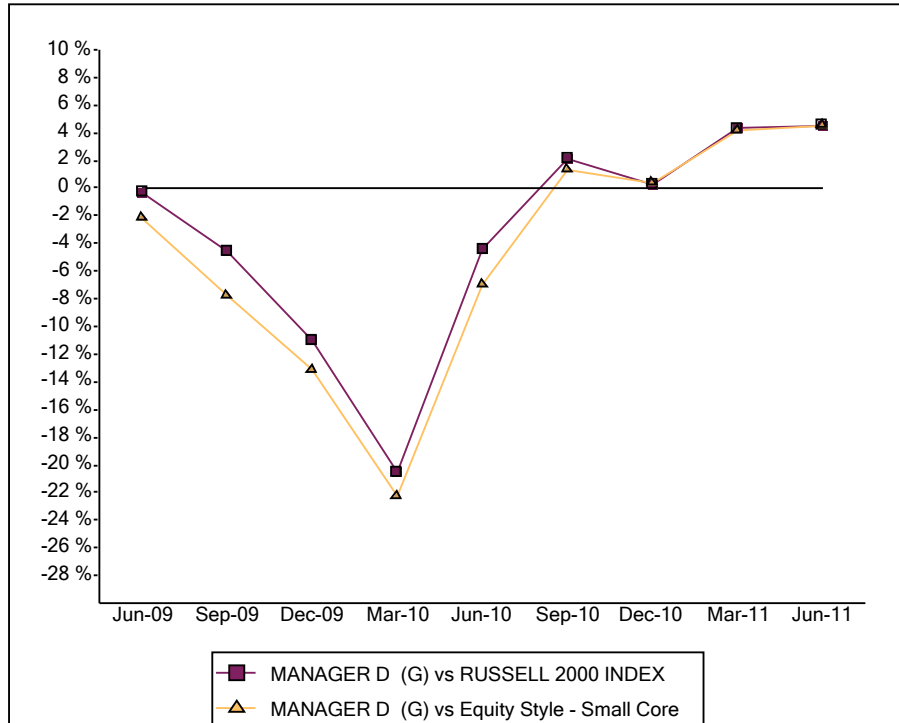
SAMPLE CLIENT

COMPARATIVE INVESTMENT PERFORMANCE RESULTS

Period Ending: June 30, 2011

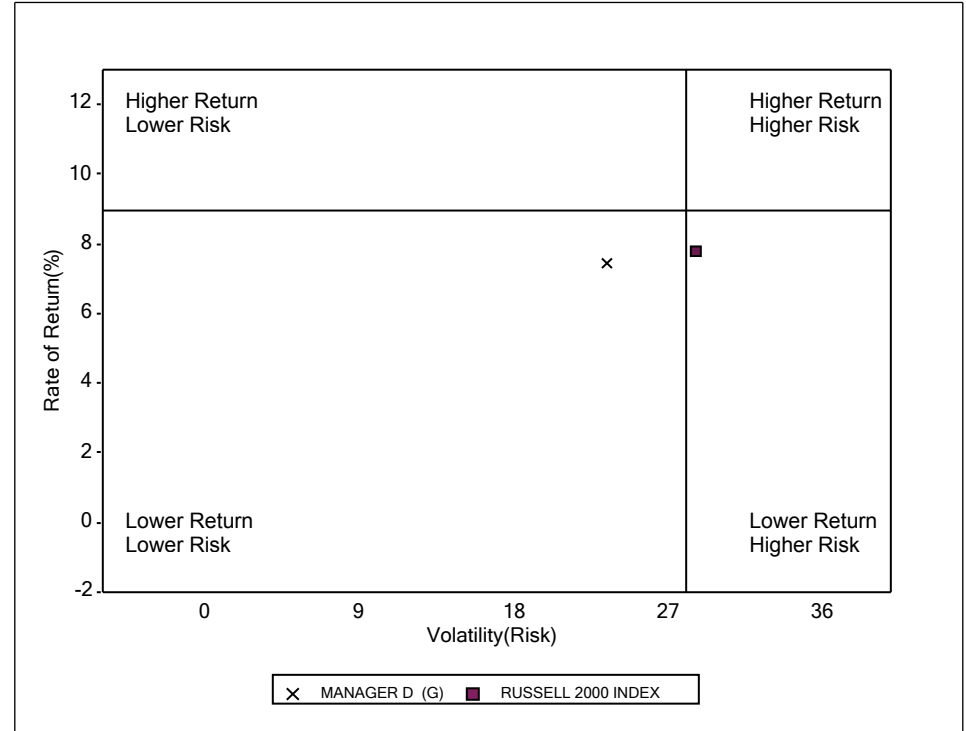
MANAGER D (G)

Rolling 1 - Year Value Added



Risk - Return Analysis

3 Years Ending June 30, 2011



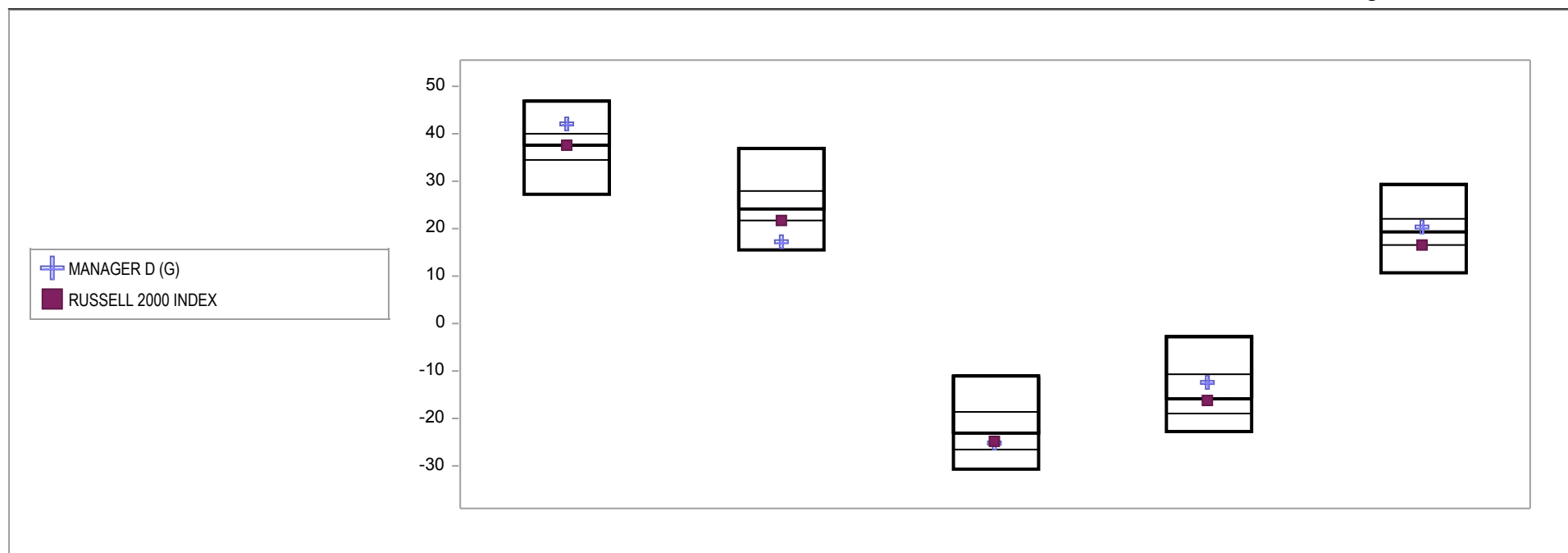
Equity Style - Small Core

	Last Quarter		Two Quarters		Three Quarters		One Year		Two Years		Three Years		Four Years		Five Years	
	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile			1.1	10.5	31.3		46.6		37.9		15.3		7.3		9.6	
25th Percentile			-0.5	8.5	25.7		40.0		33.0		11.8		4.2		7.5	
50th Percentile			-1.4	6.9	24.1		37.4		30.4		9.0		2.8		5.8	
75th Percentile			-2.6	5.0	22.0		34.3		28.1		7.6		1.2		4.2	
95th Percentile			-5.8	2.6	16.5		27.0		25.2		4.0		-1.2		2.4	
MANAGER D (G)	0.3	15	10.7	5	27.3	19	41.9	19	28.9	67	7.4	76	2.1	60	5.5	54
RUSSELL 2000 INDEX	-1.6	55	6.2	59	23.5	58	37.4	50	29.2	63	7.8	72	1.2	75	4.1	77

SAMPLE CLIENT

CONSECUTIVE PERFORMANCE COMPARISONS

Period Ending: June 30, 2011



Equity Style - Small Core

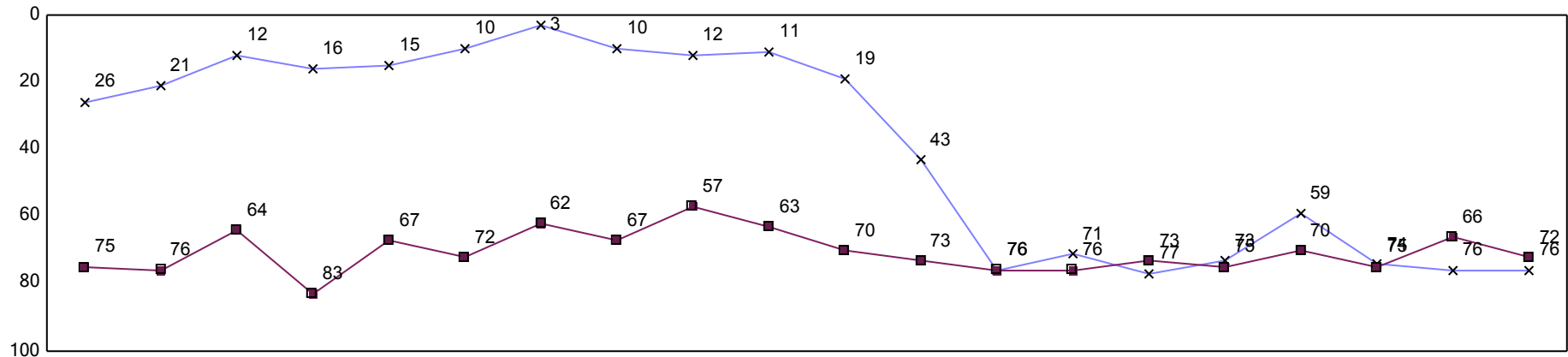
	June 2011 Return Rank		June 2010 Return Rank		June 2009 Return Rank		June 2008 Return Rank		June 2007 Return Rank	
5th Percentile	46.6		36.6		-11.1		-2.7		29.3	
25th Percentile	40.0		27.9		-18.8		-10.6		21.8	
50th Percentile	37.4		24.1		-23.2		-16.0		19.3	
75th Percentile	34.3		21.4		-26.6		-18.9		16.5	
95th Percentile	27.0		15.5		-30.9		-22.8		10.7	
MANAGER D (G)	41.9	19	17.1	90	-25.3	66	-12.3	33	20.2	41
RUSSELL 2000 INDEX	37.4	50	21.5	74	-25.0	64	-16.2	52	16.4	75

SAMPLE CLIENT

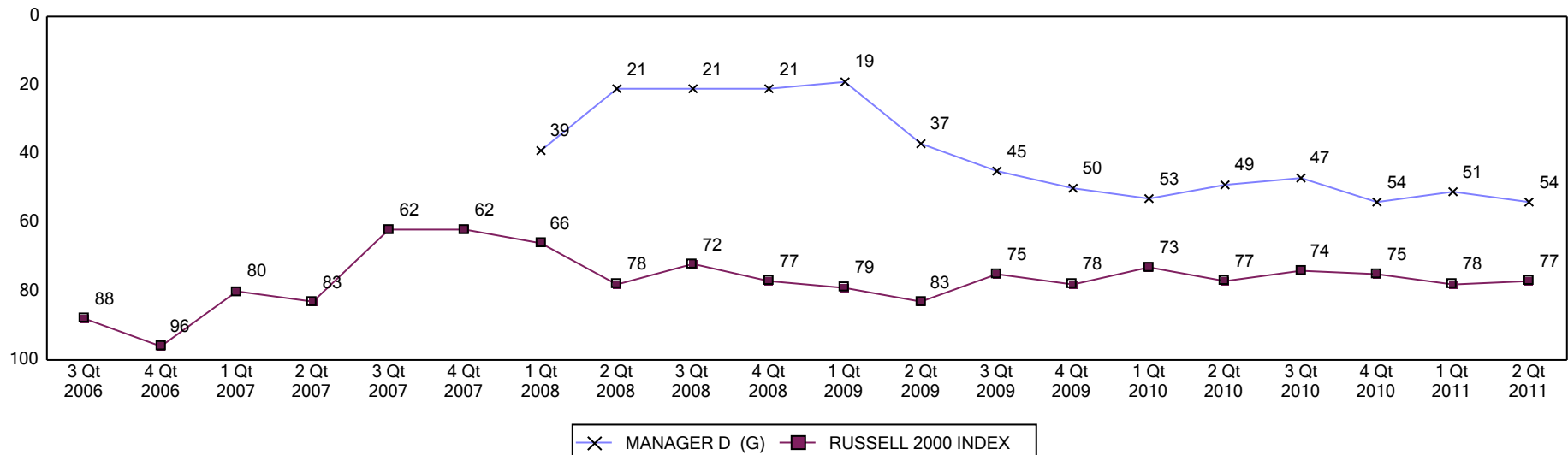
ROLLING RETURN RANKING 3 & 5 YEARS

Period Ending: June 30, 2011

Ranking Comparisons - Rolling 3 Years



Ranking Comparisons - Rolling 5 Years



Note: data is ranked against the Equity Style - Small Core Universe

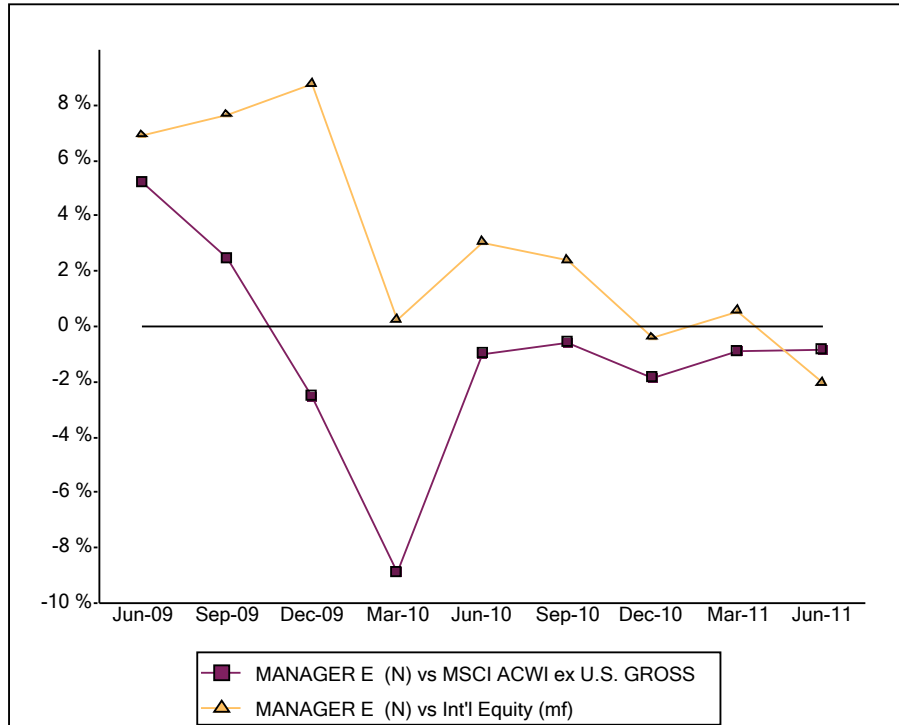
SAMPLE CLIENT

COMPARATIVE INVESTMENT PERFORMANCE RESULTS

Period Ending: June 30, 2011

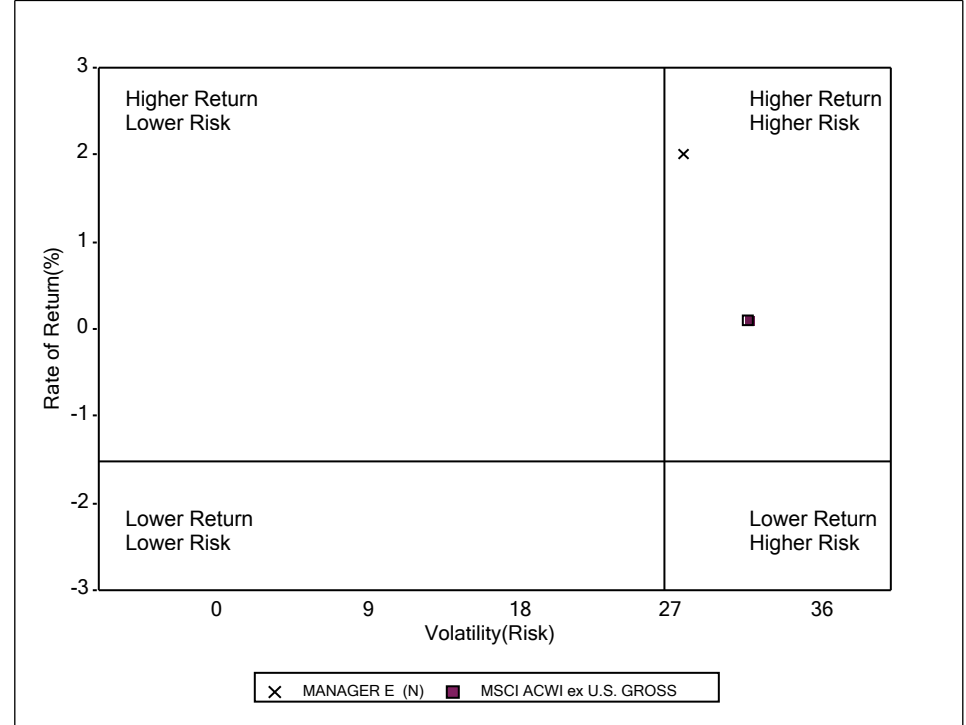
MANAGER E (N)

Rolling 1 - Year Value Added



Risk - Return Analysis

3 Years Ending June 30, 2011



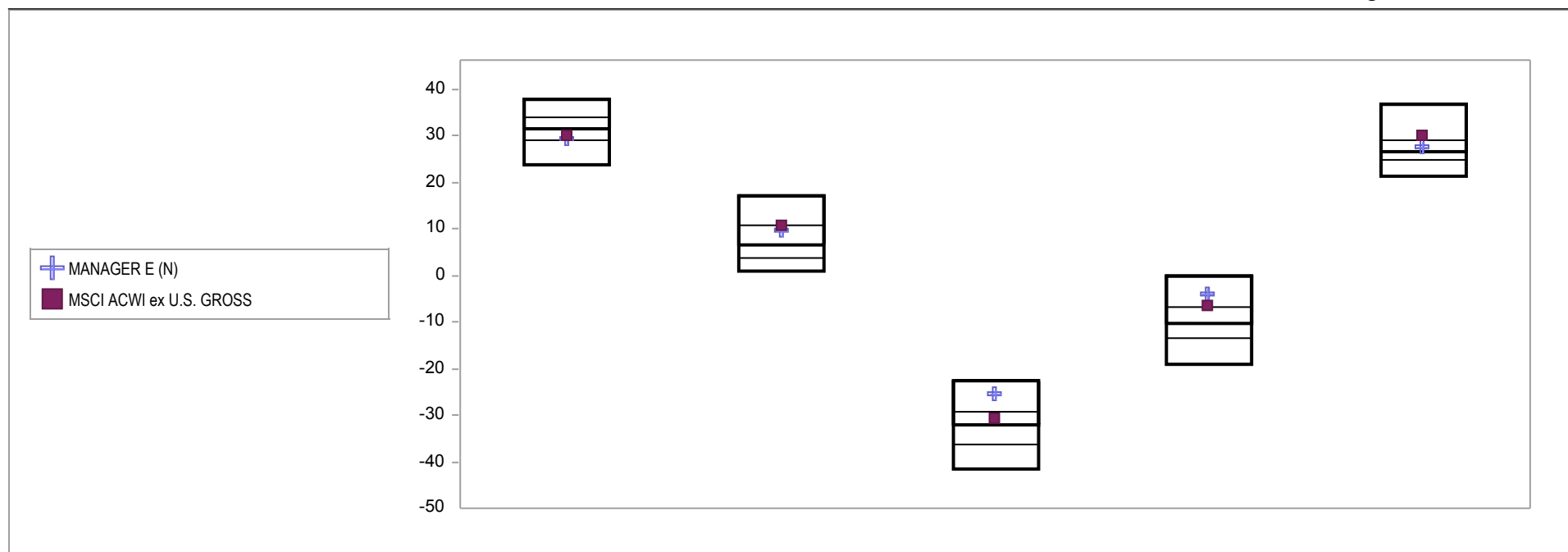
Int'l Equity (mf)

Int'l Equity (mf)		Last Quarter		Two Quarters		Three Quarters		One Year		Two Years		Three Years		Four Years		Five Years	
		Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile		3.7		7.4		16.2		37.8		26.7		4.0		0.6		6.2	
25th Percentile		2.2		5.8		14.0		33.9		21.2		0.3		-1.9		3.5	
50th Percentile		1.5		4.6		12.2		31.5		18.4		-1.5		-3.7		1.8	
75th Percentile		0.6		3.2		10.8		29.0		16.5		-3.3		-5.1		0.5	
95th Percentile		-1.0		0.5		7.6		23.8		13.1		-6.7		-7.5		-1.7	
MANAGER E (N)		1.1	60	4.7	48	10.7	76	29.4	70	19.2	42	2.0	16	0.5	6	5.4	11
MSCI ACWI ex U.S. GROSS		0.6	74	4.1	59	11.7	60	30.3	62	20.2	34	0.1	28	-1.5	22	4.1	21

SAMPLE CLIENT

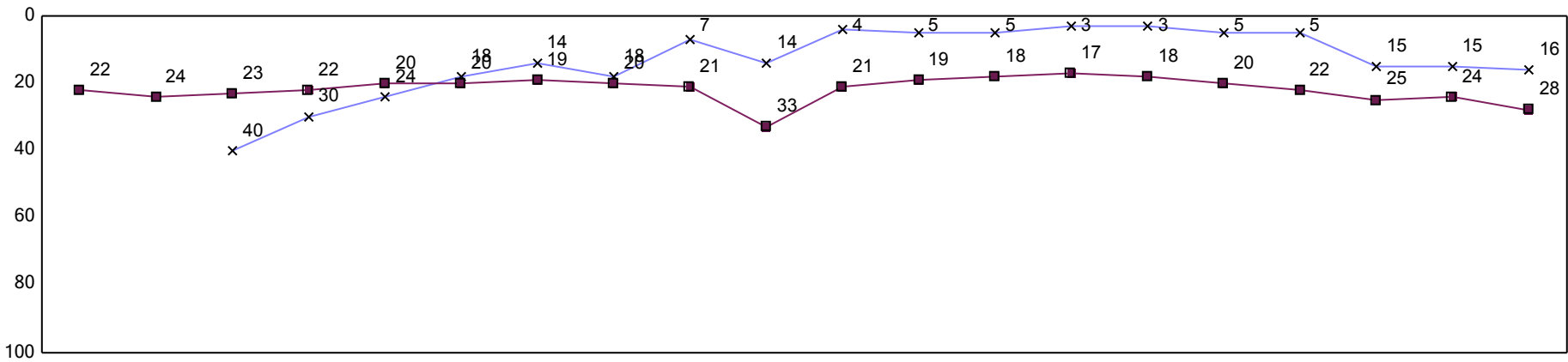
CONSECUTIVE PERFORMANCE COMPARISONS

Period Ending: June 30, 2011

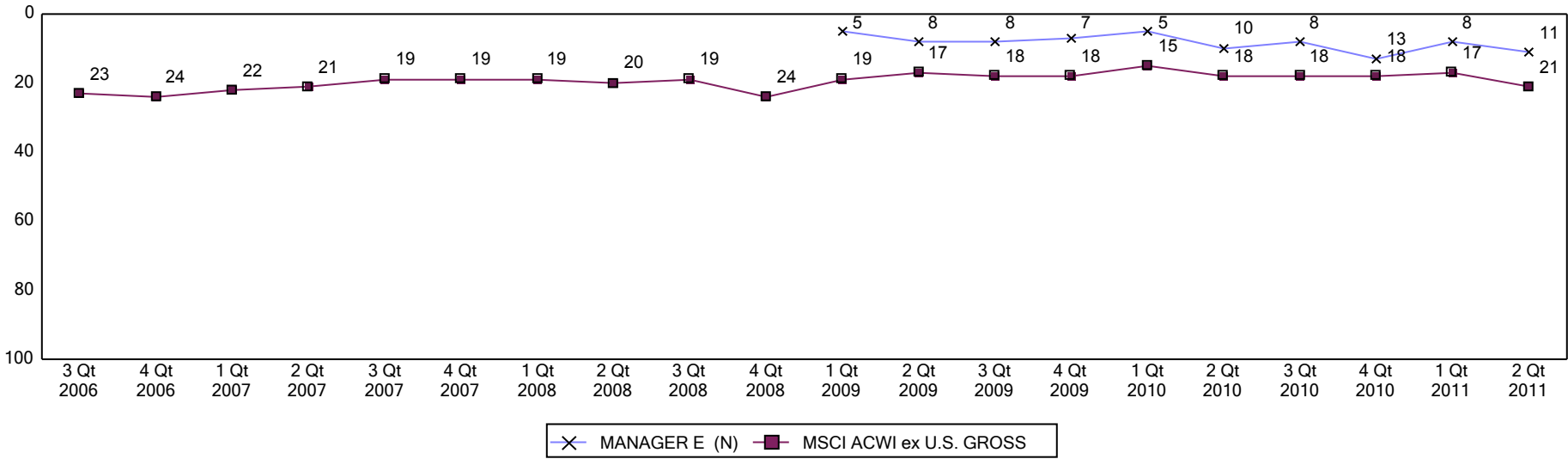


Int'l Equity (mf)	June 2011 Return Rank		June 2010 Return Rank		June 2009 Return Rank		June 2008 Return Rank		June 2007 Return Rank	
5th Percentile	37.8		17.2		-22.7		-0.2		36.8	
25th Percentile	33.9		10.8		-29.2		-6.8		29.1	
50th Percentile	31.5		6.8		-32.2		-10.3		26.7	
75th Percentile	29.0		3.9		-36.2		-13.3		24.8	
95th Percentile	23.8		1.1		-41.5		-19.2		21.4	
MANAGER E (N)	29.4	70	9.8	31	-25.3	13	-3.9	16	27.6	40
MSCI ACWI ex U.S. GROSS	30.3	62	10.8	25	-30.5	36	-6.2	23	30.1	22

Ranking Comparisons - Rolling 3 Years



Ranking Comparisons - Rolling 5 Years



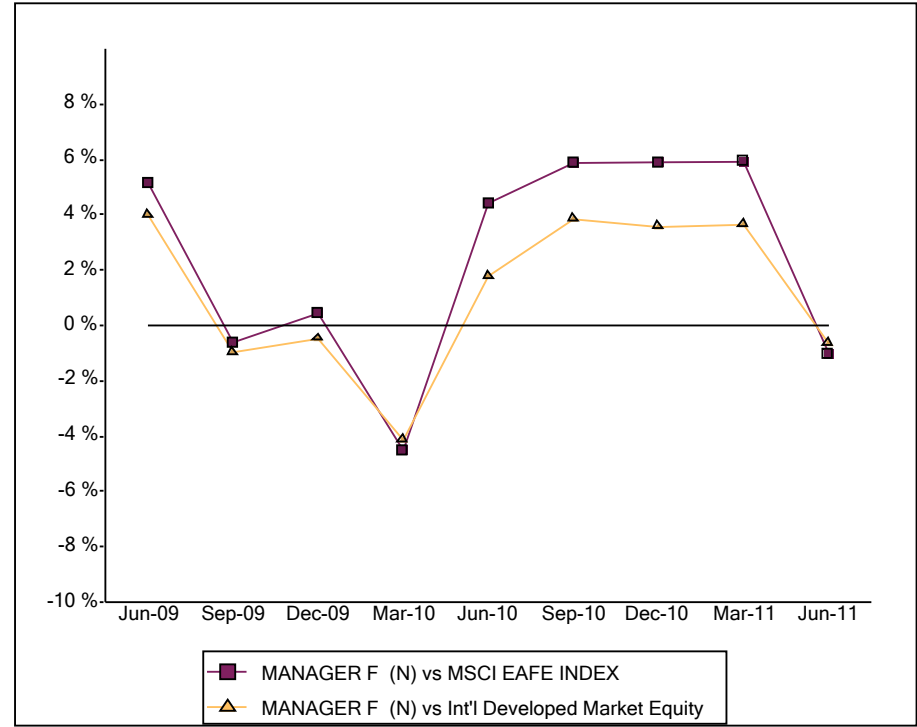
Note: data is ranked against the Int'l Equity (mf) Universe

SAMPLE CLIENT

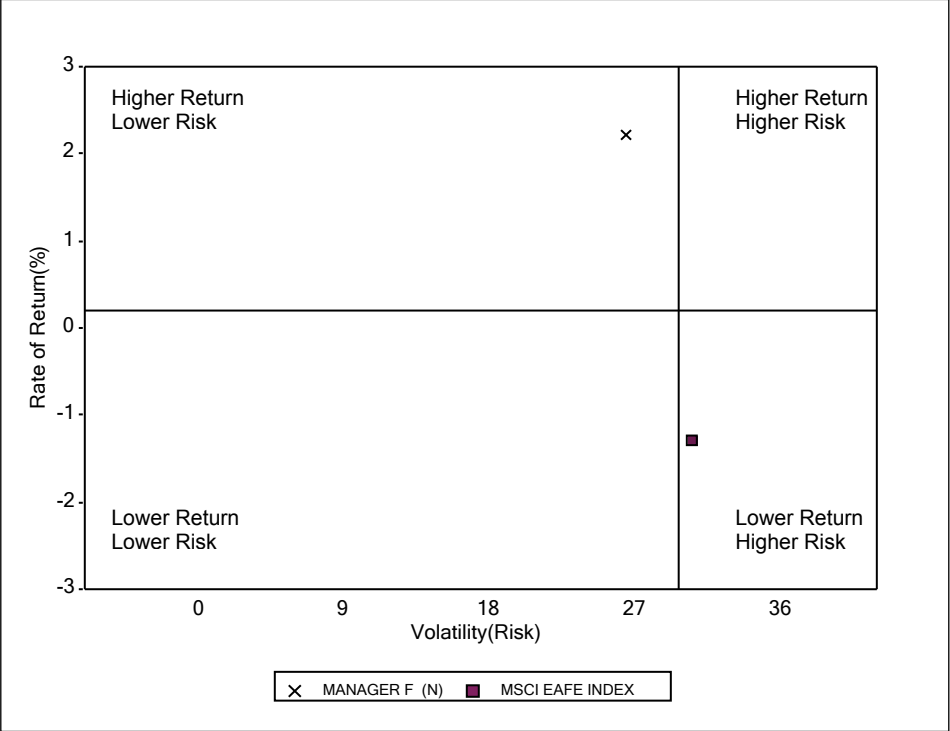
COMPARATIVE INVESTMENT PERFORMANCE RESULTS

Period Ending: June 30, 2011

MANAGER F (N)
Rolling 1 - Year Value Added



Risk - Return Analysis
3 Years Ending June 30, 2011

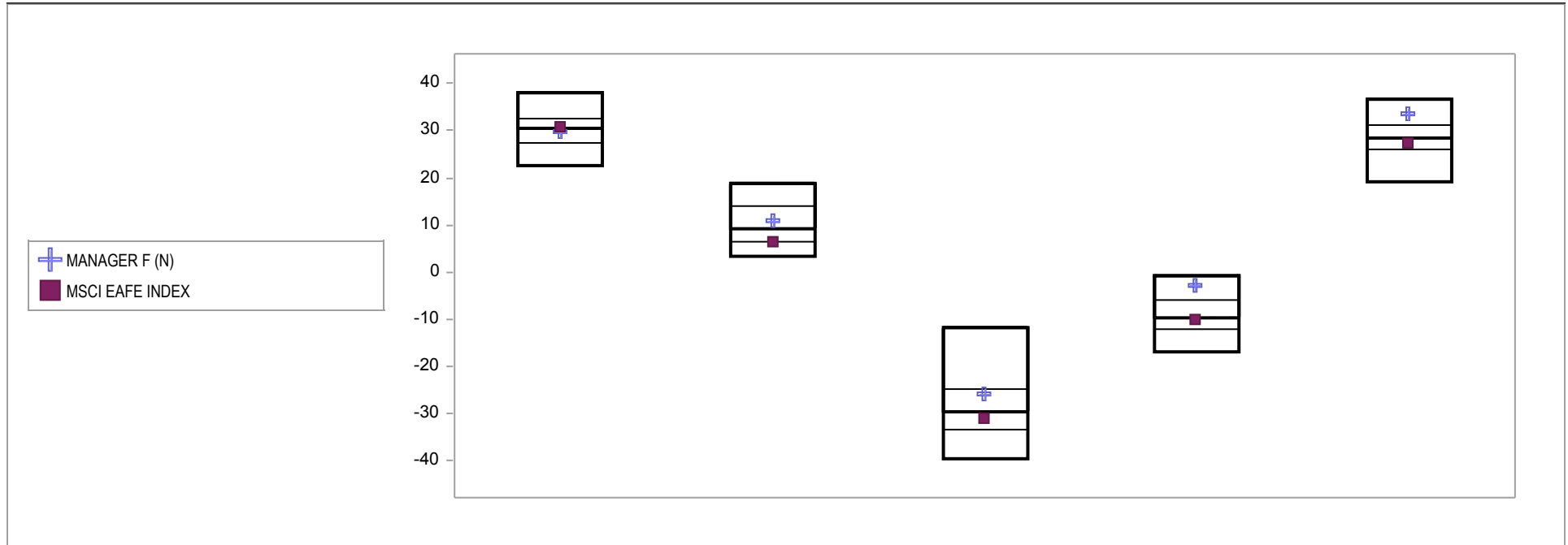


Int'l Developed Market Equity	Last Quarter		Two Quarters		Three Quarters		One Year		Two Years		Three Years		Four Years		Five Years	
	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile			4.0	8.3	17.9		38.0		26.1		8.9		4.2		8.3	
25th Percentile			2.5	6.4	14.1		32.6		22.9		2.5		-0.1		5.4	
50th Percentile			1.6	5.0	12.4		30.6		19.6		0.2		-2.0		3.5	
75th Percentile			0.5	3.3	10.6		27.5		17.1		-1.6		-3.7		2.1	
95th Percentile			-1.4	1.3	7.9		22.5		14.3		-5.3		-6.0		0.4	
MANAGER F (N)	0.8	70	5.0	50	13.4	35	29.9	55	20.0	47	2.2	28	0.9	20	6.7	16
MSCI EAFE INDEX	1.8	43	5.3	43	12.4	51	30.9	46	18.0	66	-1.3	71	-3.6	74	2.0	77

SAMPLE CLIENT

CONSECUTIVE PERFORMANCE COMPARISONS

Period Ending: June 30, 2011



Int'l Developed Market Equity

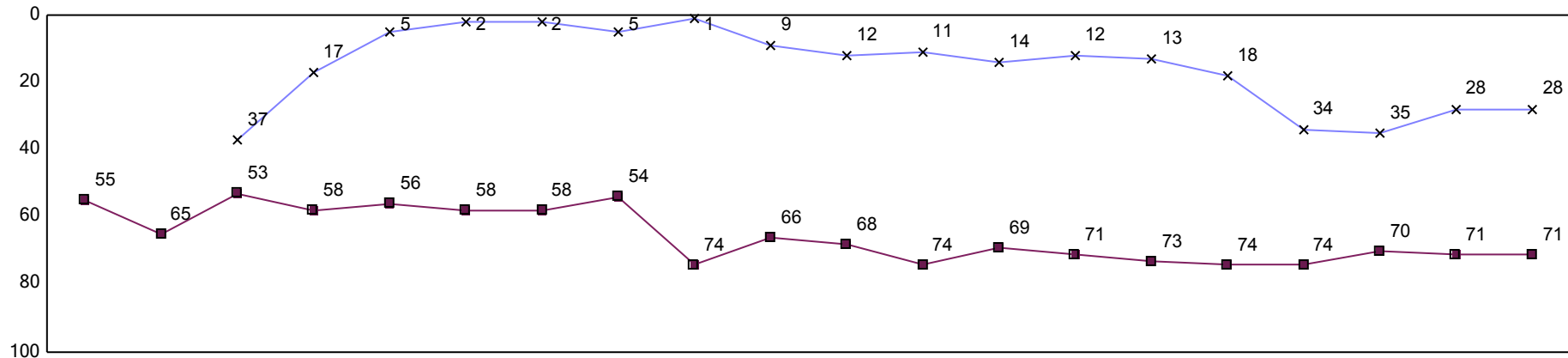
	June 2011 Return Rank		June 2010 Return Rank		June 2009 Return Rank		June 2008 Return Rank		June 2007 Return Rank	
5th Percentile	38.0		18.9		-12.0		-0.7		36.6	
25th Percentile	32.6		13.9		-25.0		-6.0		31.1	
50th Percentile	30.6		9.0		-29.8		-9.7		28.4	
75th Percentile	27.5		6.3		-33.7		-12.3		26.2	
95th Percentile	22.5		3.2		-39.6		-17.1		19.0	
MANAGER F (N)	29.9	55	10.8	41	-25.8	29	-2.9	13	33.6	16
MSCI EAFE INDEX	30.9	46	6.4	74	-31.0	58	-10.2	54	27.5	60

SAMPLE CLIENT

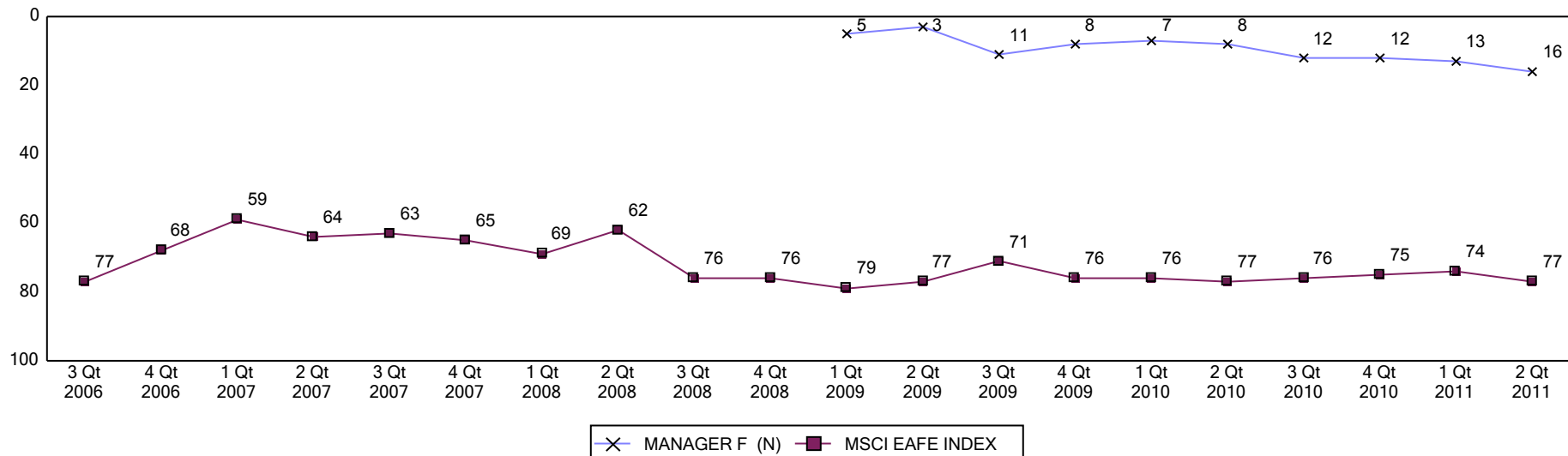
ROLLING RETURN RANKING 3 & 5 YEARS

Period Ending: June 30, 2011

Ranking Comparisons - Rolling 3 Years



Ranking Comparisons - Rolling 5 Years



Note: data is ranked against the Int'l Developed Market Equity Universe

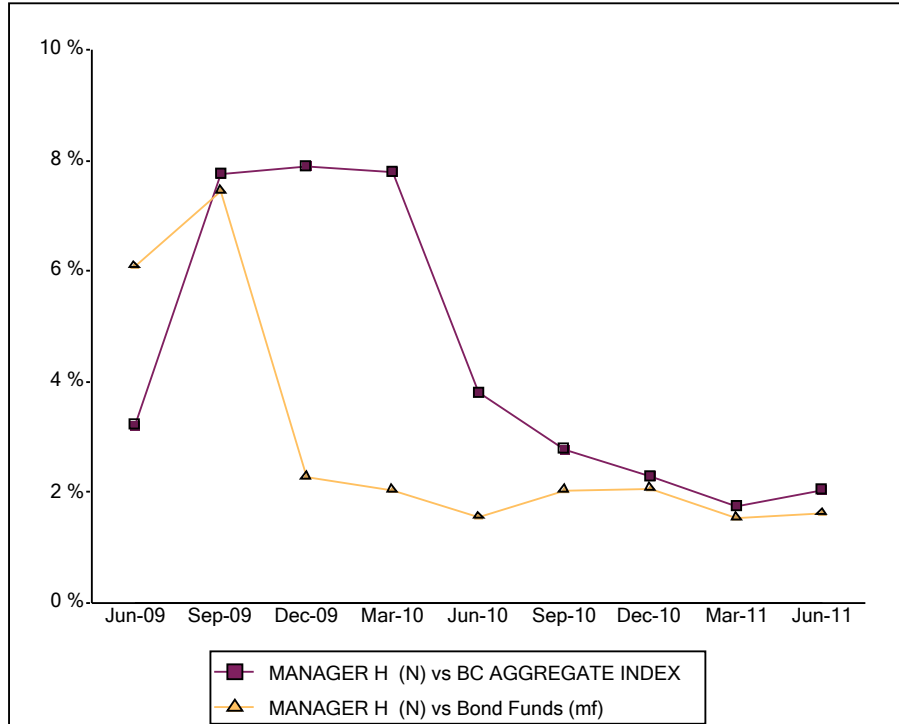
SAMPLE CLIENT

COMPARATIVE INVESTMENT PERFORMANCE RESULTS

Period Ending: June 30, 2011

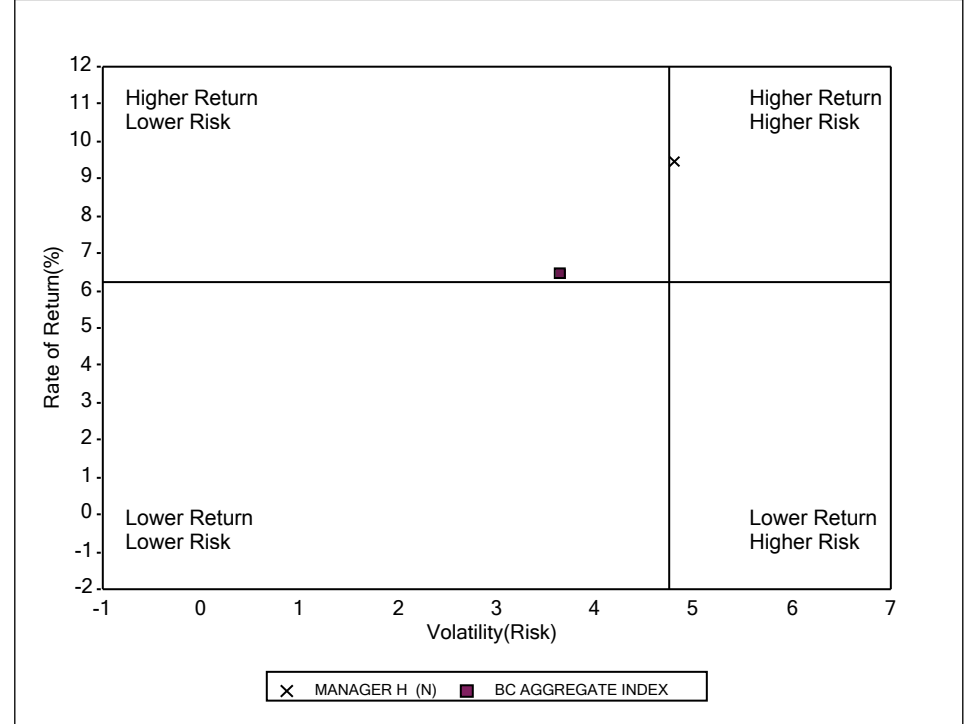
MANAGER H (N)

Rolling 1 - Year Value Added



Risk - Return Analysis

3 Years Ending June 30, 2011

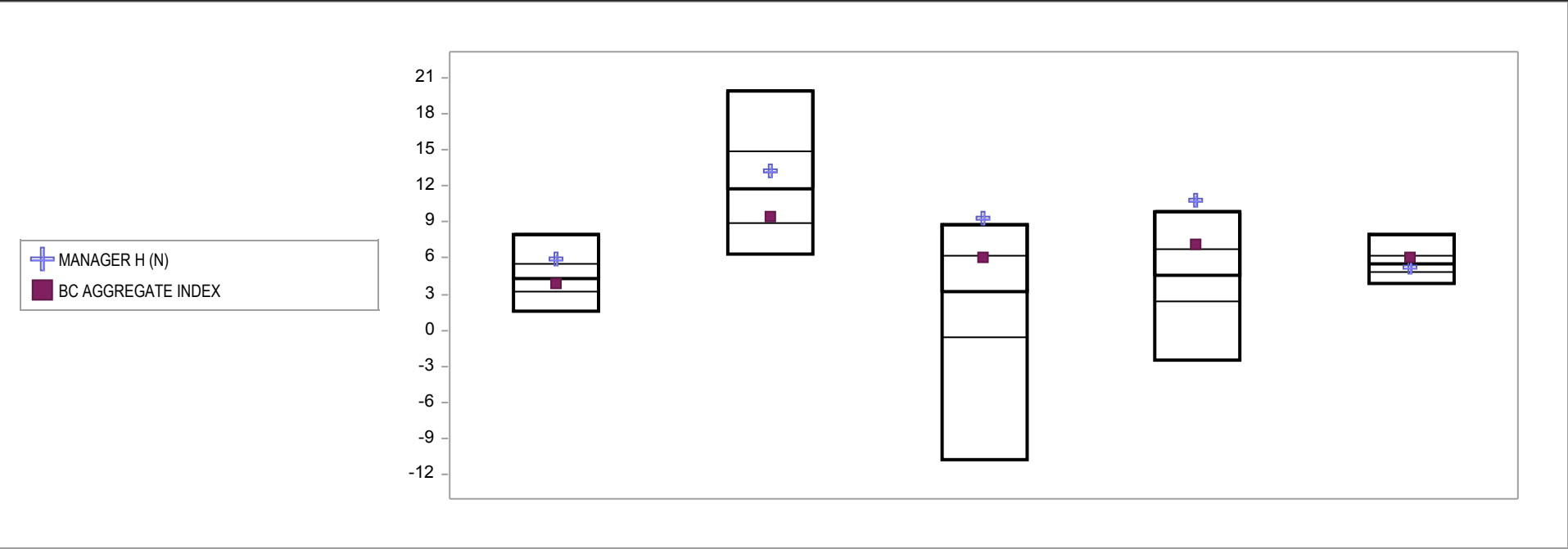


Bond Funds (mf)	Last Quarter		Two Quarters		Three Quarters		One Year		Two Years		Three Years		Four Years		Five Years	
	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile			3.2	5.0	4.3		7.9		12.6		9.3		8.1		7.6	
25th Percentile			2.2	3.2	2.7		5.6		9.3		7.2		7.0		6.7	
50th Percentile			2.0	2.7	1.7		4.3		7.5		6.2		6.2		6.0	
75th Percentile			1.8	2.3	0.8		3.2		5.9		5.2		5.3		5.3	
95th Percentile			1.4	1.6	-0.5		1.7		4.0		3.4		3.0		3.6	
MANAGER H (N)	1.9	67	3.0	35	2.0	42	5.9	22	9.6	24	9.5	5	9.8	1	8.9	1
BC AGGREGATE INDEX	2.3	24	2.7	48	1.4	59	3.9	60	6.7	64	6.5	44	6.6	36	6.5	30

SAMPLE CLIENT

CONSECUTIVE PERFORMANCE COMPARISONS

Period Ending: June 30, 2011



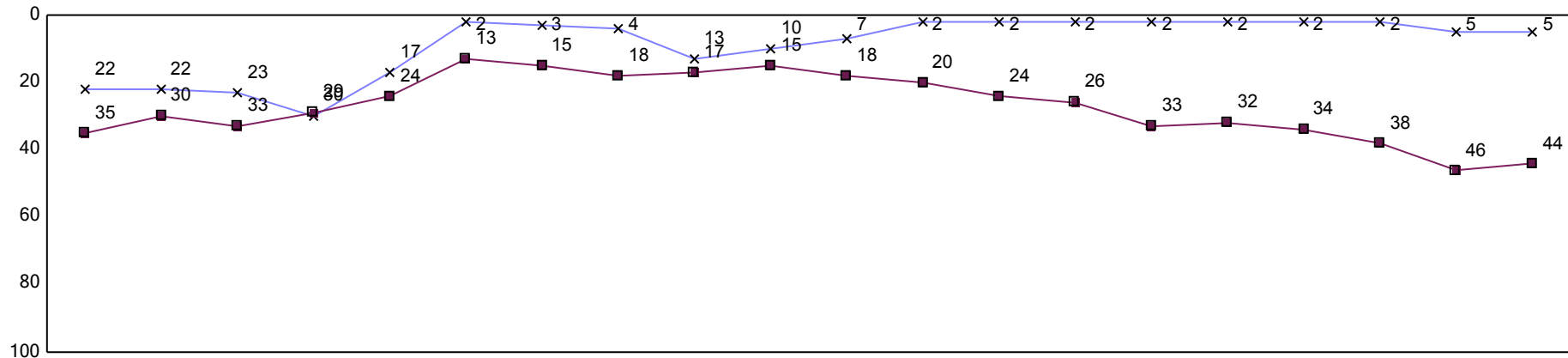
Bond Funds (mf)	June 2011		June 2010		June 2009		June 2008		June 2007	
	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile	7.9		19.8		8.7		9.8		8.0	
25th Percentile	5.6		14.9		6.2		6.8		6.1	
50th Percentile	4.3		11.8		3.2		4.6		5.5	
75th Percentile	3.2		8.9		-0.5		2.4		4.9	
95th Percentile	1.7		6.3		-10.7		-2.5		3.9	
MANAGER H (N)	5.9	22	13.3	38	9.3	4	10.8	3	5.2	63
BC AGGREGATE INDEX	3.9	60	9.5	70	6.1	26	7.1	23	6.1	26

SAMPLE CLIENT

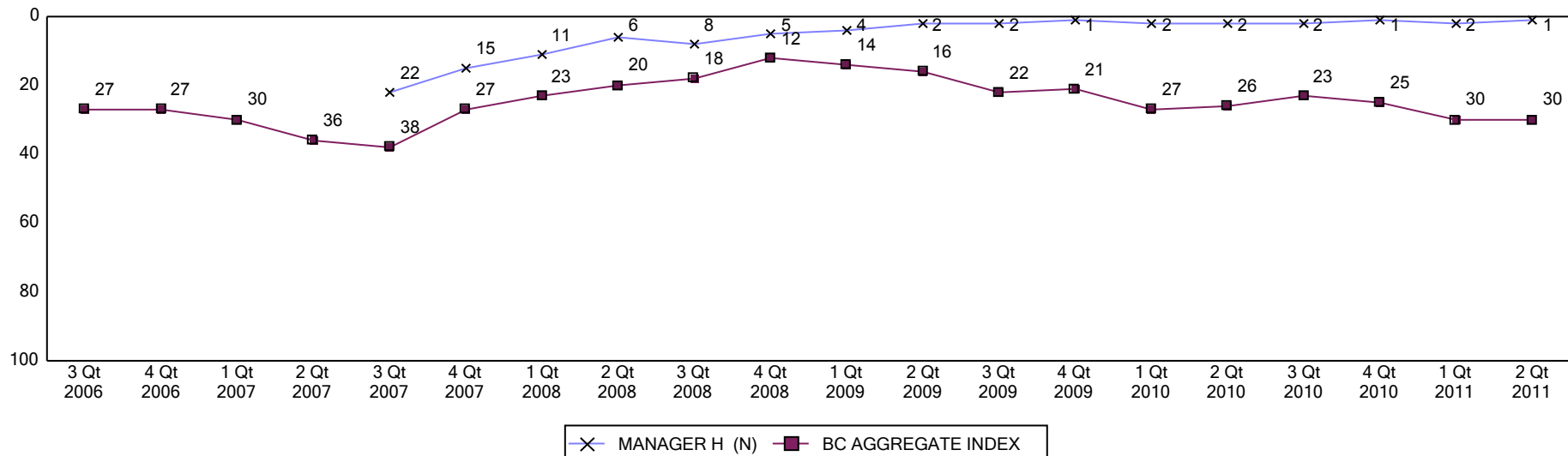
ROLLING RETURN RANKING 3 & 5 YEARS

Period Ending: June 30, 2011

Ranking Comparisons - Rolling 3 Years



Ranking Comparisons - Rolling 5 Years



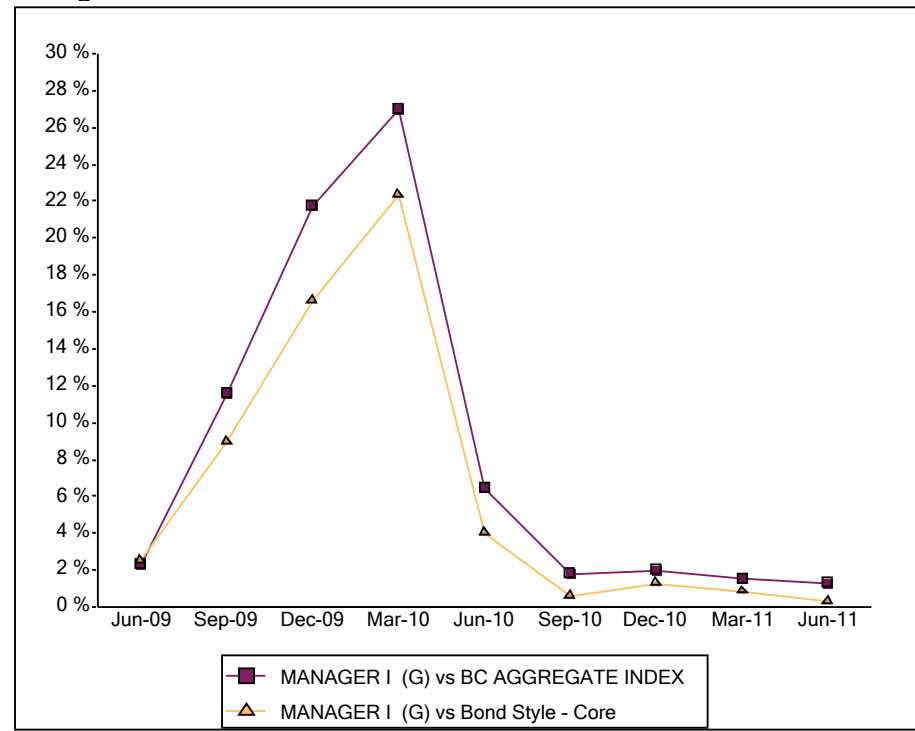
Note: data is ranked against the Bond Funds (mf) Universe

SAMPLE CLIENT

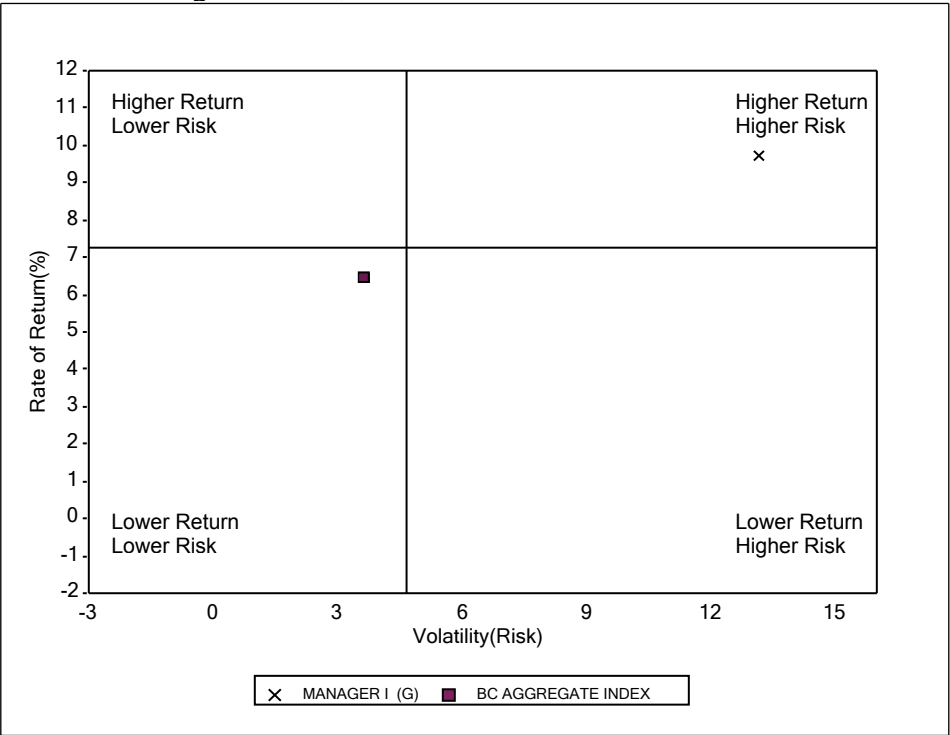
COMPARATIVE INVESTMENT PERFORMANCE RESULTS

Period Ending: June 30, 2011

MANAGER I (G)
Rolling 1 - Year Value Added



Risk - Return Analysis
3 Years Ending June 30, 2011

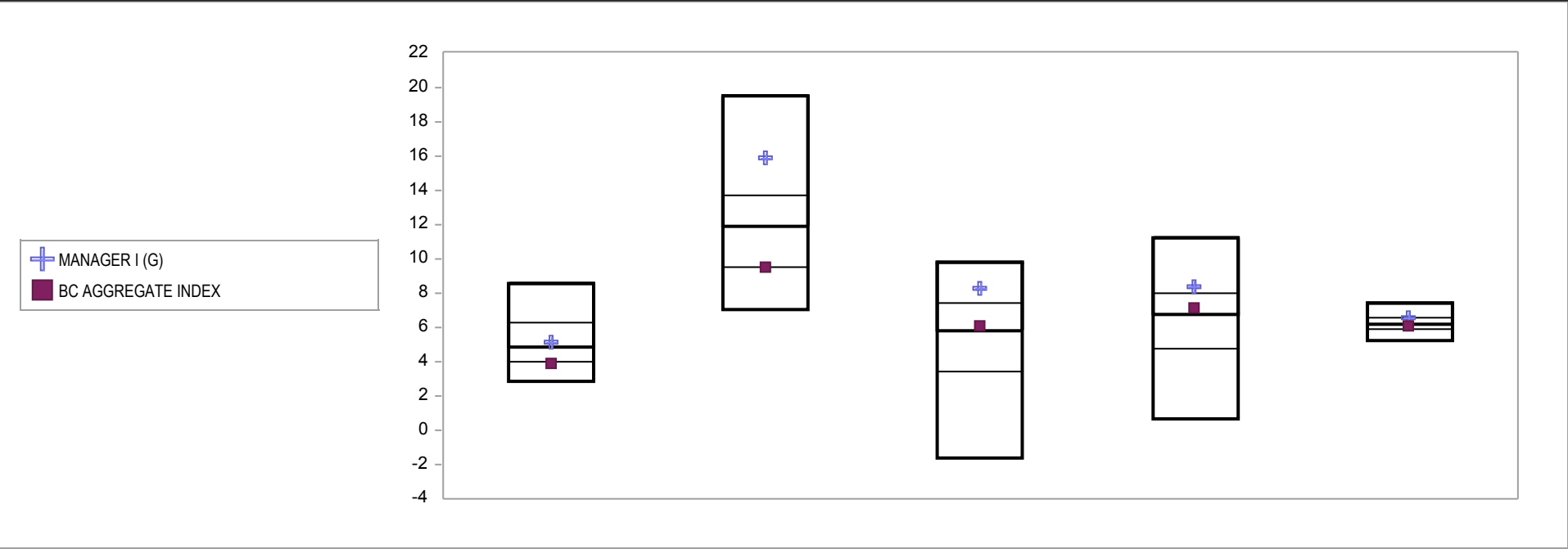


Bond Style - Core	Last Quarter		Two Quarters		Three Quarters		One Year		Two Years		Three Years		Four Years		Five Years	
	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile			3.0		5.2		4.8		8.6		13.3		10.3		9.5	
25th Percentile			2.3		3.4		2.7		6.3		9.9		8.5		7.9	
50th Percentile			2.2		2.9		1.9		4.9		8.4		7.3		7.0	
75th Percentile			2.0		2.6		1.3		4.0		6.7		6.4		6.5	
95th Percentile			1.5		2.1		0.4		2.8		5.2		5.2		5.3	
MANAGER I (G)			2.1	58	3.0	43	2.4	36	5.2	45	10.4	22	9.7	11	8.8	7
BC AGGREGATE INDEX			2.3	34	2.7	67	1.4	72	3.9	76	6.7	75	6.5	73	6.6	74

SAMPLE CLIENT

CONSECUTIVE PERFORMANCE COMPARISONS

Period Ending: June 30, 2011



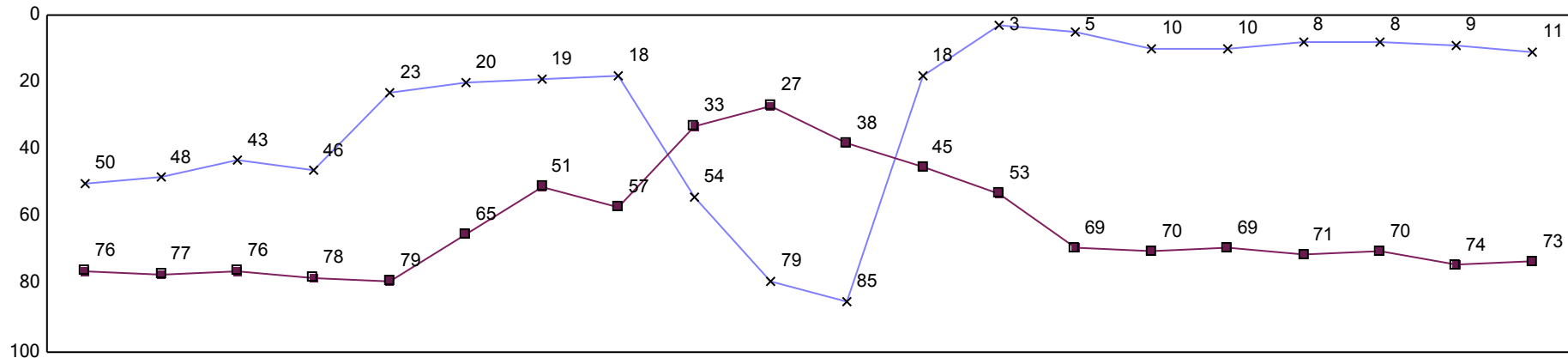
Bond Style - Core	June 2011		June 2010		June 2009		June 2008		June 2007	
	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile	8.6		19.5		9.8		11.2		7.5	
25th Percentile	6.3		13.8		7.5		8.0		6.6	
50th Percentile	4.9		11.9		5.8		6.8		6.2	
75th Percentile	4.0		9.6		3.4		4.8		5.9	
95th Percentile	2.8		7.1		-1.6		0.7		5.3	
MANAGER I (G)	5.2	45	15.9	17	8.3	17	8.4	23	6.5	28
BC AGGREGATE INDEX	3.9	76	9.5	76	6.1	46	7.1	43	6.1	56

SAMPLE CLIENT

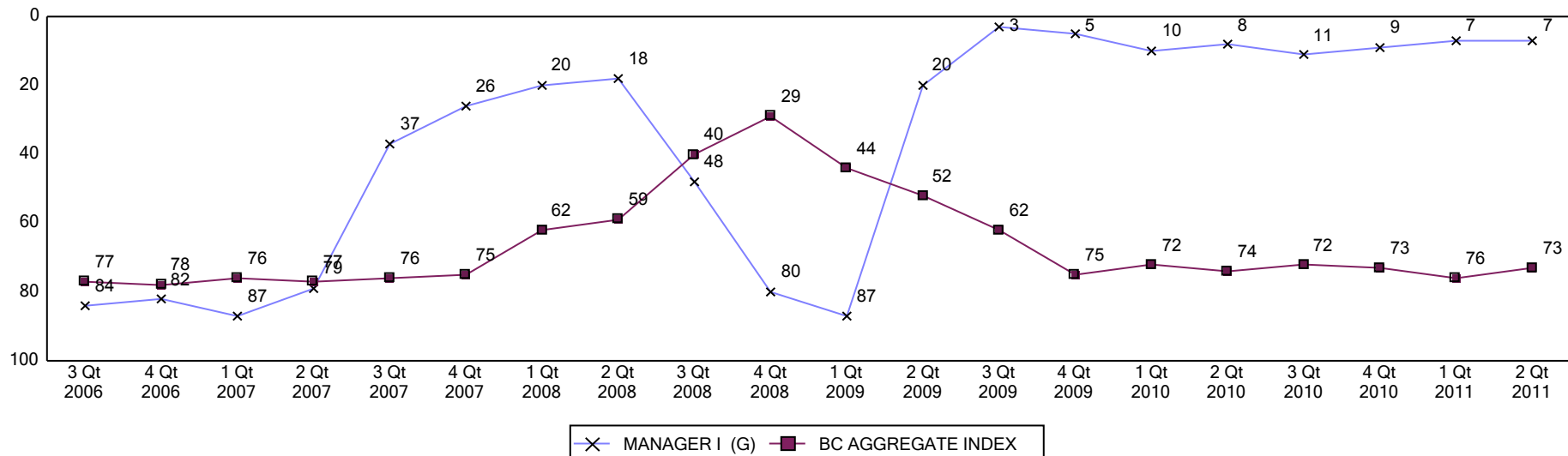
ROLLING RETURN RANKING 3 & 5 YEARS

Period Ending: June 30, 2011

Ranking Comparisons - Rolling 3 Years



Ranking Comparisons - Rolling 5 Years



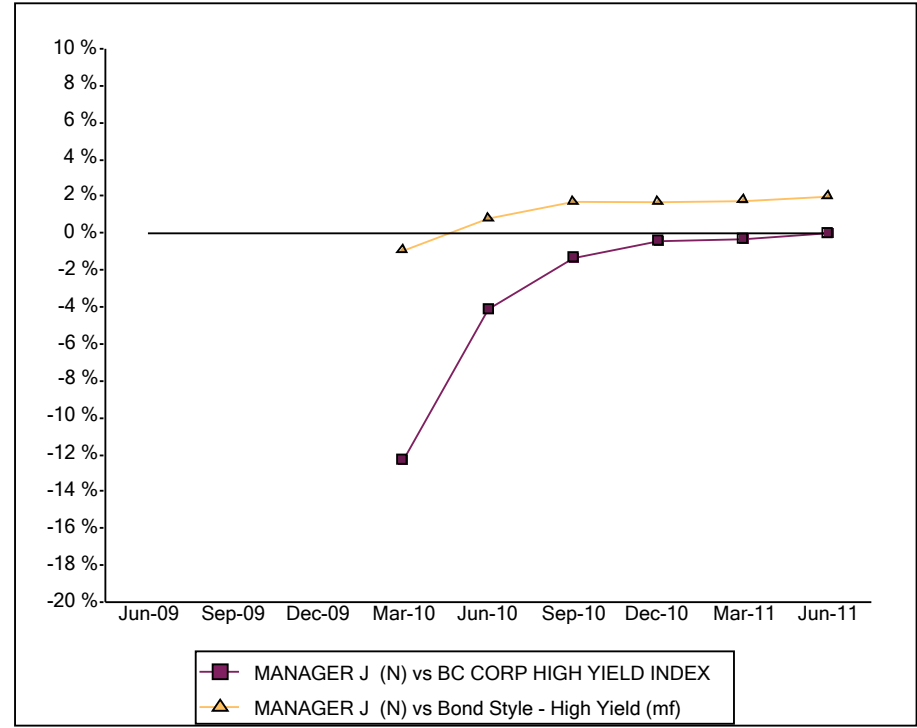
Note: data is ranked against the Bond Style - Core Universe

SAMPLE CLIENT

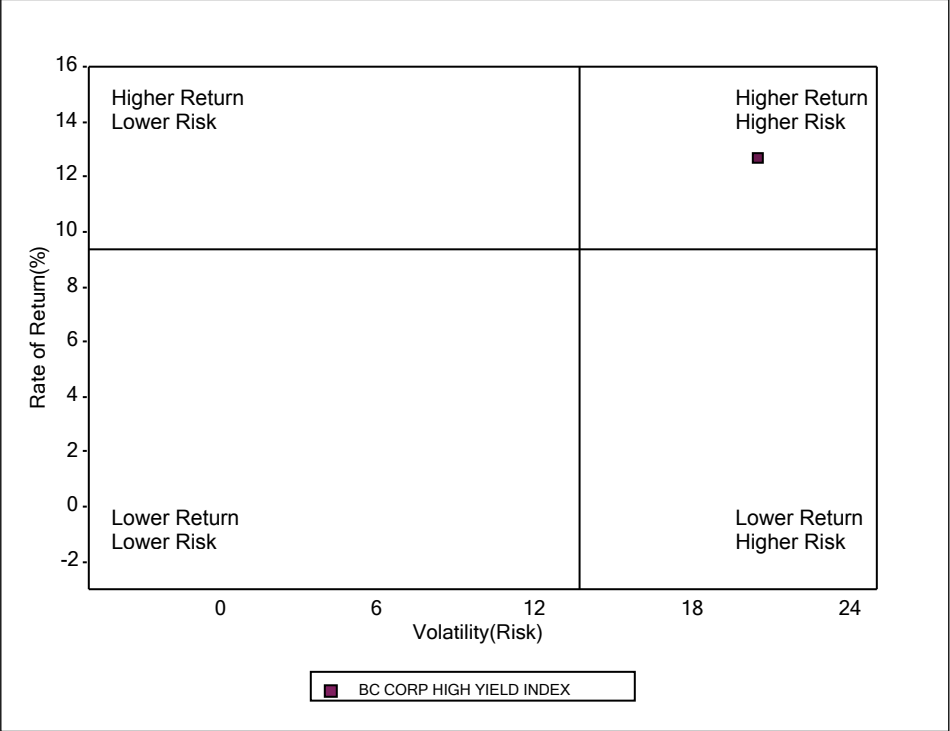
COMPARATIVE INVESTMENT PERFORMANCE RESULTS

Period Ending: June 30, 2011

MANAGER J (N)
Rolling 1 - Year Value Added



Risk - Return Analysis
3 Years Ending June 30, 2011

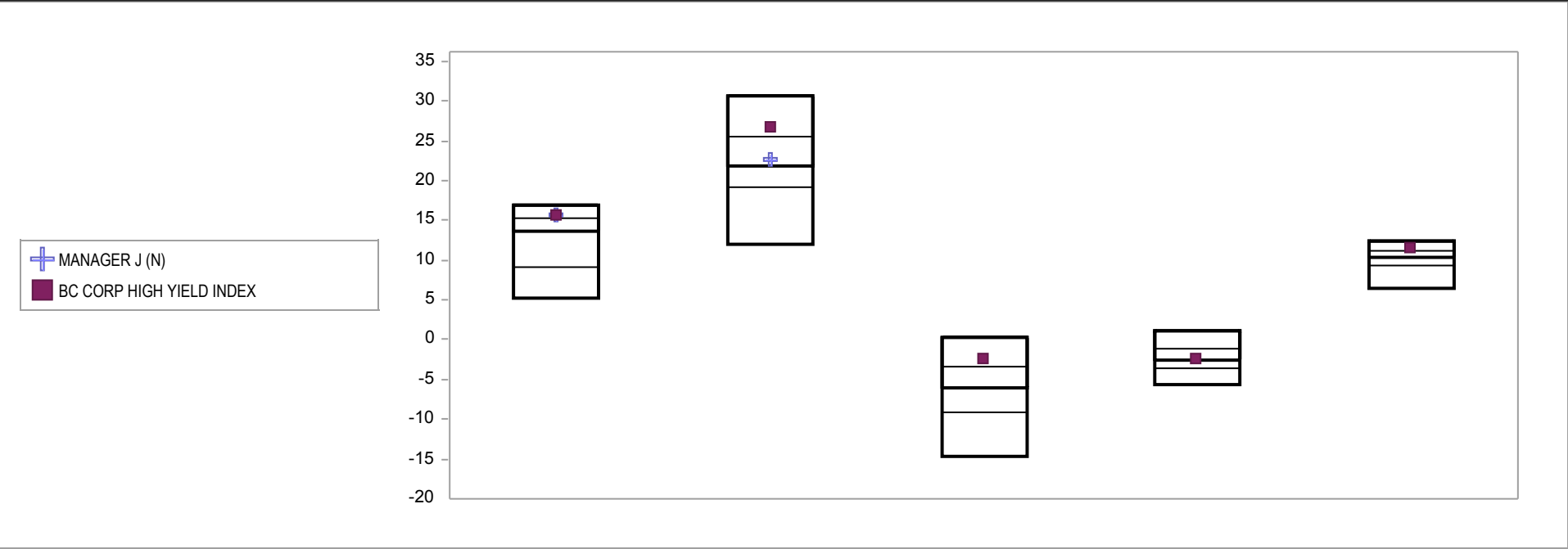


Bond Style - High Yield (mf)			Last Quarter		Two Quarters		Three Quarters		One Year		Two Years		Three Years		Four Years		Five Years	
			Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile			2.9		5.3		9.6		16.8		22.8		12.6		9.2		9.6	
25th Percentile			1.2		4.5		8.2		15.3		19.7		10.6		7.6		8.2	
50th Percentile			0.7		4.0		6.9		13.7		17.4		9.4		6.5		7.2	
75th Percentile			0.4		3.2		4.5		9.1		13.6		7.0		5.1		5.9	
95th Percentile			0.0		1.8		1.8		5.2		9.0		4.0		2.0		3.0	
MANAGER J (N)			0.7	49	4.6	25	8.2	26	15.6	20	19.1	31						
BC CORP HIGH YIELD INDEX			1.1	30	5.0	13	8.4	23	15.6	20	21.1	16	12.7	5	8.7	11	9.3	9

SAMPLE CLIENT

CONSECUTIVE PERFORMANCE COMPARISONS

Period Ending: June 30, 2011



Bond Style - High Yield (mf)	June 2011		June 2010		June 2009		June 2008		June 2007	
	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile	16.8		30.6		0.3		1.2		12.5	
25th Percentile	15.3		25.5		-3.4		-1.1		11.2	
50th Percentile	13.7		21.9		-6.1		-2.5		10.3	
75th Percentile	9.1		19.1		-9.2		-3.7		9.3	
95th Percentile	5.2		12.0		-14.7		-5.7		6.6	
MANAGER J (N)	15.6	20	22.7	45						
BC CORP HIGH YIELD INDEX	15.6	20	26.8	20	-2.4	20	-2.3	46	11.6	19

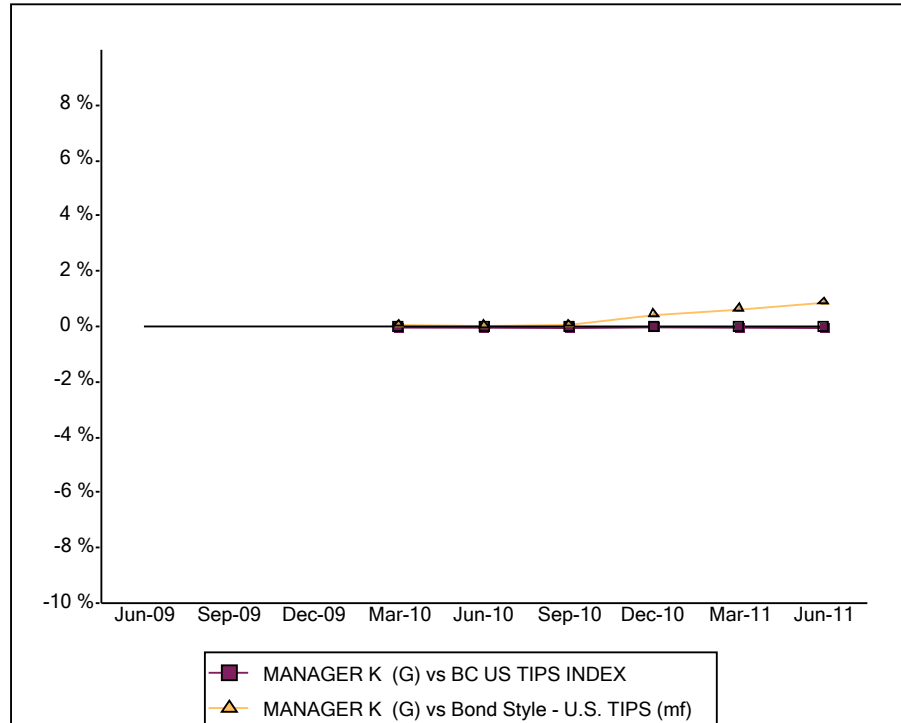
SAMPLE CLIENT

COMPARATIVE INVESTMENT PERFORMANCE RESULTS

Period Ending: June 30, 2011

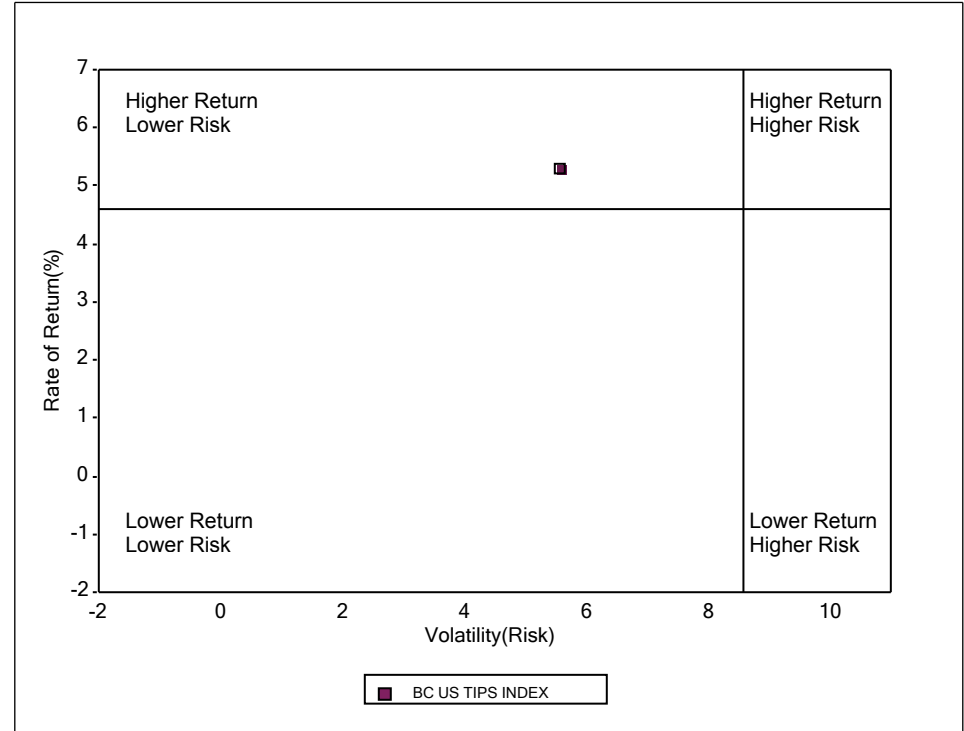
MANAGER K (G)

Rolling 1 - Year Value Added



Risk - Return Analysis

3 Years Ending June 30, 2011

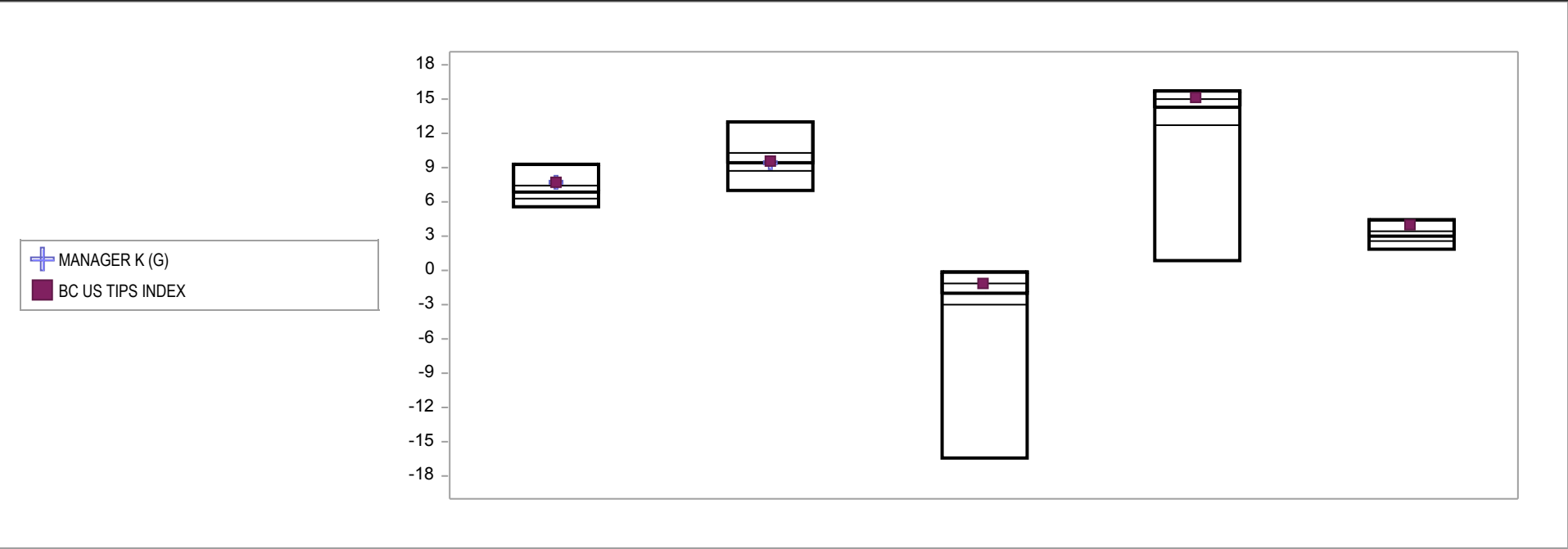


Bond Style - U.S. TIPS (mf)		Last Quarter		Two Quarters		Three Quarters		One Year		Two Years		Three Years		Four Years		Five Years	
		Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile		3.7		5.8		5.3		9.3		10.4		6.0		8.2		7.2	
25th Percentile		3.4		5.3		4.5		7.5		8.6		5.2		7.4		6.6	
50th Percentile		3.2		5.1		4.2		6.8		8.1		4.6		6.8		6.1	
75th Percentile		2.8		4.8		3.7		6.3		7.6		4.0		6.2		5.6	
95th Percentile		1.5		3.8		3.3		5.6		6.8		-0.2		0.6		1.0	
MANAGER K (G)		3.6	7	5.8	6	5.1	11	7.7	23	8.6	26						
BC US TIPS INDEX		3.7	6	5.8	5	5.1	10	7.7	22	8.6	25	5.3	22	7.6	19	6.9	16

SAMPLE CLIENT

CONSECUTIVE PERFORMANCE COMPARISONS

Period Ending: June 30, 2011



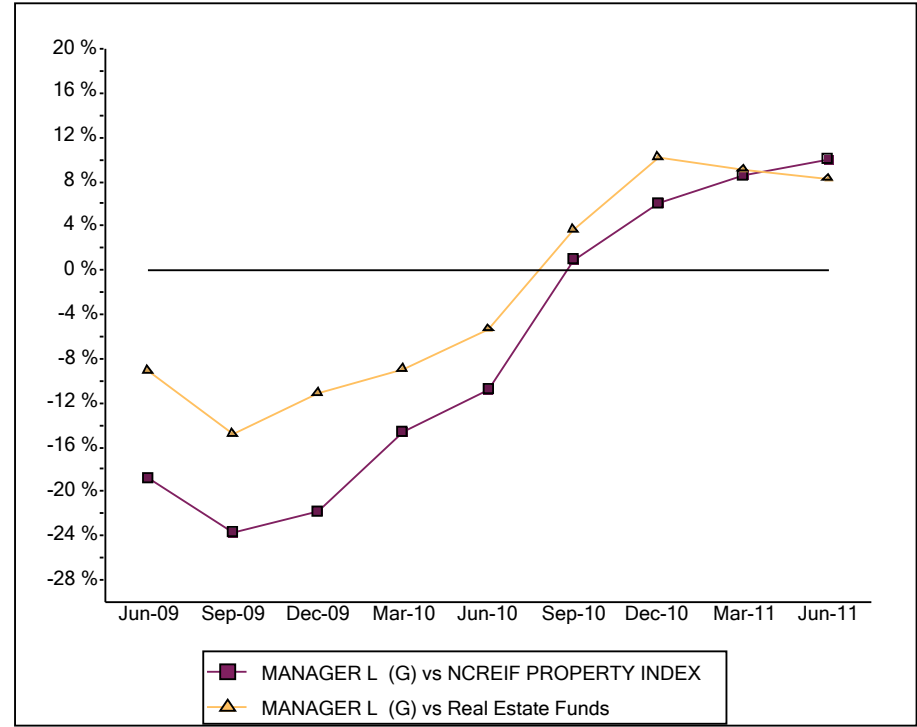
Bond Style - U.S. TIPS (mf)		June 2011 Return Rank		June 2010 Return Rank		June 2009 Return Rank		June 2008 Return Rank		June 2007 Return Rank	
5th Percentile		9.3		13.0		-0.2		15.7		4.4	
25th Percentile		7.5		10.3		-1.1		15.1		3.4	
50th Percentile		6.8		9.5		-2.0		14.3		3.0	
75th Percentile		6.3		8.8		-3.0		12.7		2.6	
95th Percentile		5.6		7.0		-16.4		0.8		1.9	
MANAGER K (G)		7.7	23	9.5	49	-1.1	25	15.1	25	4.0	13
BC US TIPS INDEX		7.7	22	9.5	48	-1.1	25	15.1	25	4.0	13

SAMPLE CLIENT

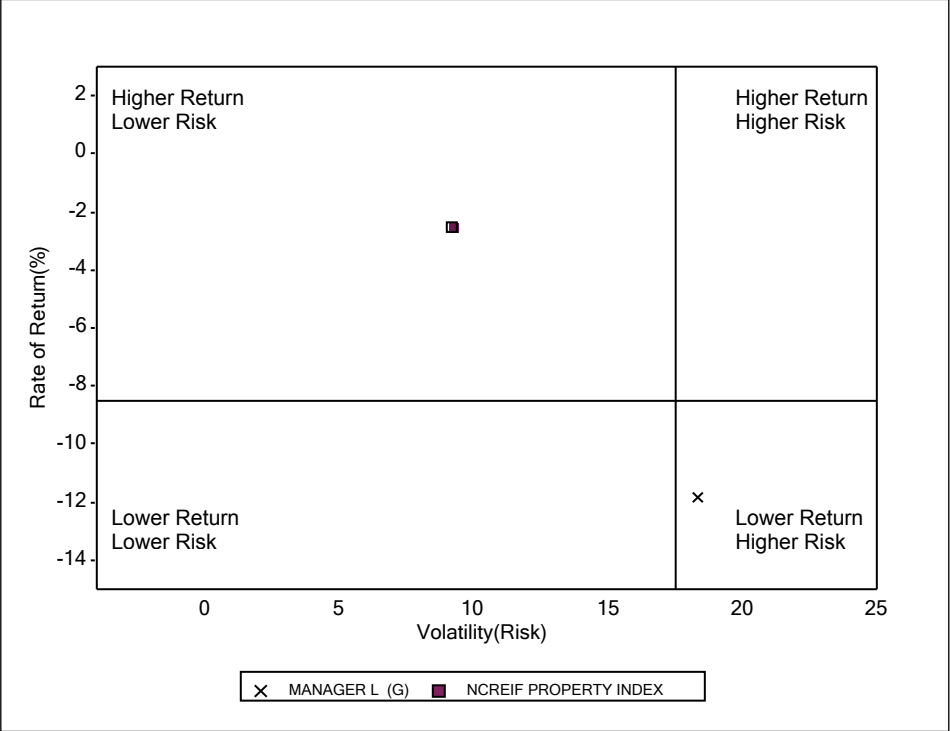
COMPARATIVE INVESTMENT PERFORMANCE RESULTS

Period Ending: June 30, 2011

MANAGER L (G)
Rolling 1 - Year Value Added



Risk - Return Analysis
3 Years Ending June 30, 2011

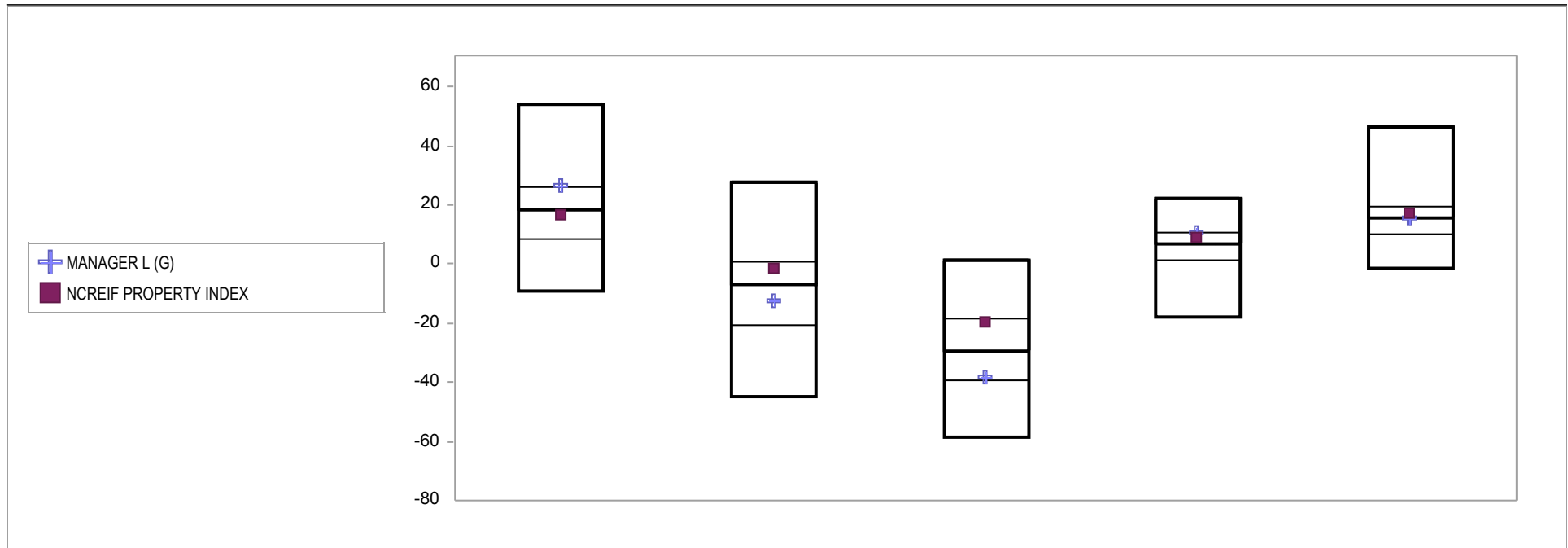


Real Estate Funds	Last Quarter		Two Quarters		Three Quarters		One Year		Two Years		Three Years		Four Years		Five Years	
	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile			11.4	25.7	39.1		54.1		30.5		8.9		8.2		11.8	
25th Percentile			5.1	10.2	18.1		26.0		8.4		-3.7		-1.5		2.3	
50th Percentile			3.3	7.3	12.5		18.5		4.2		-8.5		-4.8		-0.5	
75th Percentile			0.0	2.6	6.3		8.7		-4.1		-16.1		-9.7		-4.3	
95th Percentile			-1.7	-6.9	-7.4		-9.2		-27.4		-35.7		-25.9		-19.2	
MANAGER L (G)	4.2	37	10.7	24	18.3	25	26.7	25	5.4	43	-11.8	61	-6.7	59	-2.6	63
NCREIF PROPERTY INDEX	3.9	41	7.4	49	12.4	51	16.7	54	7.2	32	-2.6	23	0.3	21	3.4	23

SAMPLE CLIENT

CONSECUTIVE PERFORMANCE COMPARISONS

Period Ending: June 30, 2011



Real Estate Funds

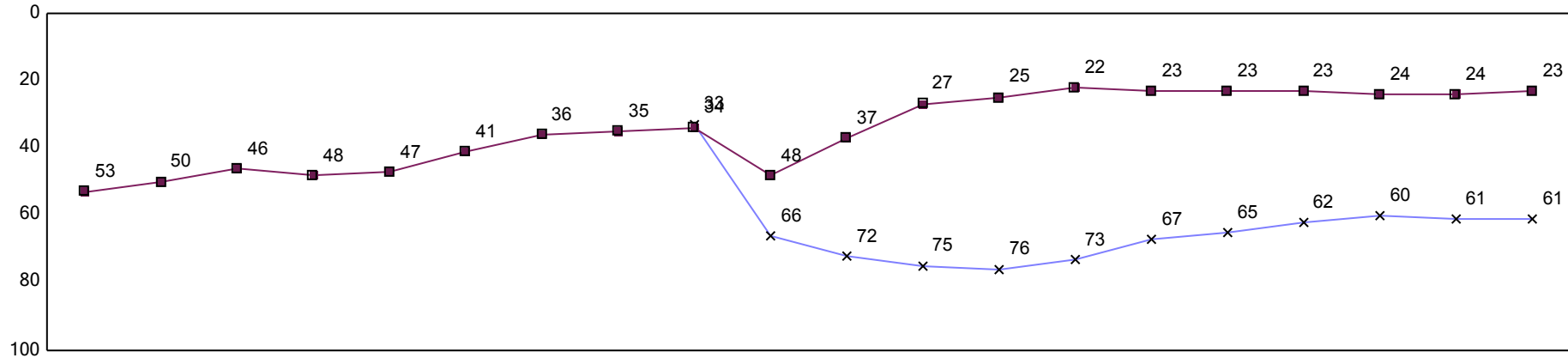
	June 2011 Return Rank		June 2010 Return Rank		June 2009 Return Rank		June 2008 Return Rank		June 2007 Return Rank	
5th Percentile	54.1		27.5		1.5		22.3		46.4	
25th Percentile	26.0		1.0		-18.6		10.8		19.4	
50th Percentile	18.5		-7.0		-29.3		6.8		15.5	
75th Percentile	8.7		-20.5		-39.2		1.3		10.2	
95th Percentile	-9.2		-44.7		-58.8		-17.8		-1.7	
MANAGER L (G)	26.7	25	-12.3	60	-38.3	73	10.8	25	15.7	48
NCREIF PROPERTY INDEX	16.7	54	-1.5	33	-19.6	27	9.2	35	17.2	39

SAMPLE CLIENT

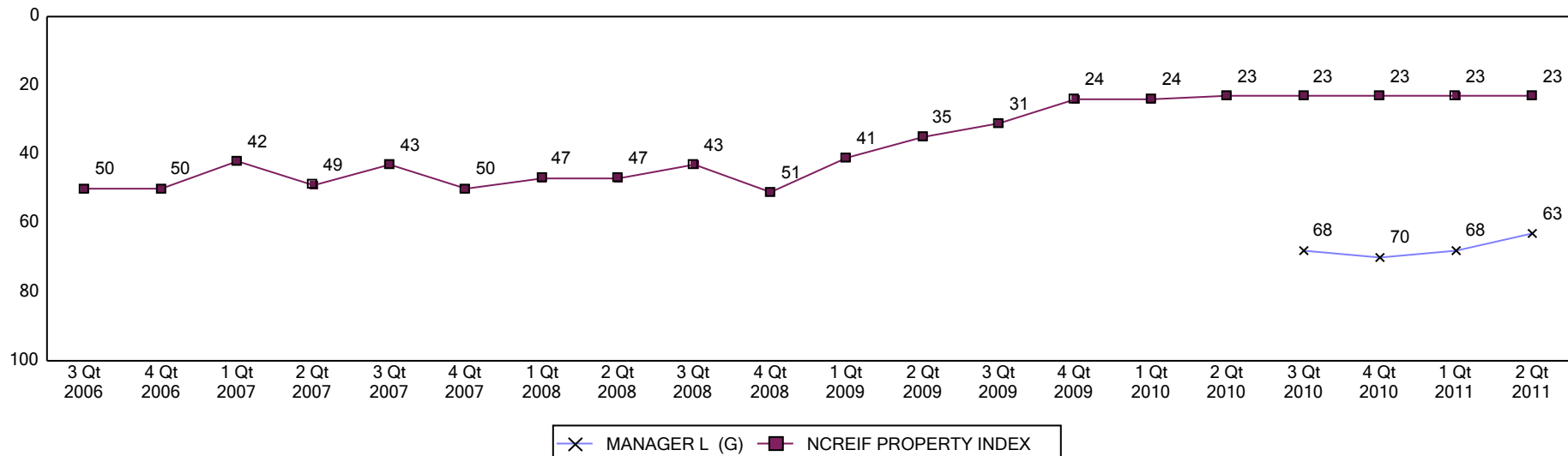
ROLLING RETURN RANKING 3 & 5 YEARS

Period Ending: June 30, 2011

Ranking Comparisons - Rolling 3 Years



Ranking Comparisons - Rolling 5 Years



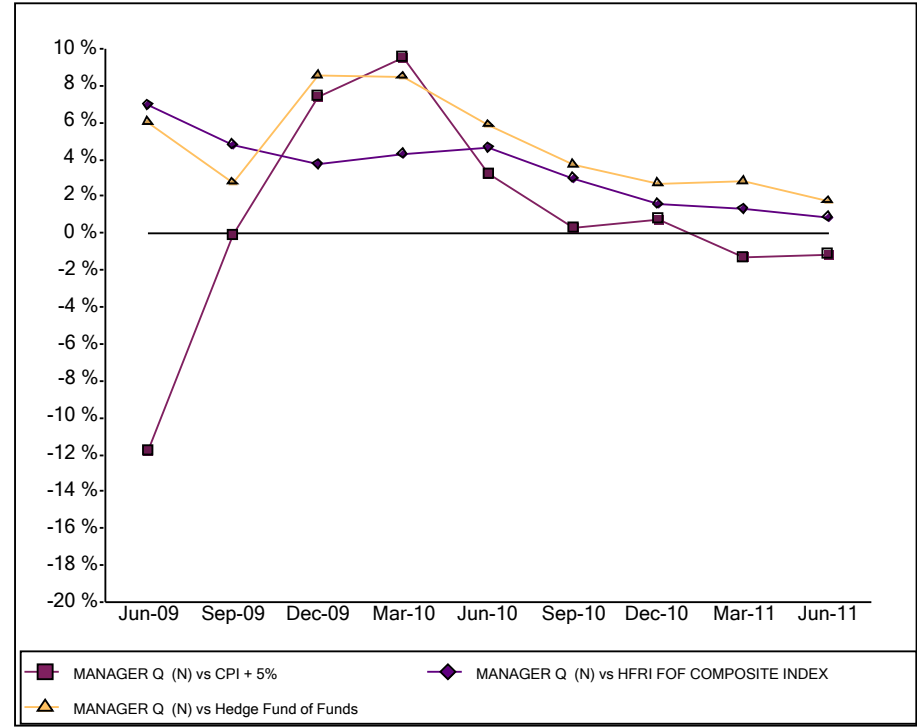
Note: data is ranked against the Real Estate Funds Universe

SAMPLE CLIENT

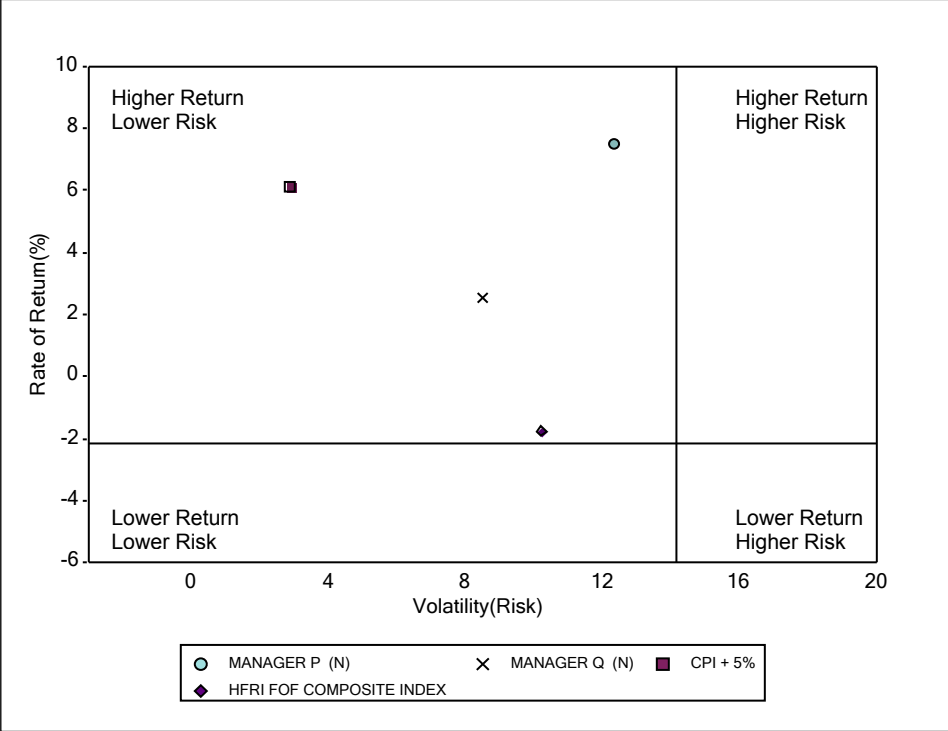
COMPARATIVE INVESTMENT PERFORMANCE RESULTS

Period Ending: June 30, 2011

MANAGER Q (N)
Rolling 1 - Year Value Added



Risk - Return Analysis
3 Years Ending June 30, 2011

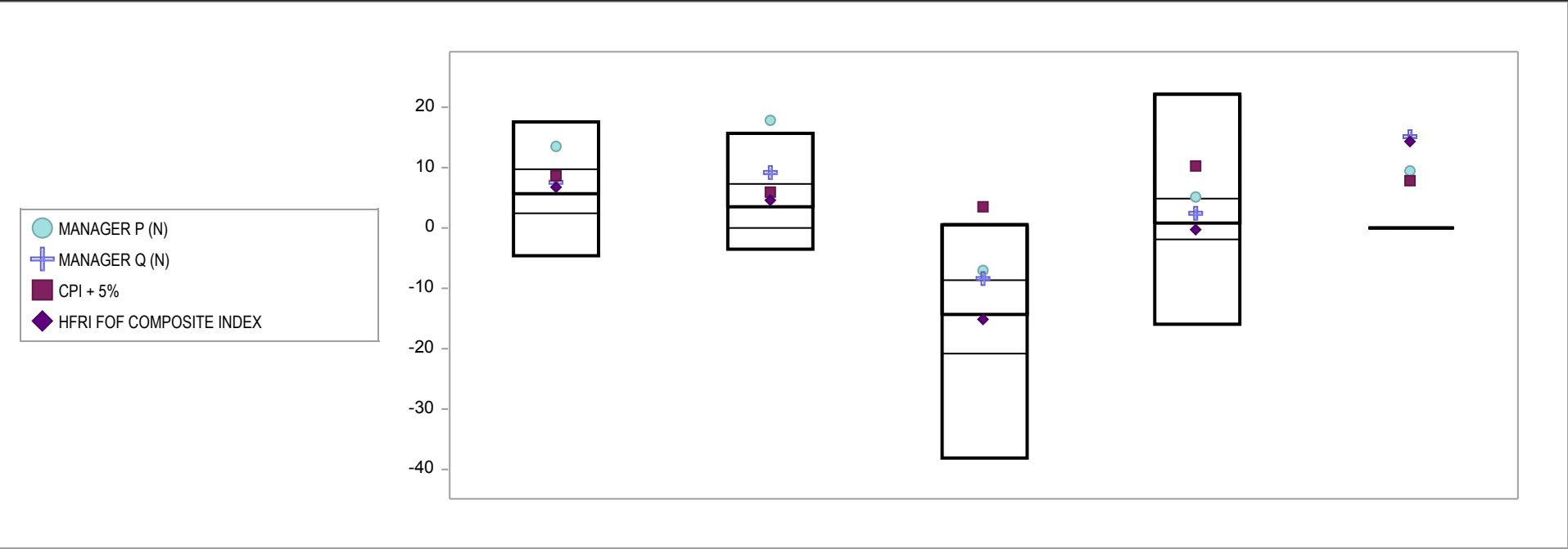


Hedge Fund of Funds	Last Quarter		Two Quarters		Three Quarters		One Year		Two Years		Three Years		Four Years		Five Years	
	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile			1.2	3.1	10.6		17.5		15.6		3.3		3.2		6.2	
25th Percentile			-0.4	0.2	4.6		9.8		8.7		-0.2		-0.4		3.0	
50th Percentile			-1.7	-2.3	2.2		5.8		6.4		-2.2		-2.9		0.4	
75th Percentile			-4.5	-7.1	-2.3		2.5		3.6		-5.6		-6.4		-1.4	
95th Percentile			-8.1	-10.1	-8.3		-4.5		-4.7		-18.8		-14.1		-8.1	
MANAGER P (N)	1.6	4	4.9	2	6.1	20	13.5	15	15.6	5	7.5	1	6.9	2	7.4	3
MANAGER Q (N)	-0.2	23	1.7	15	4.9	24	7.5	39	8.4	28	2.5	9	2.5	9	4.9	13
CPI + 5%	2.2	2	5.5	2	7.1	17	8.7	32	7.4	39	6.1	2	7.1	2	7.2	3
HFRI FOF COMPOSITE INDEX	-1.2	40	-0.3	30	3.3	39	6.7	44	5.7	57	-1.8	46	-1.4	35	1.5	39

SAMPLE CLIENT

CONSECUTIVE PERFORMANCE COMPARISONS

Period Ending: June 30, 2011



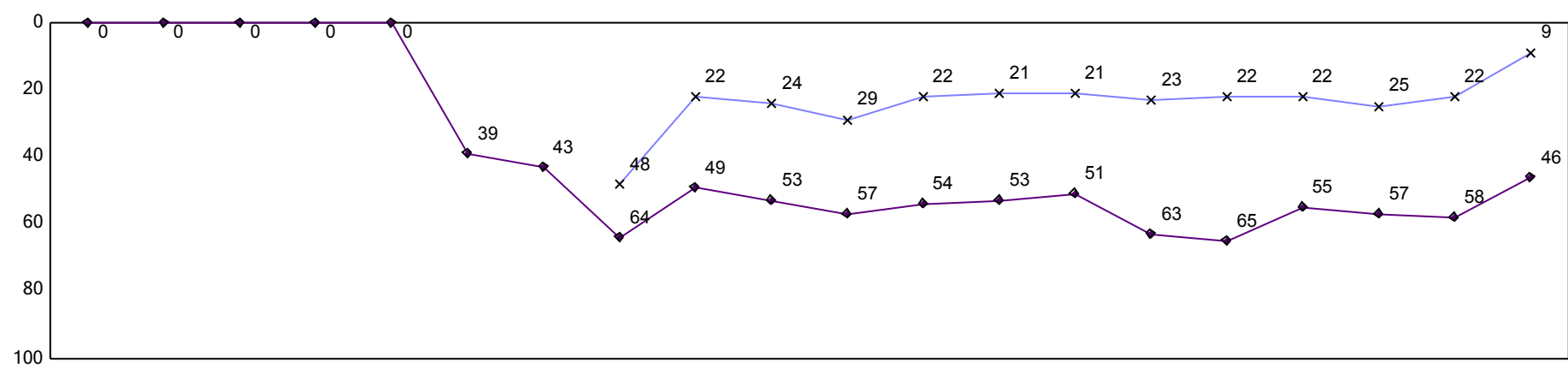
Hedge Fund of Funds	June 2011 Return Rank		June 2010 Return Rank		June 2009 Return Rank		June 2008 Return Rank		June 2007 Return Rank	
5th Percentile	17.5		15.6		0.5		22.2			
25th Percentile	9.8		7.5		-8.8		5.0			
50th Percentile	5.8		3.5		-14.3		0.9			
75th Percentile	2.5		-0.1		-21.0		-1.8			
95th Percentile	-4.5		-3.4		-38.1		-15.9			
MANAGER P (N)	13.5	15	17.8	4	-7.0	21	5.2	25	9.4	
MANAGER Q (N)	7.5	39	9.3	20	-8.3	24	2.4	41	15.3	
CPI + 5%	8.7	32	6.1	34	3.5	3	10.2	19	7.8	
HFRI FOF COMPOSITE INDEX	6.7	44	4.7	42	-15.2	54	-0.2	60	14.3	

SAMPLE CLIENT

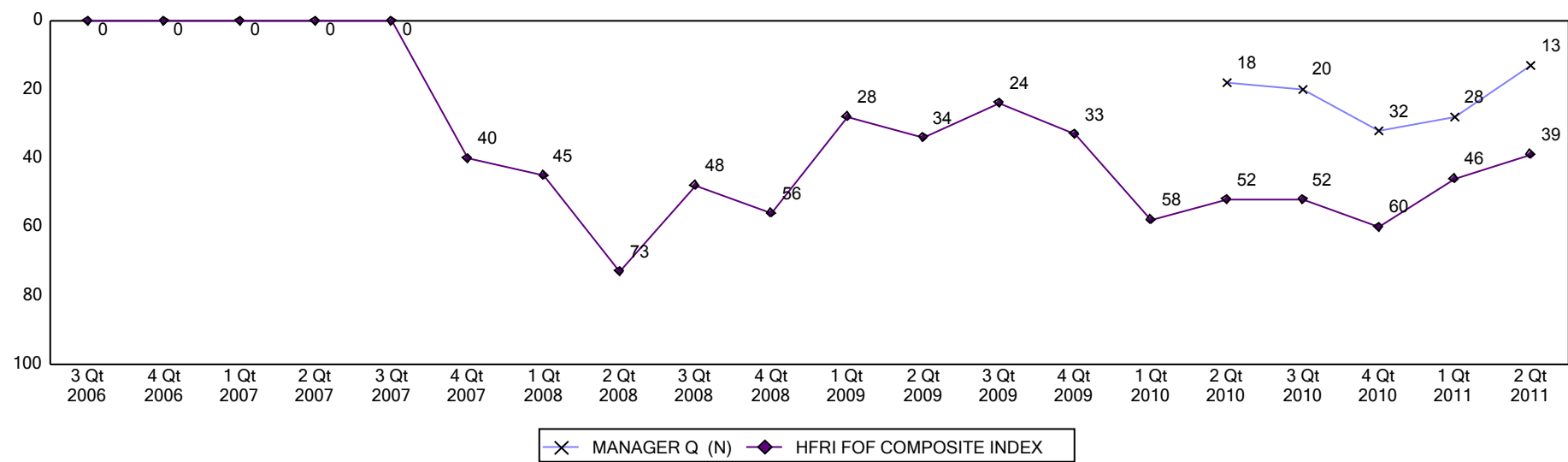
ROLLING RETURN RANKING 3 & 5 YEARS

Period Ending: June 30, 2011

Ranking Comparisons - Rolling 3 Years



Ranking Comparisons - Rolling 5 Years



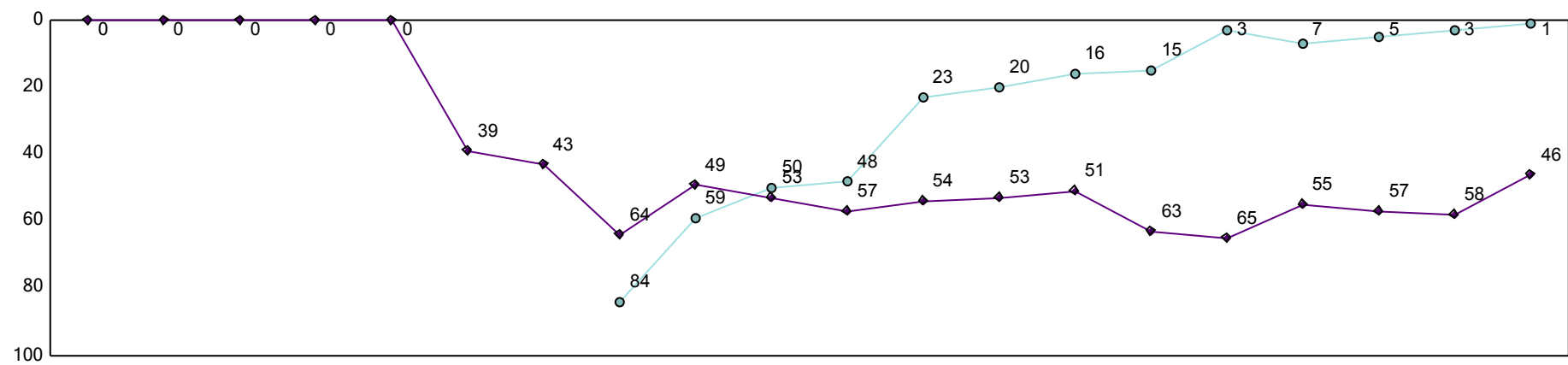
Note: data is ranked against the Hedge Fund of Funds Universe

SAMPLE CLIENT

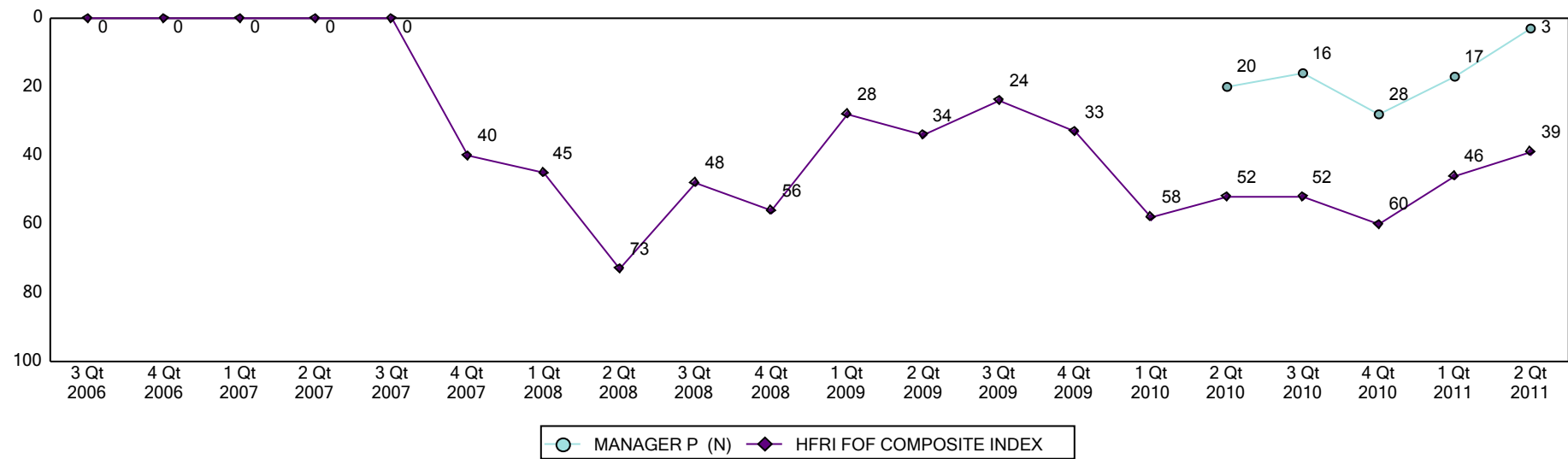
ROLLING RETURN RANKING 3 & 5 YEARS

Period Ending: June 30, 2011

Ranking Comparisons - Rolling 3 Years



Ranking Comparisons - Rolling 5 Years



MANAGER P (N) HFRI FOF COMPOSITE INDEX

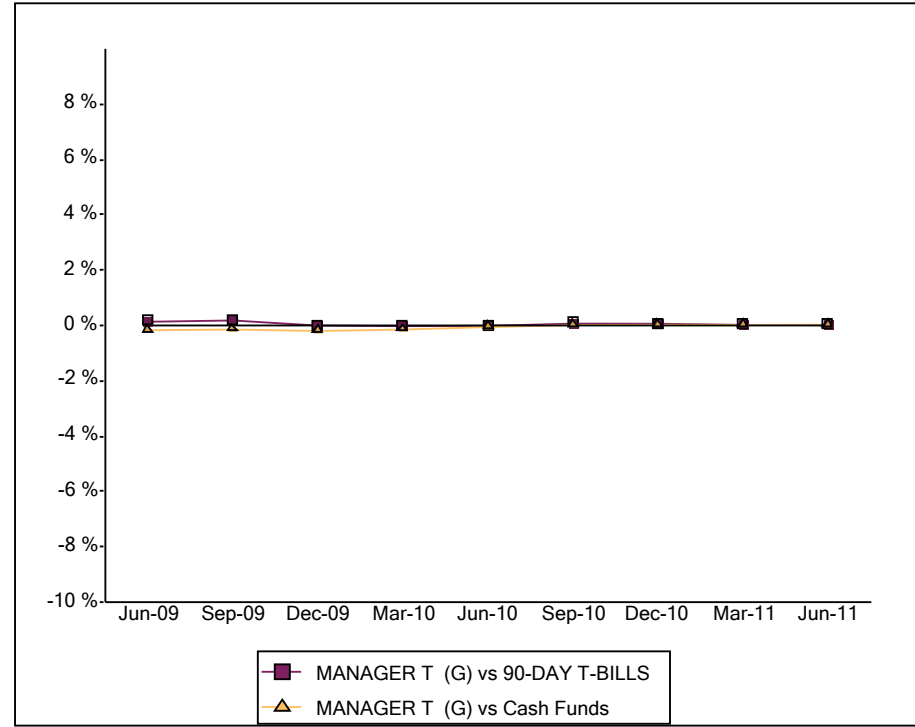
Note: data is ranked against the Hedge Fund of Funds Universe

SAMPLE CLIENT

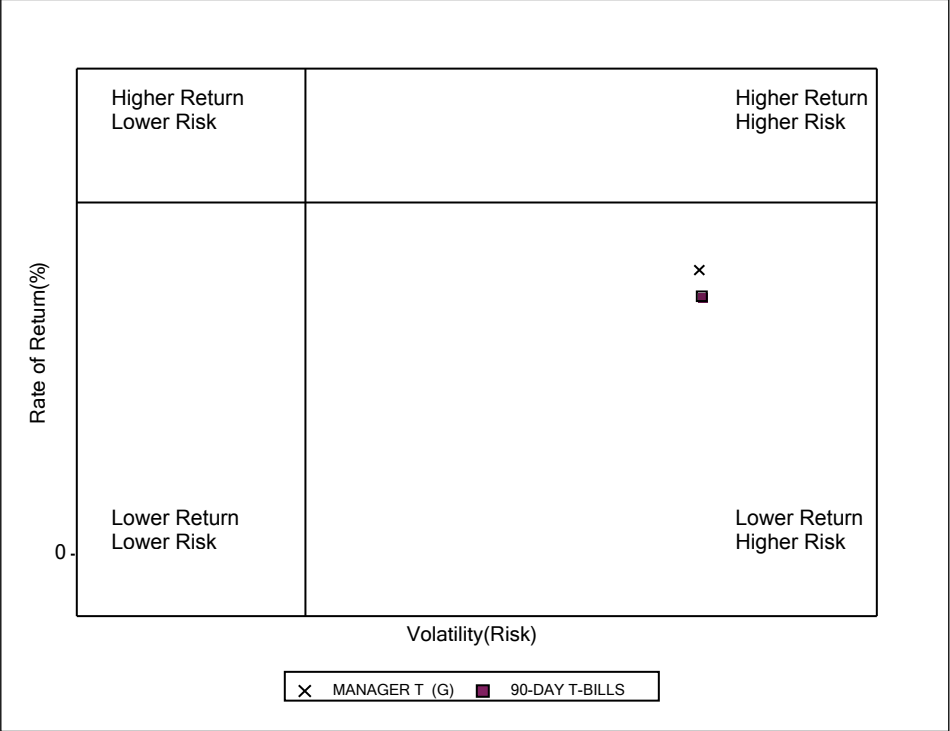
CUMULATIVE PERFORMANCE COMPARISONS

Period Ending: June 30, 2011

MANAGER T (G)
Rolling 1 - Year Value Added



Risk - Return Analysis
3 Years Ending June 30, 2011



Cash Funds	Last Quarter		Two Quarters		Three Quarters		One Year		Two Years		Three Years		Four Years		Five Years	
	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank	Return	Rank
5th Percentile			1.1	1.0	1.3		2.1		2.4		2.7		2.4		3.5	
25th Percentile			0.1	0.2	0.3		0.4		0.5		0.9		1.7		2.5	
50th Percentile			0.0	0.1	0.1		0.2		0.2		0.6		1.4		2.2	
75th Percentile			0.0	0.0	0.0		0.1		0.1		0.4		1.2		2.0	
95th Percentile			0.0	0.0	0.0		0.0		0.0		0.2		0.7		1.3	
MANAGER T (G)	0.0	45	0.1	50	0.1	49	0.2	47	0.2	57	0.5	66	1.3	68	2.1	64
90-DAY T-BILLS	0.0	42	0.1	43	0.1	46	0.2	49	0.2	57	0.4	73	1.2	75	2.0	74

Sample Endowment Report

Alternative Investments - Detailed Statement of Changes

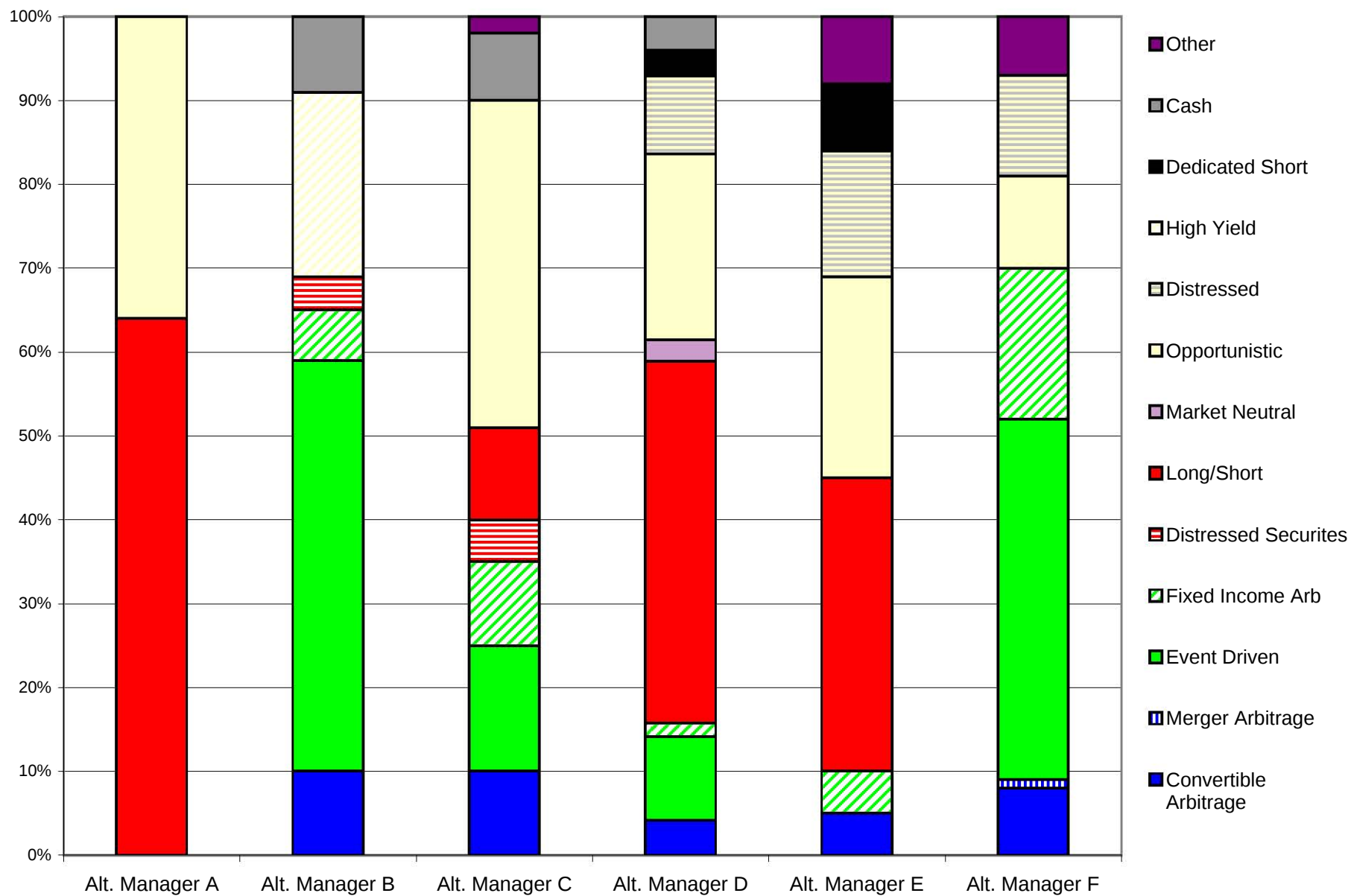
Period Ending: December 31, 2005

	Opening Capital	Cash Contributions	Net Operating Income	Net Realized Gain/Loss	Net Unrealized Gain/Loss	Cash Distributions	Other Amount	Ending Capital
Alt. Manager A								
Quarter-to-Date	\$1,770,114	\$75,000	-\$10,096	\$83,589	\$76,803	-\$162,528		\$1,832,882
Year-to-Date	\$1,532,485	\$390,000	-\$13,652	\$230,969	\$181,619	-\$488,539		\$1,832,882
Inception-to-Date		\$2,595,000	-\$274,325	\$299,496	\$193,847	-\$972,534	-\$8,602	\$1,832,882
Inception Date: 12/15/99		Total Commitment:	\$3,000,000		IRR: 2.64			
Alt. Manager B								
Quarter-to-Date	\$1,802,715	\$57,027	\$78,322	\$40,397	\$310,253	-\$1,857		\$2,286,857
Year-to-Date	\$1,451,785	\$274,648	\$89,241	\$113,258	\$386,513	-\$28,588		\$2,286,857
Inception-to-Date		\$1,457,048	\$32,520	\$179,262	\$652,250	-\$34,223		\$2,286,857
Inception Date: 06/30/03		Total Commitment:	\$2,500,000		IRR: 28.96			
Alt. Manager C								
Quarter-to-Date	\$606,781	\$100,000	-\$1,844	\$23,531	\$54,779	-\$18,946		\$764,301
Year-to-Date	\$373,034	\$385,000	-\$16,898	\$57,162	\$74,319	-\$108,316		\$764,301
Inception-to-Date		\$795,000	-\$83,029	\$76,252	\$89,723	-\$113,355	-\$290	\$764,301
Inception Date: 12/14/01		Total Commitment:	\$2,000,000		IRR: 8.39			
Alt. Manager D								
Quarter-to-Date	\$44,217	\$52,000	-\$8,489		-\$936			\$86,792
Year-to-Date		\$102,000	-\$13,087		-\$2,121			\$86,792
Inception-to-Date		\$102,000	-\$13,087		-\$2,121			\$86,792
Inception Date: 03/31/05		Total Commitment:	\$4,000,000		IRR: N/A			
Alt. Manager E								
Quarter-to-Date	\$4,584	\$34,500	-\$4,072					\$35,012
Year-to-Date		\$40,500	-\$5,488					\$35,012
Inception-to-Date		\$40,500	-\$5,488					\$35,012
Inception Date: 02/17/05		Total Commitment:	\$1,500,000		IRR: N/A			
Alt. Manager F								
Quarter-to-Date	\$7,040	\$20,000	-\$3,255			-\$10		\$23,775
Year-to-Date		\$30,100	-\$6,315			-\$10		\$23,775
Inception-to-Date		\$30,100	-\$6,315			-\$10		\$23,775
Inception Date: 03/31/05		Total Commitment:	\$2,000,000		IRR: N/A			
Total Alternative Investments								
		Total Commitmen	\$15,000,000					\$5,029,619

Sample Endowment Report

Fund Allocation by Strategy Type

Period Ending: December 31, 2005



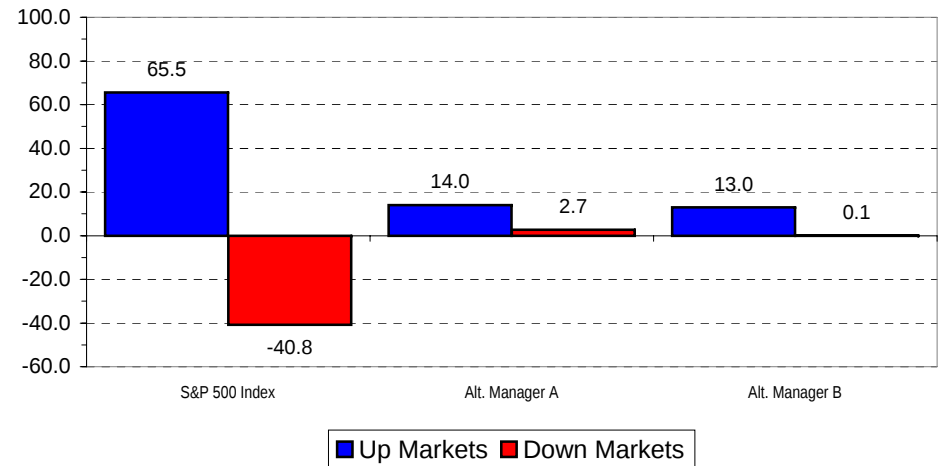
Sample Endowment Report

Up & Down Market Performance

Period Ending: December 31, 2005

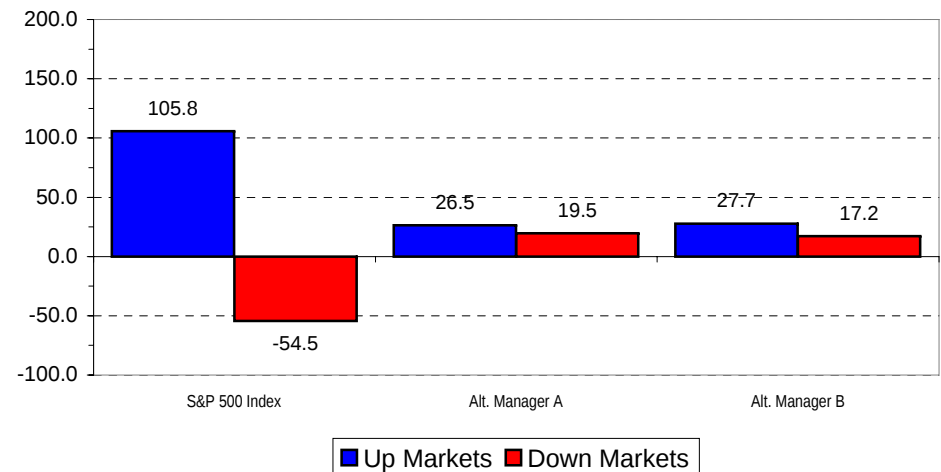
Three Year Period Ending December 31, 2005

Investment Manager	Cumulative Returns	
	Up Markets	Down Markets
S&P 500 Index	65.5	-40.8
Alt. Manager A	14.0	2.7
Alt. Manager B	13.0	0.1



Five Year Period Ending December 31, 2005

Investment Manager	Cumulative Returns	
	Up Markets	Down Markets
S&P 500 Index	105.8	-54.5
Alt. Manager A	26.5	19.5
Alt. Manager B	27.7	17.2

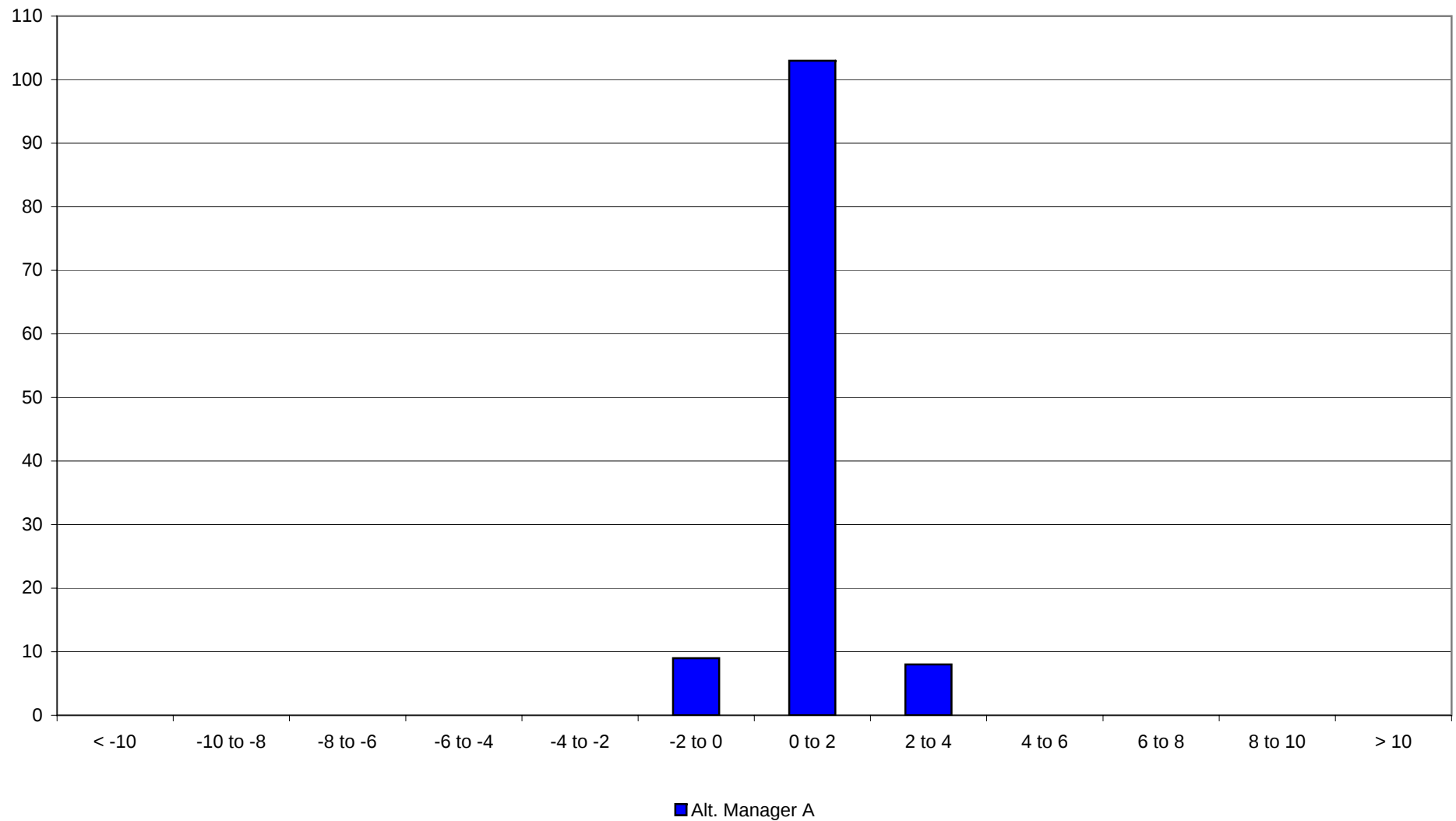


Sample Endowment Report

Distribution of Monthly Returns

Period Ending: December 31, 2005

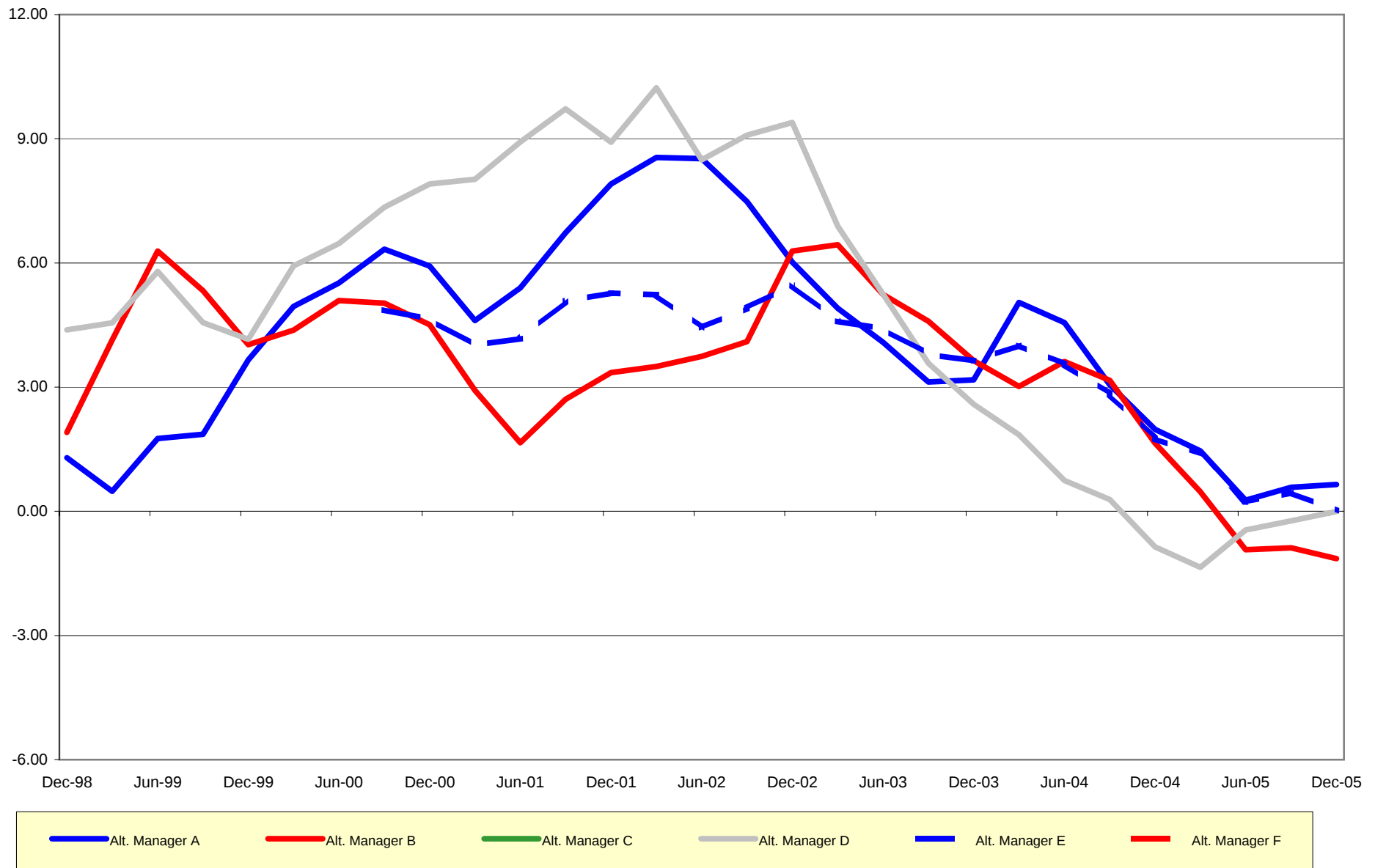
Alt. Manager A
Return Distribution
120 Monthly Periods (10 Years)



Sample Endowment Report

Rolling Three Year Excess Returns versus HFRI Fund of Funds Index

Period Ending: December 31, 2005



Sample Client

Performance Attribution 1 Qtr

Period Ending: June 30, 2010

MANAGER C

	Portfolio		RUSSELL 1000 GROWTH INDEX		Selection		
	Market Value	Return	Market Value	Return	Stock	Industry	Total
	A	B	C	D	E	F	G
Consumer Discretionary	11.2	-13.1	10.1	-9.5	-0.5	0.0	-0.4
Consumer Staples	11.7	-7.8	15.9	-8.0	0.0	-0.1	-0.1
Energy	11.4	-10.9	3.5	-14.6	0.5	-0.3	0.2
Financials	17.5	-19.2	5.2	-16.3	-0.6	-0.7	-1.3
Health Care	11.8	-11.2	15.9	-11.1	0.0	0.0	0.0
Industrials	3.8	-7.0	11.1	-10.5	0.2	0.0	0.1
Information Technology	24.0	-7.3	32.3	-11.8	1.2	0.1	1.3
Materials	5.6	-29.7	4.3	-15.4	-0.9	-0.1	-1.0
Other Equity	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Telecommunications Services	2.9	-3.8	0.6	-0.3	-0.1	0.3	0.2
Utilities	0.0	0.0	0.8	-8.0	0.0	0.0	0.0
	100.0	-12.1	100.0	-11.7	-0.2	-1.0	-0.4

Contributors

Stock	Information Technology
	Energy
Industry	Telecommunications Services
	Information Technology

Detractors

Stock	Materials
	Financials
Industry	Financials
	Energy

Sample Client

Total Plan Attribution vs Policy Benchmark

Period Ending: March 31, 2011

	Quarter			1 Year		
	Actual Return	Policy Benchmark Return	Difference	Actual Return	Policy Benchmark Return	Difference
Total						
TOTAL FUND	3.4	2.9	0.5	11.6	11.1	0.5
Domestic Equity						
MANAGER A	6.0	6.5	0.0	12.7	15.2	-0.2
MANAGER B	5.4	6.0	-0.1	13.8	18.3	-0.4
MANAGER C	8.5	6.6	0.1	24.8	20.6	0.1
MANAGER D	8.9	8.6	0.0	26.9	26.3	0.0
International Equity						
MANAGER E	2.5	3.5	-0.1	12.4	13.6	-0.1
MANAGER F	3.5	3.5	0.0	12.4	13.6	-0.1
Domestic Fixed Income						
MANAGER G	2.1	2.1	0.0	7.6	7.9	0.0
MANAGER H	1.1	0.4	0.2	6.9	5.1	0.4
Stable Value Assets						
MANAGER I	0.6	0.7	0.0	3.0	3.2	0.0
Alternative Investment						
MANAGER J	7.2	4.4	0.2	37.4	28.5	0.5
Cash						
MANAGER K	0.1	0.0	0.0	0.2	0.2	0.0
Rebalancing /Trading Differences			0.2			0.3

Sample Client

MANAGER K

Index: BC AGGREGATE

September 30, 2010 - December 31, 2010

Fixed Income Quality Rating Distribution

	BEGINNING WTS		ENDING WTS		RETURN
	Fund	Index	Fund	Index	Index
MANAGER K					
Cash Equivalents	0.0	0.0	3.4	0.0	
TREASURY	24.3	33.3	10.8	34.0	-2.7
AGENCY	9.2	40.3	4.3	40.1	-0.0
AAA	5.8	3.4	3.5	3.2	-0.8
AA-1 To AA-3	8.3	4.2	4.3	4.3	-1.2
A-1 To A-3	20.8	8.5	11.0	8.6	-1.7
BAA-1 To BAA-3	18.1	8.3	10.3	8.4	-1.6
BA-1 To BA-3	5.8	0.3	3.0	0.3	0.9
B-1 To B-3	2.7	0.0	1.6	0.0	19.5
CAA To C	1.3	0.0	0.7	0.0	
NOT RATED	1.4	1.0	1.5	1.1	0.2
Unclassified	2.2	0.7	45.6	0.0	-0.0
TOTAL	100.0	100.0	100.0	100.0	-1.3

2013 CAPITAL MARKET ASSUMPTIONS

January 2013



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SUMMARY

S U M M A R Y

- Through quantitative easing, the Federal Reserve (FED) has pushed real cash returns below zero and yields on those assets deemed “safer” to historic lows. Correspondingly, prices on equities and riskier fixed income assets moved upwards as investors sought higher returning assets in order to meet funding needs. In driving investors out on the risk spectrum, elevated prices now depend on growth expectations being met. As a consequence, absolute yields on fixed income remain at historic lows, and our forecast for future fixed income returns reflect these expectations. We assume the FED will be able to engineer sustained, economic growth so the real earnings component affecting equity returns is similar to its historical average.
- Recent FOMC (Federal Open Market Committee) meeting minutes indicate the FED expects medium-term inflation to run at or below its 2% objective; its estimate for long-term inflation is 2.5% or less. Our ten year forecast for inflation remains at 2.6%.
- In December 2012, the FED announced measures to keep long-term interest rates low by extending the average maturity of its Treasury holdings by \$45 billion per month. For the first time, the FED has stated that it intends to keep the target federal funds rate low until unemployment reaches 6.5%. We assume the federal funds rate will remain at 0.25% through 2015 and that cash rates will incrementally increase each year over the remaining seven years, rising to the historical average cash yield of 3.8% (an investment in cash compounded each year would yield 1.7% over the next ten years). Credit spreads narrowed during 2012 and are generally near their historical averages; absolute yields remain anchored to a low cash yield enacted by the FED.
- We assume FED policy will be successful in raising economic growth to its long-term potential. For US equities, this means real earnings growth of 2.1%, right at its historical average. US large cap valuation is slightly rich compared to the historical median P/E ratio, so we assumed a small negative repricing adjustment in our estimate. Combining a dividend yield of 2.1% with an inflation forecast (on earnings) of 2.6%, we arrive at a ten year forecast of 6.3%. This is slightly lower than last year’s forecast due to our assumptions of lower real earnings growth and inflation, in addition to a small repricing adjustment.
- Our international developed return forecast is 0.4% higher than last year as current P/E’s remain well below their historical average. The trailing 12 month average dividend yield on the MSCI EAFE index is 3.7%, 1.6% above the dividend yield on the S&P 500 index. By assuming the same real earnings growth for international companies going forward, and taking into consideration our projection of currency movements, we forecast a return of 8.0%.
- Although many emerging market economies experienced a slowdown in GDP growth during 2012, we assume a growth differential between developed and emerging markets similar to the historic average going forward. This results in a real earnings growth estimate that is 1.0% higher in emerging markets. Our nominal return forecast of 9.6% assumes a benefit from repricing and no benefit from currency appreciation since some currencies are fully or partly pegged to the dollar or even manipulated by the representative government.
- Our forecast for commodities’ returns is lower this year due to our assumptions about cash returns and inflation. Cap rates on real estate continue to move downward, generally following that of other fixed income assets. We assume private equity and hedge fund returns are implicitly linked to US large cap equity returns; therefore our forecast for these assets are slightly lower than that of 2012.

OVERVIEW OF METHODOLOGY

Appropriate Frame of Reference

- Over the short-term, capital markets may reflect irrational investor behavior as prices diverge from fair value.
- Mean reversion may occur over the long run as prices converge to underlying fundamentals due to long-term investor rationality.
- In our opinion, a ten-year outlook is a reasonable time frame to expect fundamental valuation measures to mean-revert.

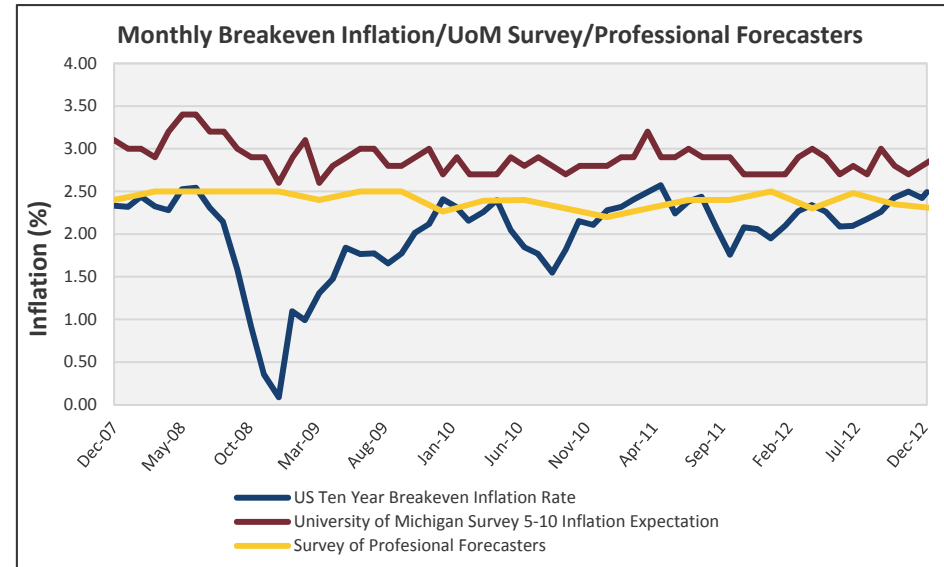
Approach to Forecasting

- Our approach to forecasting expected asset class returns is based on a combination of underlying macroeconomic conditions, valuations, historical analysis of relative value and some subjective analysis.
- Inflation rates are determined through surveys and the markets' expectations for inflation per the relationship between US Treasury Inflation-Protected securities and US Treasuries. Federal Reserve policy regarding federal funds rates and the historical long-term cash return influence our forecast for cash.
- Given the relationship between starting yield and subsequent return to fixed income, current yield along with default expectations are our best estimate of long-term returns. Changes in interest rates and spread widening/contraction is not considered because we assume bonds are held to maturity and that coupons are reinvested at the starting yield.
- Within the US equity market, we decompose the historical return components of the S&P 500 into dividends, real earnings growth, inflation on earnings, and market repricing using Shiller data. Market repricing can have the largest influence on equity returns. Equity returns for other asset classes are forecast using a similar methodology of adjusting the regular P/E using the Shiller method, and from there decomposing future returns into dividend yield, real earnings growth and inflation on earnings.
- Forecasting returns for alternative investments (e.g., hedge funds, private equity and real estate) can be more challenging due to the lack historical data, liquidity and known cash flows.
- Volatility and correlation over the last twenty years are assumed to be constant going forward.
- All return forecasts are gross of management fees.

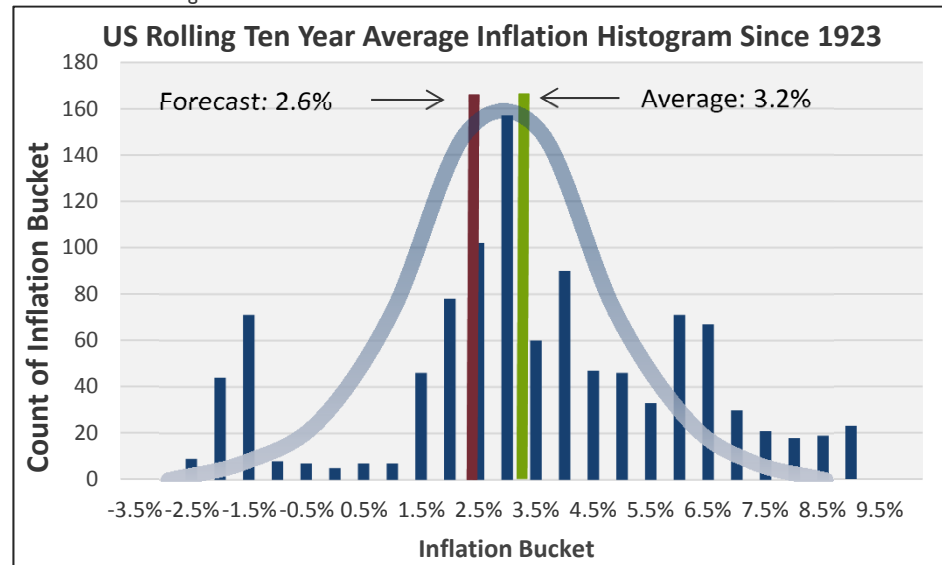
INFLATION

INFLATION

- The markets' expectation for ten year inflation can be inferred by taking the difference between the US Ten Year Treasury yield and the US Ten Year Inflation-Protected yield.
- Based on this difference, the market is pricing in a 2.5% rate of inflation over the next decade; up approximately 0.4% from one year ago at this time.
- The latest University of Michigan Survey 5-10 year ahead inflation expectation, a survey of about 500 households around the nation, is 2.9%, which is 0.2% higher than one year ago. Historically, this survey of inflation tends to be higher than actual future inflation.
- The Survey of Professional Forecasters is a survey of economists conducted every quarter and is much more stable through time compared to the other two measures. The most recent expectation for long-term inflation is 2.3%, 0.7% lower than the University of Michigan Survey, but 0.1% higher than one year ago.
- We assign a weight of 25% to the results of each survey and the remaining 50% to the market's expectation to get an inflation forecast of 2.6%.
- Our long-term inflation expectation of 2.6% is 0.8% below the historical rolling ten year average of 3.2%



Source: Bloomberg

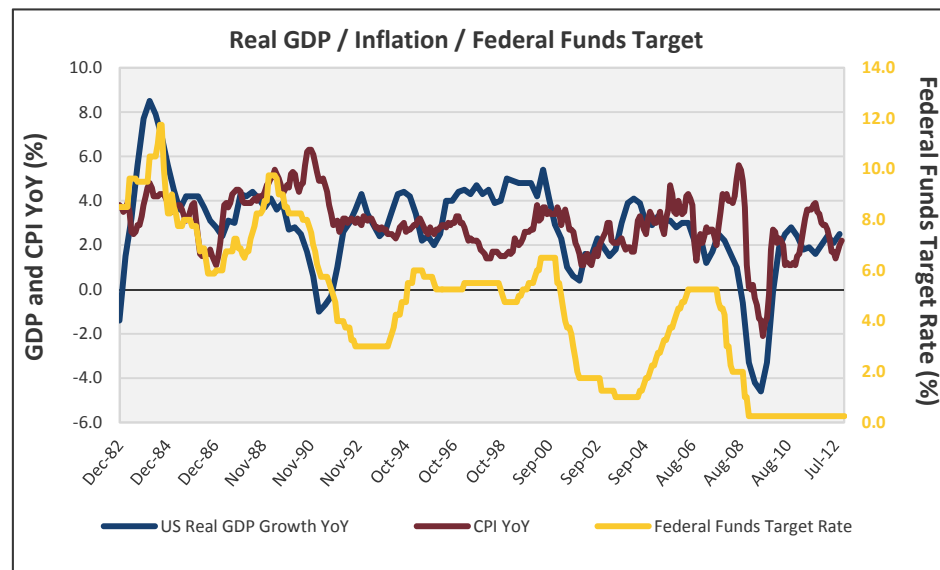


Source: Bloomberg

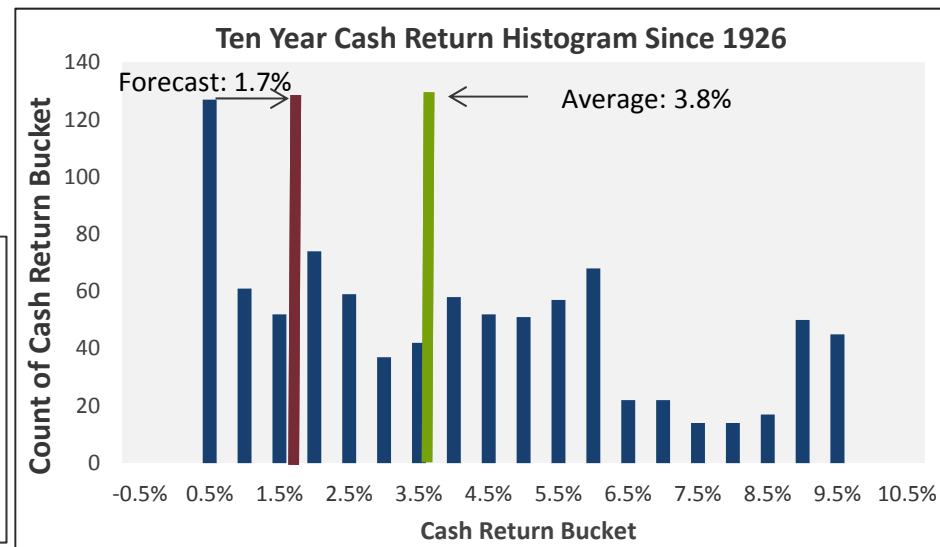
FIXED INCOME

CASH RATES

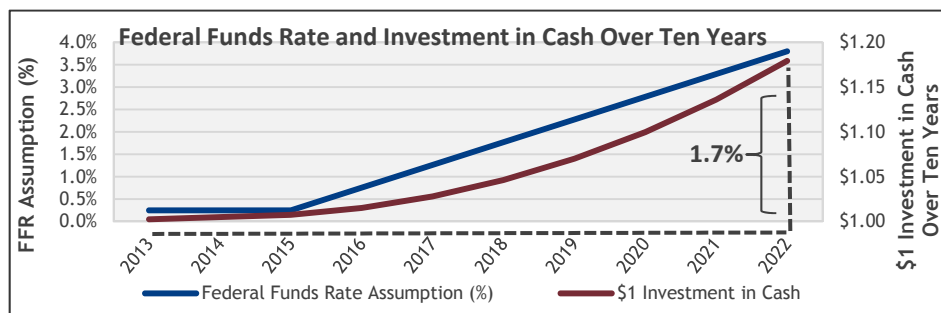
- The Federal Reserve, through the Federal Open Market Committee (FOMC), has kept cash rates near zero since 2008 in an attempt to provide liquidity to the market and promote economic growth.
- Recent FOMC meeting statements indicate that in order to meet the FOMC's dual mandate of price stability (inflation) and sustainable growth in output (Real GDP growth), the Committee will continue to keep federal funds trading in a range from 0% to 0.25% until unemployment reaches 6.5%.
- FOMC meeting minutes from early 2012 stated a long-run inflation target of 2.0%, implying real rates will be well below zero for an extended period of time. Over the last year, inflation has averaged 2.3%, slightly higher than the long-run target, but below the 30 year average of 3.0%. US Real GDP growth of approximately 2.3% over the last year is lower than the 30 year average of 2.8% and well below the longer run average of 3.3%.
- Assuming the FED keeps short-term rates at 0.25% through 2015 and that they incrementally increase cash rates each year over the remaining seven years (to the historical average cash yield of 3.8%), an investment in cash compounded each year would yield a nominal return of 1.7% over the next ten years.



Source: Bloomberg

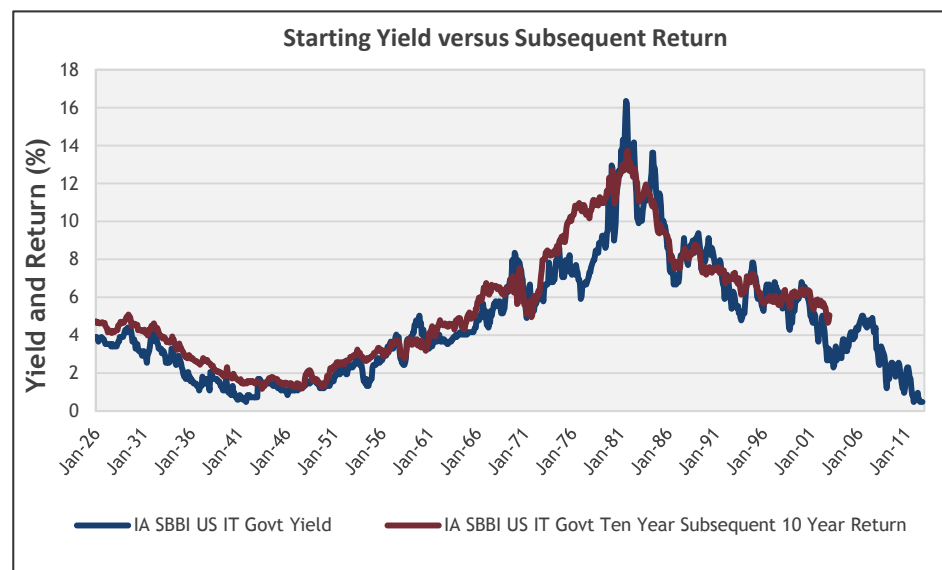


Source: Ibbotson Associates; MPI



US TREASURIES: TREASURY INFLATION PROTECTED (TIPS)

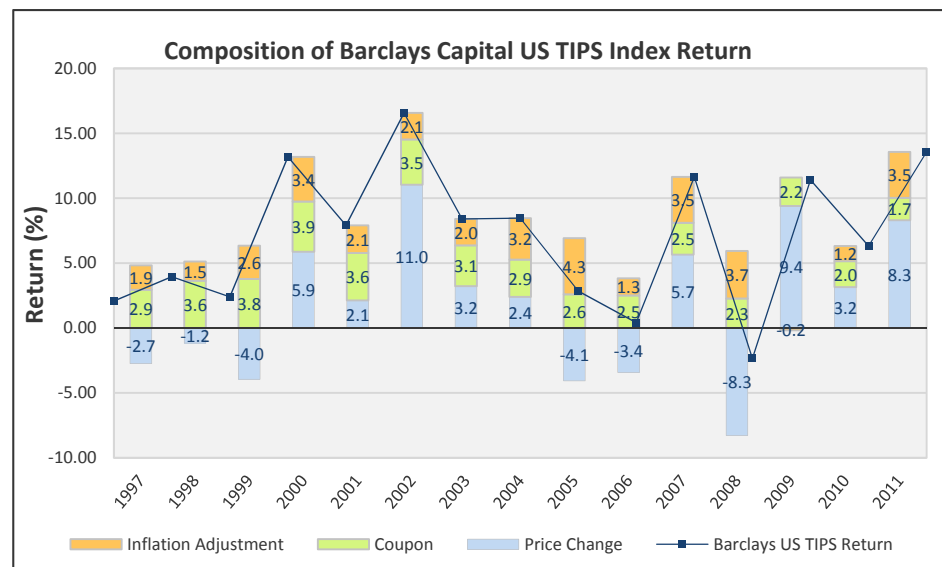
- The starting yield of a bond is our best estimate of subsequent returns because the two measures are historically highly correlated. As the chart on the right shows, the starting yield and the subsequent ten year return of a Treasury bond move together, with the difference mainly due to any differences between the yield on reinvested coupon income and the beginning yield at time of purchase.
- In the short-term, TIPS' returns can be volatile given the daily change in the markets' inflation expectation; however, the market value of TIPS and it's return over the long run is ultimately determined by the Consumer Price Index (CPI).
- TIPS are quoted in real terms, so in order to get the nominal return forecast, we add the TIPS current yield to our inflation forecast. Our nominal 10 year TIPS return forecast is 2.2%.



Source: Ibbotson; MPI

	10 Year Forecast
Starting Yield (10 Year TIPS 12 month average yield)	-0.4%
Inflation Forecast	+2.6%
Nominal Return*	2.2%

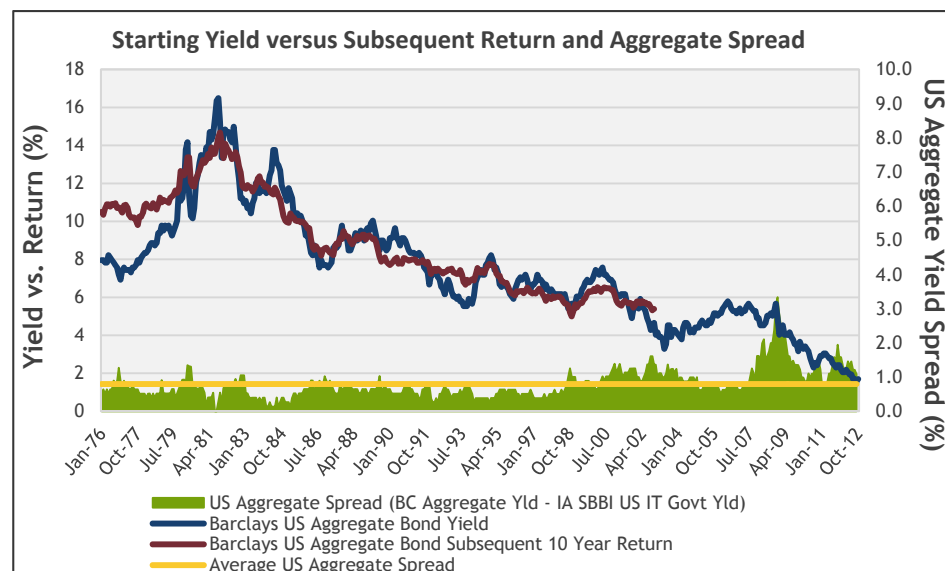
* Assumes bonds are held to maturity and coupons are reinvested at the starting yield



Source: DFA

US CORE FIXED INCOME/AGGREGATE BOND

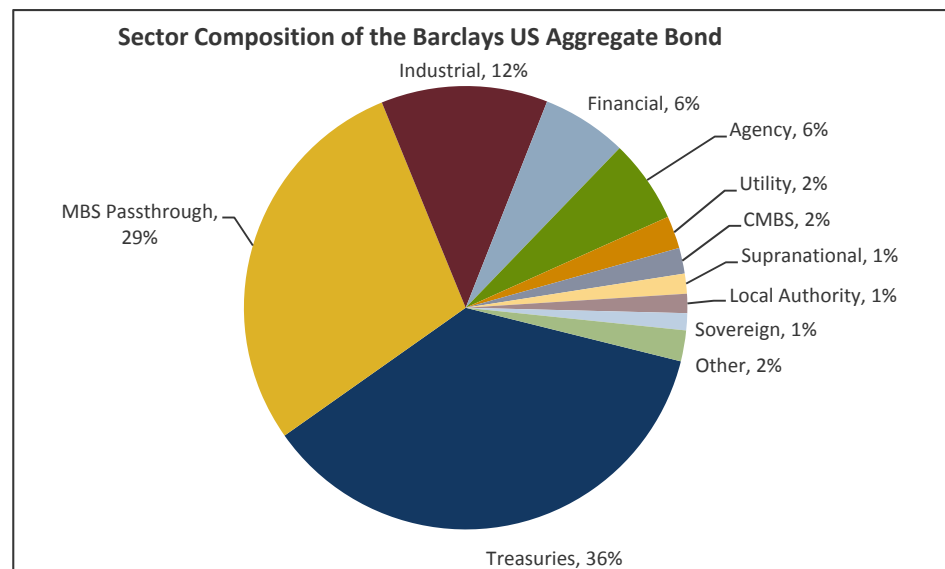
- Our US aggregate bond forecast is based on the starting yield of the Barclays Aggregate Bond index, less the expected defaults of the corporate credit portion of this index.
- The amount of credit bonds within the index is approximately 30%; MBS and Agencies comprise approximately 35% - 40% of the index, and we have assumed no defaults in the forecast for these holdings as the majority are explicitly or implicitly back by the US government.
- The long-term average default rate on investment grade credit is 0.1%. Assuming a 40% recovery rate on defaults, the overall net default of the index given the 30% allocation to credit is 3 bps.



Source: Ibbotson; MPI

	10 Year Forecast
Starting Yield (BC US Aggregate 12 month average yield)	+2.0 %
Net Default (40% Recovery)	-0.03%
Nominal Return*	2.0%
Inflation Forecast	-2.6%
Real Return	-0.6%

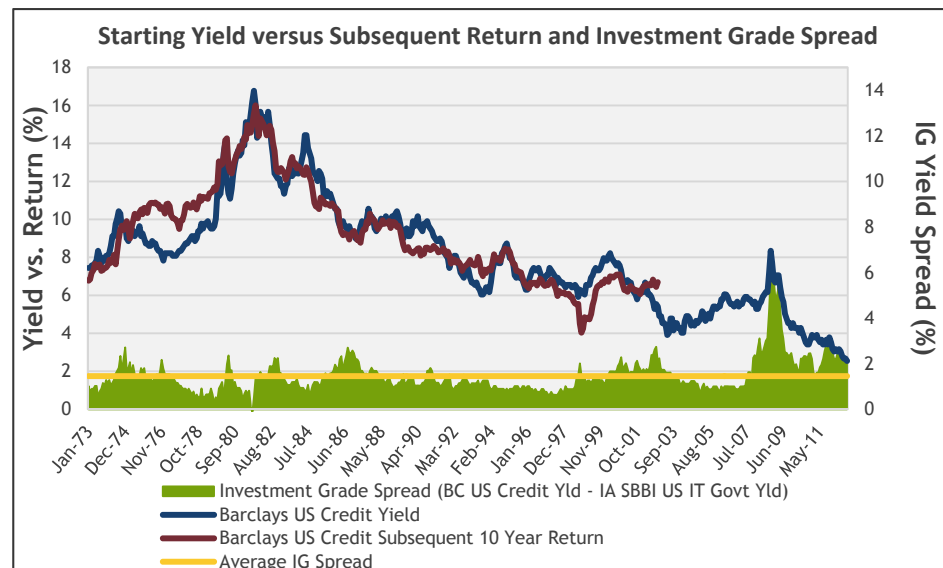
* Assumes bonds are held to maturity and coupons are reinvested at the starting yield



Source: As represented by the iShares ETF (AGG)

US CORPORATE INVESTMENT GRADE CREDIT

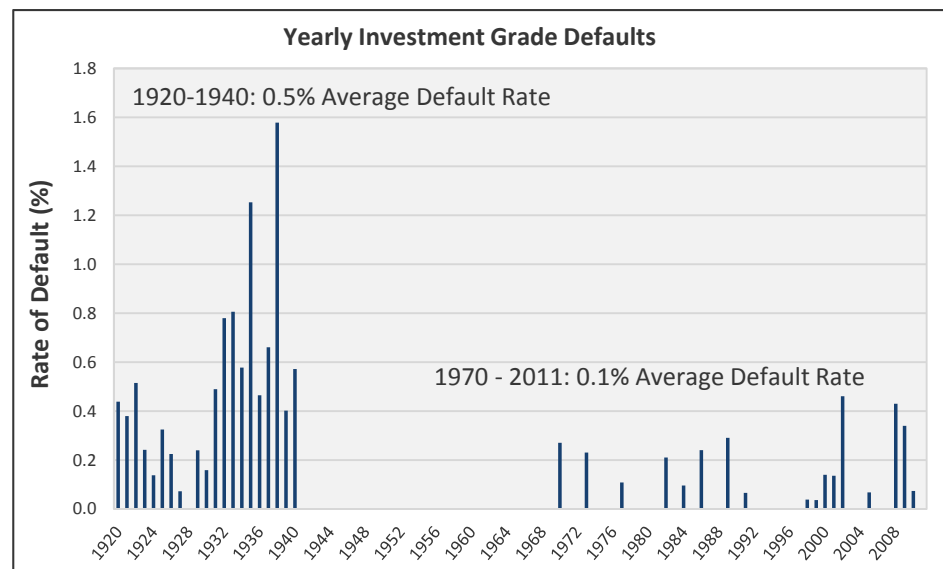
- Although yields are at historic lows, the spread on investment grade credit remain slightly wider than the historical average.
- The average annual default rate on investment grade credit since 1970 is 0.1%; with more defaults coming during economic recessions.
- The recovery rate on defaulted bonds is assumed to be 40%, in line with the historical recovery rate.



Source: Ibbotson; MPI

	10 Year Forecast
Starting Yield (BC US Credit 12 month average yield)	+3.1%
Net Default (40% Recovery)	-0.06%
Nominal Return*	3.0%
Inflation Forecast	-2.6%
Real Return	0.4%

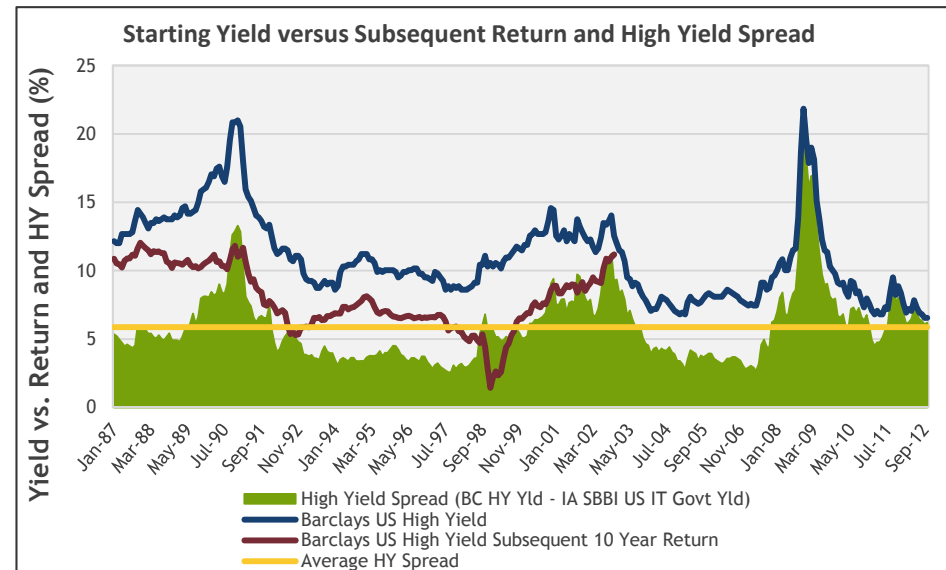
* Assumes bonds are held to maturity and coupons are reinvested at the starting yield



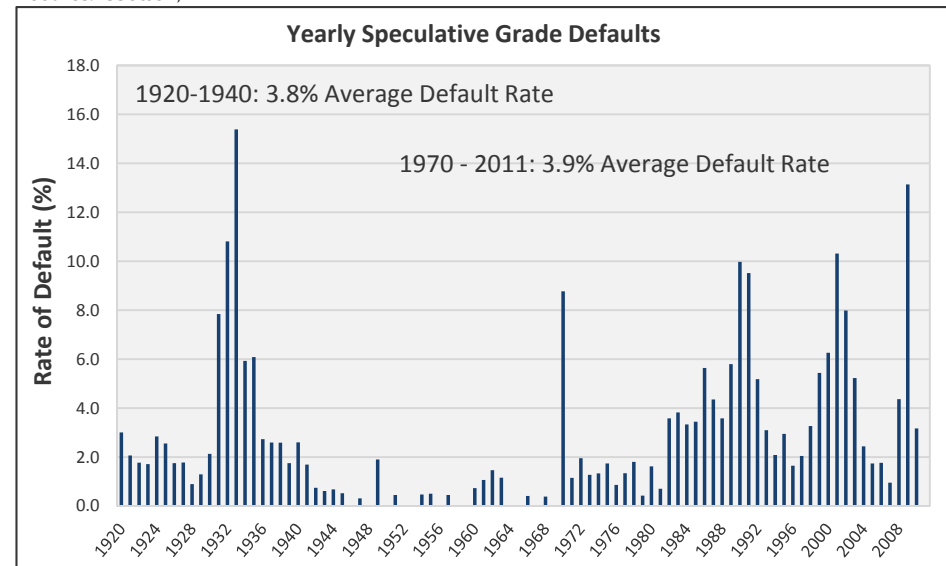
Source: Moody's

US HIGH YIELD CREDIT

- Similar to our analysis for investment grade corporate debt, we combine starting yield and estimate defaults to forecast returns for high yield credit.
- High yield spreads have tightened considerably after spiking during the financial crisis but remain slightly above the historical average.
- The default rates for high yield debt are variable; spiking as high as 15% during the Great Depression and 13% most recently, but historically these have averaged 4.0% with recover rates of approximately 40%. We estimate a default rate of 4.0%.



Source: Ibbotson; MPI



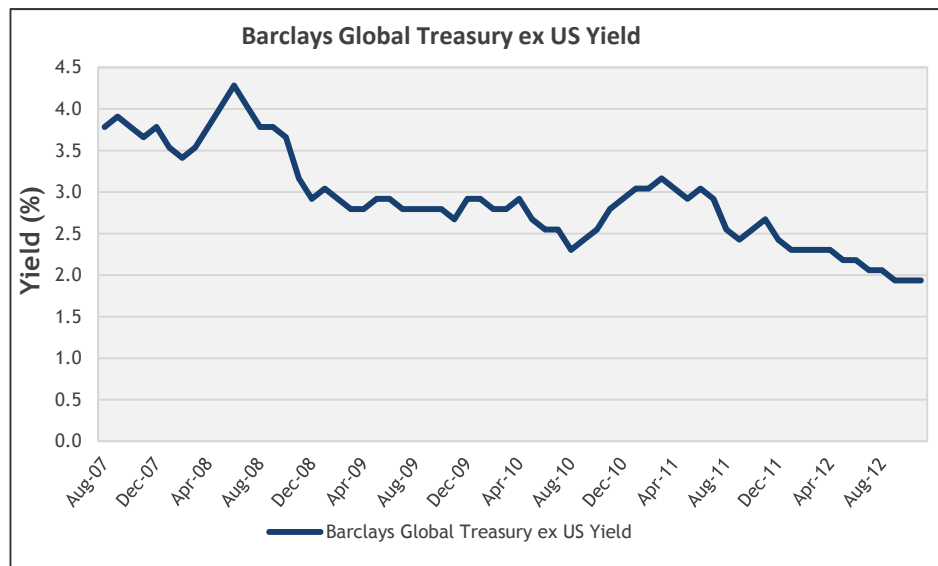
Source: Moody's

	10 Year Forecast
Starting Yield (BC US High Yield 12 month average yield)	+7.3%
Net Default (40% Recovery)	-2.4%
Nominal Return*	4.9%
Inflation Forecast	-2.6%
Real Return	2.3%

* Assumes bonds are held to maturity and coupons are reinvested at the starting yield

GLOBAL SOVEREIGN AND CREDIT: USD

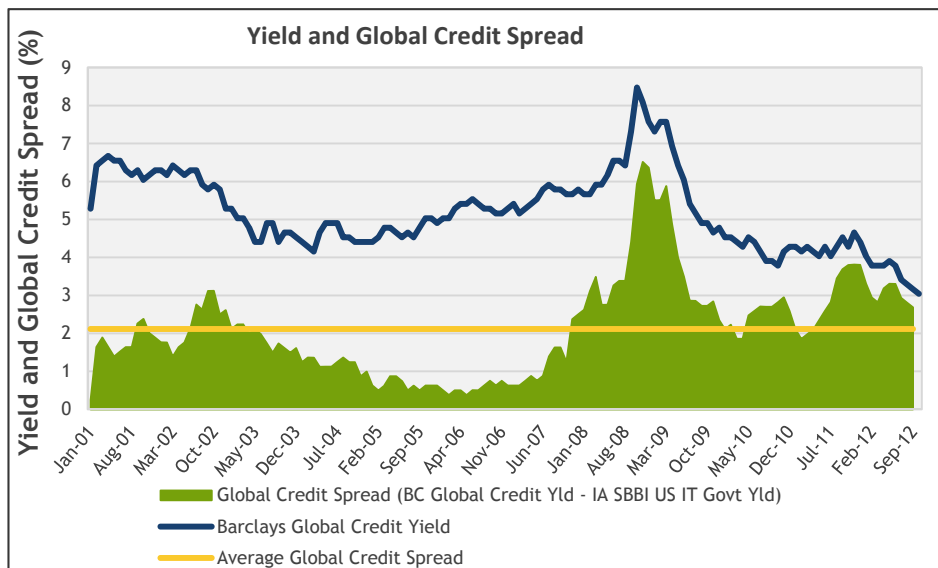
- Global sovereign yields are currently at historic lows.
- Global credit spreads are currently trading wide to the long-term average.
- Similar to the historical US investment grade credit default rate, the annual default rate for global credit is near 0.1%, based on historical data from Moody's. Assuming a 40% recovery rate the net default is 0.06%.



Source: Ibbotson; MPI

	10 Year Forecast	
	BC Global Treasury ex US	BC Global Credit
Starting Yield (12 month average yield)	2.2%	+3.8%
Net Default (40% Recovery)	0.0%	-0.06%
Nominal Return*	2.2%	3.7%
Inflation Forecast	-2.6%	-2.6%
Real Return	-0.4%	1.1%

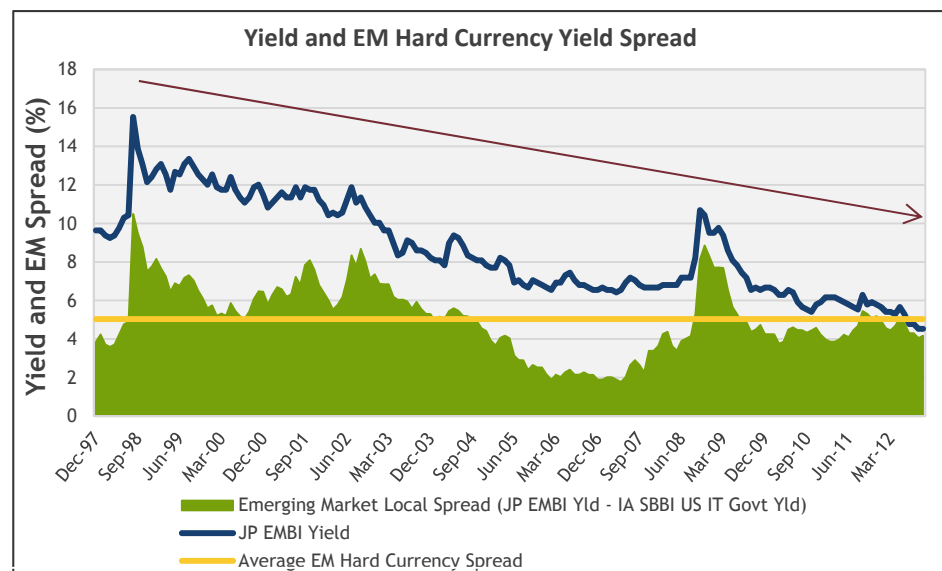
* Assumes bonds are held to maturity and coupons are reinvested at the starting yield



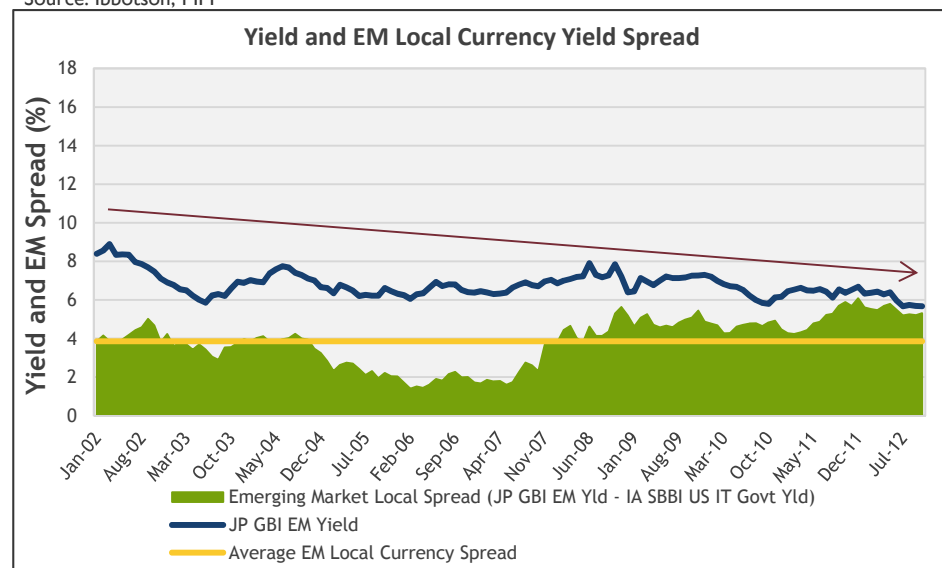
Source: Ibbotson; MPI

EMERGING MARKETS DEBT: HARD AND LOCAL CURRENCY

- Emerging market spreads have trended downward over the last twenty years as investors have increased the demand for bonds in countries that are experiencing stronger economic growth and healthier balance sheets as compared to that of the developed world.
- Local debt is currently trading at a higher spread compared to debt denominated in the US Dollar, but investors must consider the additional volatility coming from currency movements.
- The annual default rate for emerging market debt is historically near 0.5% based on historical data from Moody's. Assuming a 40% recovery rate the net default is 0.3%



Source: Ibbotson; MPI



Source: Ibbotson; MPI; JP Morgan

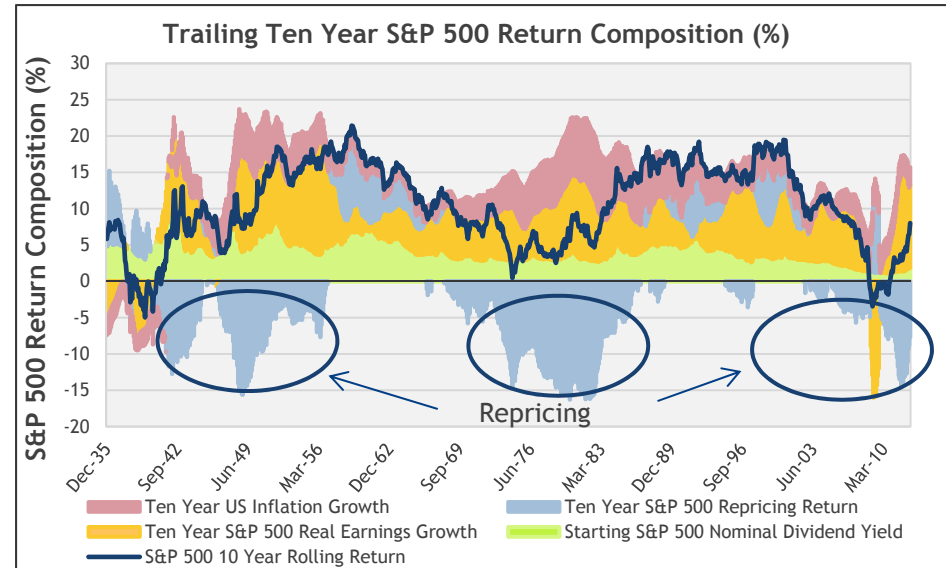
	10 Year Forecast	
	JP EMBI (Hard)	JP GBI EM (Local)
Starting Yield (12 month average yield)	+5.3%	+6.0%
Net Default (40% Recovery)	-0.3%	-0.3%
Nominal Return*	5.0%	5.7%
Inflation Forecast	-2.6%	-2.6%
Real Return	2.4%	3.1%

* Assumes bonds are held to maturity and coupons are reinvested at the starting yield

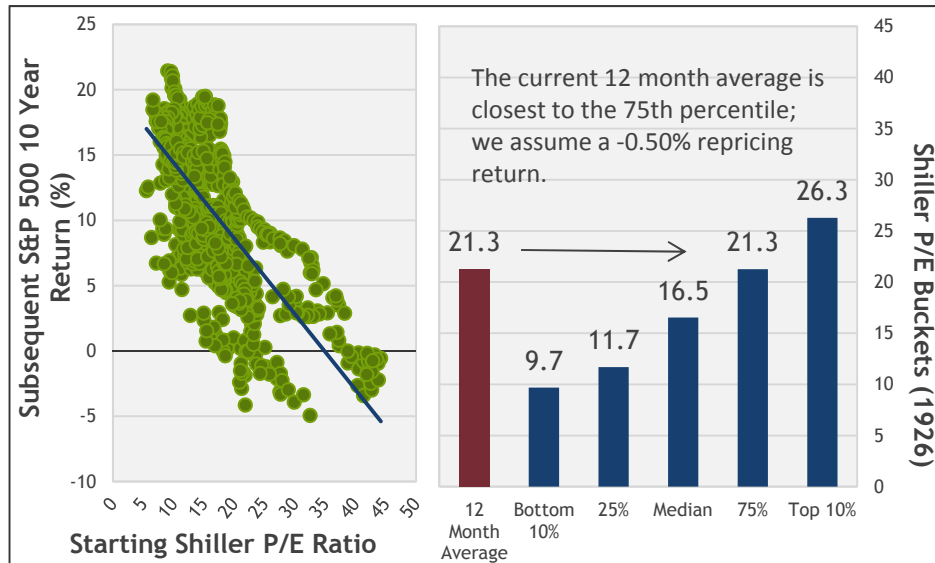
EQUITIES

US LARGE CAP STOCKS

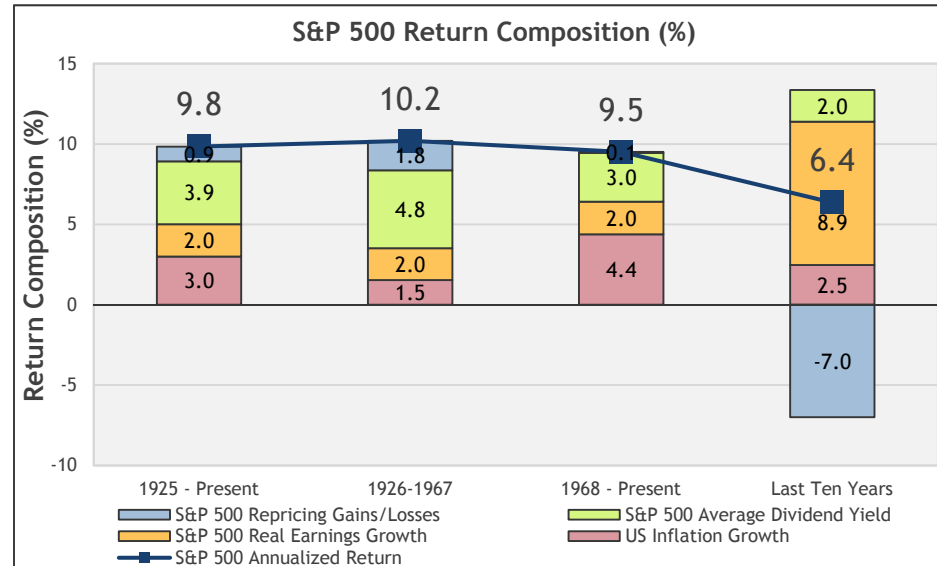
- Nominal equity returns can be broken down into their component returns: dividend yield, real earnings growth, inflation on earnings, and repricing gains/losses – which is the difference between the actual return and dividend yield, real earnings growth and inflation on earnings.
- Historically, the most volatile and influential equity return source has come from the repricing component, while the dividend yield seems to be the most stable. Real earnings growth has been the main contributor to returns over the last ten years.
- The Shiller P/E Ratio has historically acted as a relatively good long-term predictor of S&P 500 returns; we bucket the Shiller P/E ratios into quartiles and top/bottom decile and assume a repricing effect for each bucket based on the following: bottom decile 1.0%, 25th percentile 0.5%, median 0.0%, 75th percentile -0.5%, top decile -1.5%. We choose the repricing return based on which bucket the 12 month average Shiller P/E ratio is closest to.



Source: Shiller Web Site; Wurts' Calculation



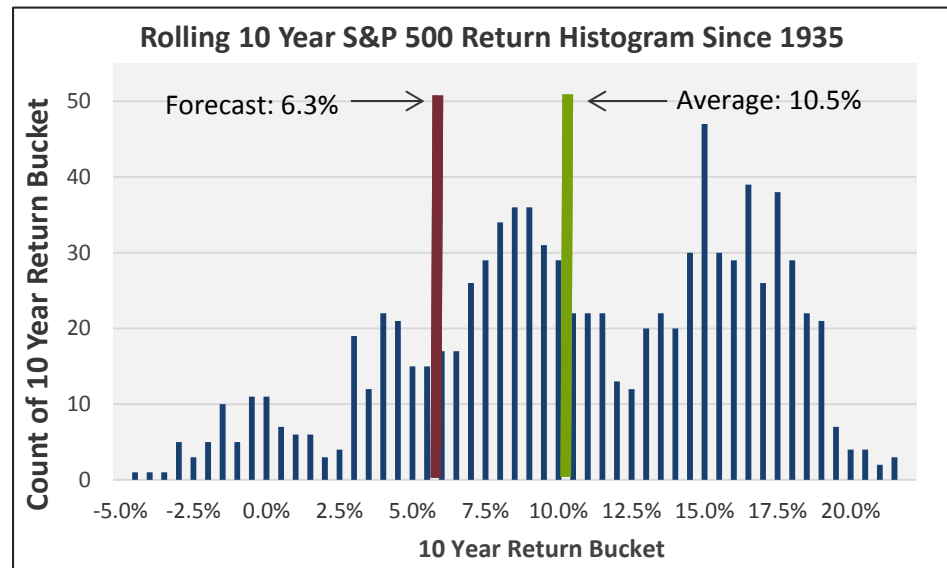
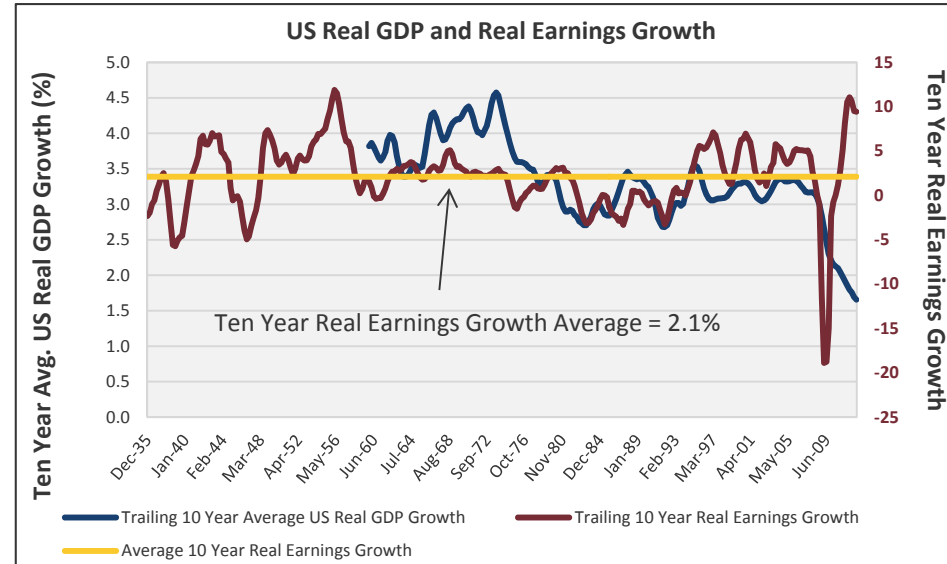
Source: Shiller Web Site; Wurts' Calculation



Source: Shiller Web Site; Wurts' Calculation

US LARGE CAP STOCKS

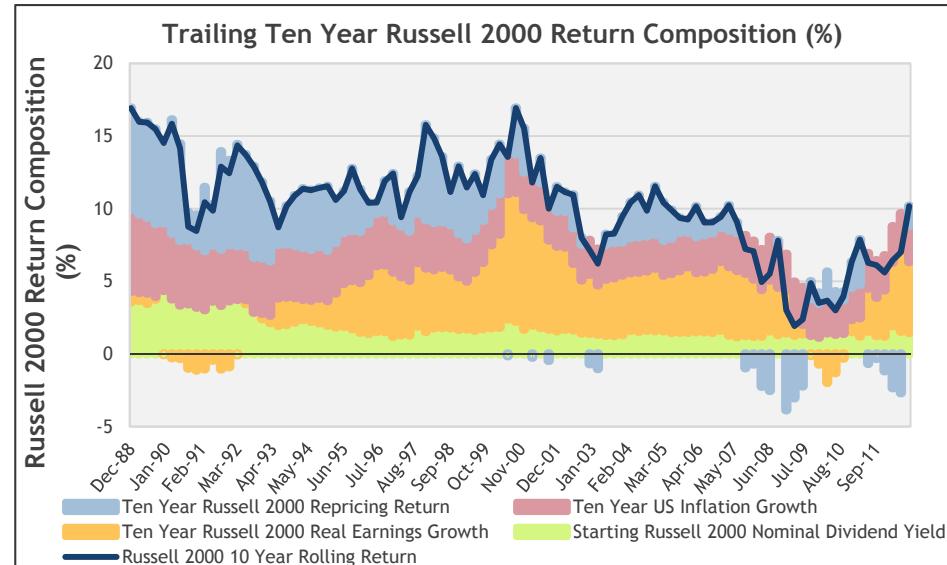
- Earnings growth has historically been more volatile than long-term GDP growth. Since the financial crisis of 2008, there has been a divergence between the two as earnings growth rebounded sharply while GDP growth remains below potential.
- The long-term, average real earnings growth on the S&P 500 index is 2.1%, roughly 63% of the long-term US real GDP growth of 3.3%.
- The return forecast is lower than the historical average which may be attributed to the low rate policy enacted by the Federal Reserve. This policy has pushed up all asset prices, not just fixed income.



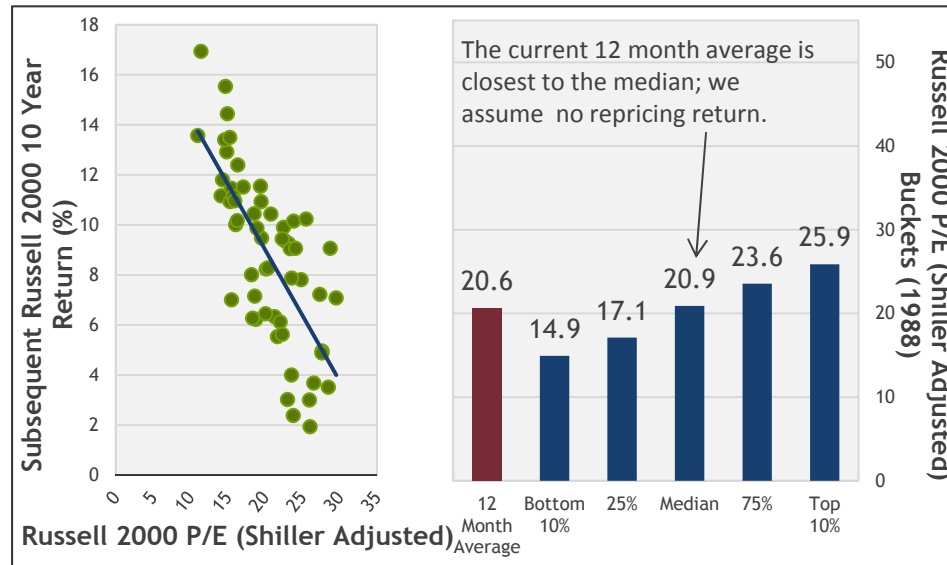
	10 Year Forecast
Dividend Yield (S&P 500 12 month average)	+2.1%
Real Earnings Growth	+2.1%
Inflation on Earnings	+2.6%
Repricing	-0.5%
Nominal Return	6.3%
Inflation	-2.6%
Real Return	3.7%

US SMALL CAP STOCKS

- US small cap equity returns are broken down into their component returns as well. We calculate the Russell 2000 P/E using the Shiller method: the last ten years' average real earnings divided by the current real price.
- On average, real earnings on the Russell 2000 over ten years have grown at 3.0%, 0.9% higher than real earnings growth on the S&P 500; however, the dividend yield is consistently lower.
- We apply our assumed US large cap repricing schedule to our forecast of other equity returns. The current 12 month Russell 2000 P/E (Shiller adjusted) is closest to the median, so we apply a 0.0% repricing return.



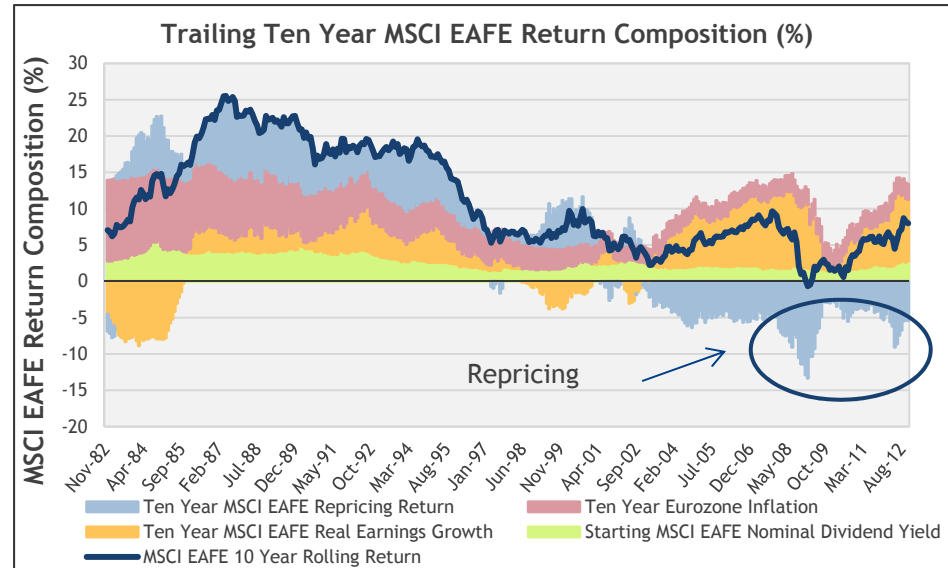
Source: Russell, Wurts' Calculation



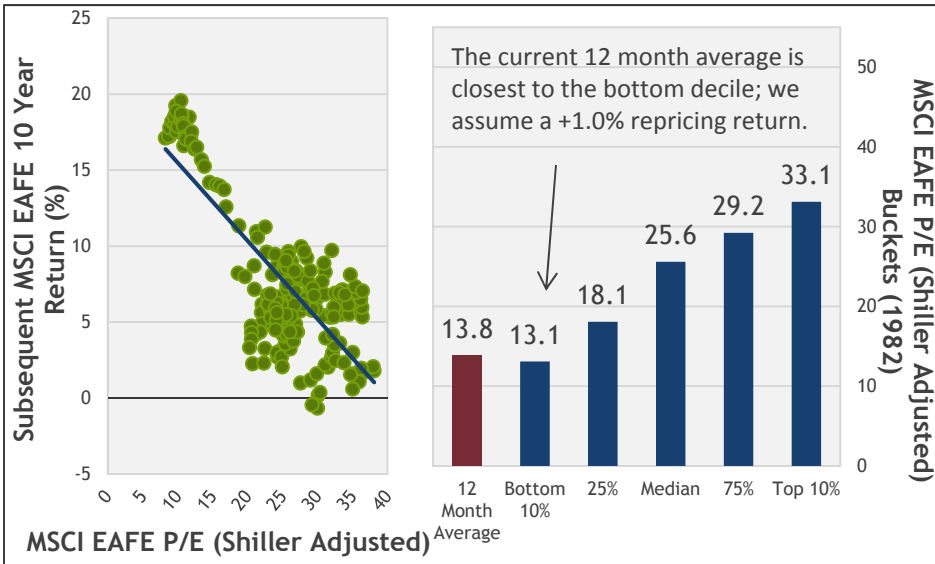
	10 Year Forecast
Dividend Yield (Russell 2000 12 month average)	+1.3%
Real Earnings Growth	+3.0 %
Inflation on Earnings	+2.6%
Repricing	0.0%
Nominal Return	6.9%
Inflation	-2.6%
Real Return	4.3%

INTERNATIONAL DEVELOPED

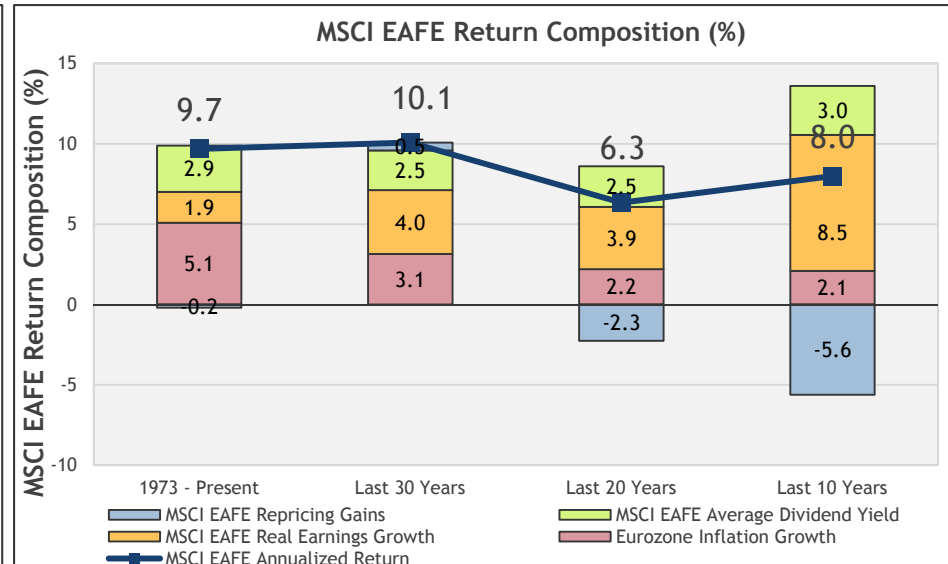
- International developed equity returns are similarly broken down into their component returns using the Shiller P/E method. This analysis is applied after currency movement.
- Even though EAFE countries' long-term real earnings growth have been slightly higher than the US, we are assuming similar real earnings growth given the lack of long-term historical data and because we believe the growth prospects for developed countries are similar.
- Like the Shiller S&P 500 P/E Ratio, the adjusted MSCI EAFE P/E using the Shiller method has high predictive value over the long run; we assume a repricing return of 1.0% given that the 12 month average is closest to the bottom decile bucket.



Source: MSCI, Bloomberg, Wurts' Calculation, * eurozone inflation used as a proxy for EAFE inflation



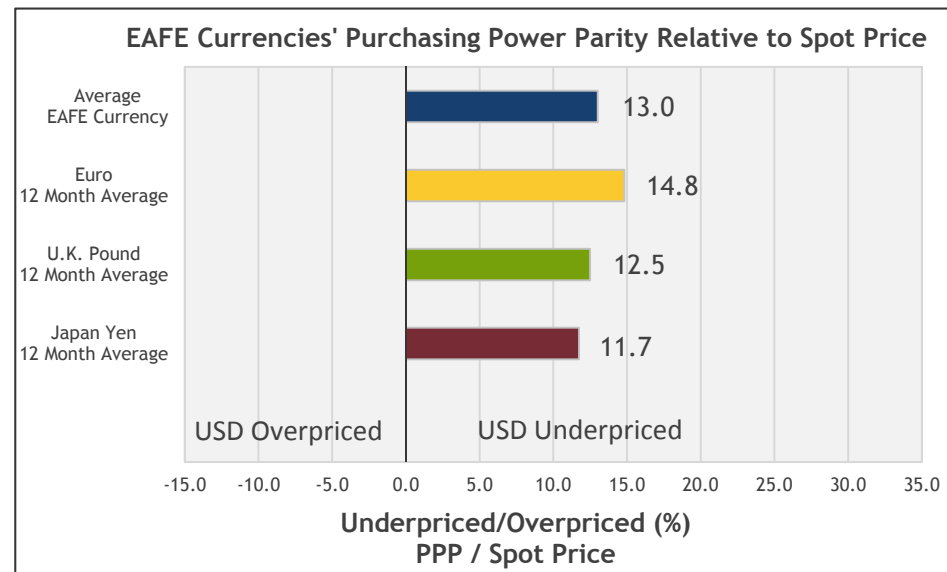
Source: MSCI, Wurts' Calculation



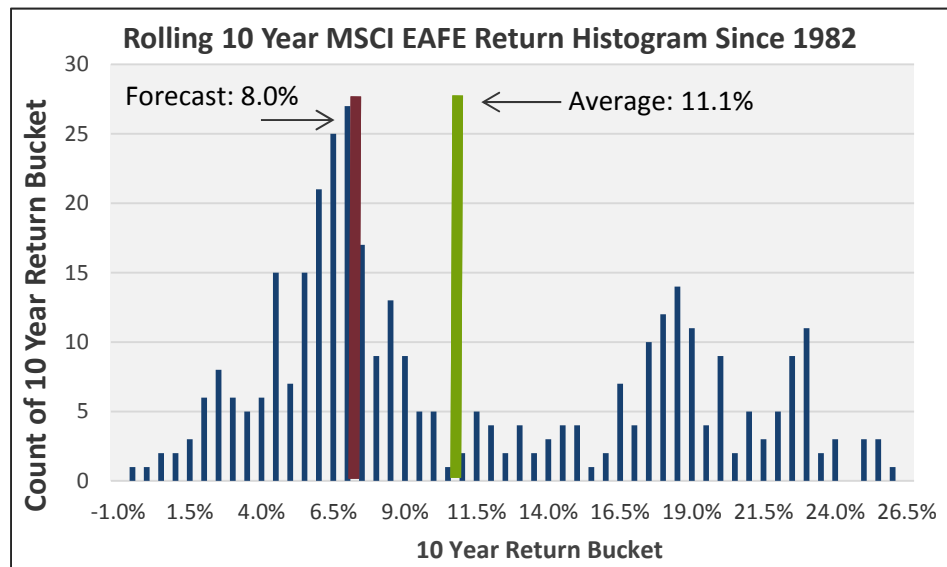
Source: MSCI, Bloomberg, Wurts' Calculation, * eurozone inflation used as a proxy for EAFE inflation

INTERNATIONAL DEVELOPED

- US investors must consider the effects of currency appreciation/depreciation. We use an estimate of Purchasing Power Parity (PPP), which is a fair value calculation of a currency pairs' spot rate given inflation and interest rate differentials. The majority of the MSCI EAFE index is in the Euro, U.K. Pound and Japanese Yen. All three of these currencies are currently overvalued relative to the US Dollar. Assuming spot rates convert to PPP over ten years, this implies an annualized -1.4% return to US investors.



Source: Bloomberg, Wurts' Calculation



Source: MPI, Wurts' Calculation

	10 Year Forecast
Dividend Yield (MSCI EAFE 12 month average)	+3.7%
Real Earnings Growth	+2.1%
Inflation on Earnings	+2.6%
Repricing	+1.0%
Purchasing Power Parity	-1.4%
Nominal Return	8.0%
Inflation	-2.6%
Real Return	5.4%

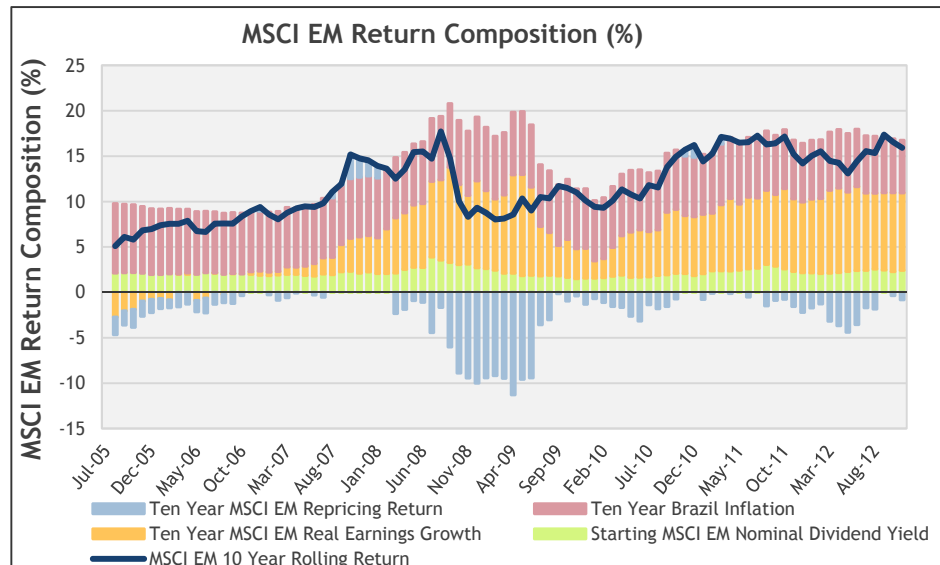
INTERNATIONAL DEVELOPED SMALL CAP

- Given the lack of historical data on international developed small-cap stocks, we assume a repricing adjustment similar to the repricing adjustment made for international large cap, plus the difference in real earnings growth. We estimate the net real earnings growth differential to be the same as the difference between US large cap and US small cap; roughly 0.9% historically.

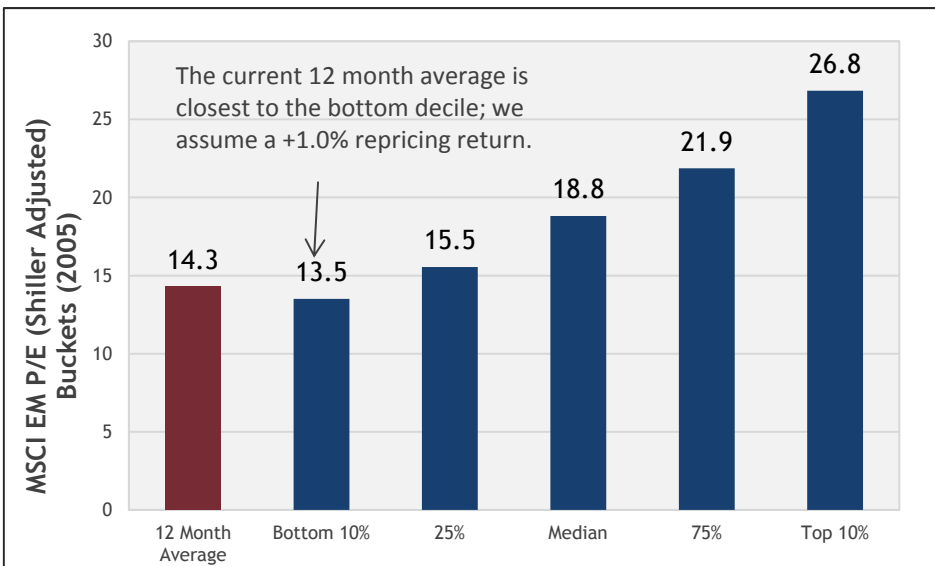
	10 Year Forecast
Dividend Yield (MSCI EAFE Small Cap 12 month average)	+3.1%
Real Earnings Growth	+3.0%
Inflation on Earnings	+2.6%
Repricing (Same as International Large Cap)	+1.0%
Purchasing Power Parity	-1.4%
Nominal Return	8.3%
Inflation	-2.6%
Real Return	5.7%

EMERGING MARKETS

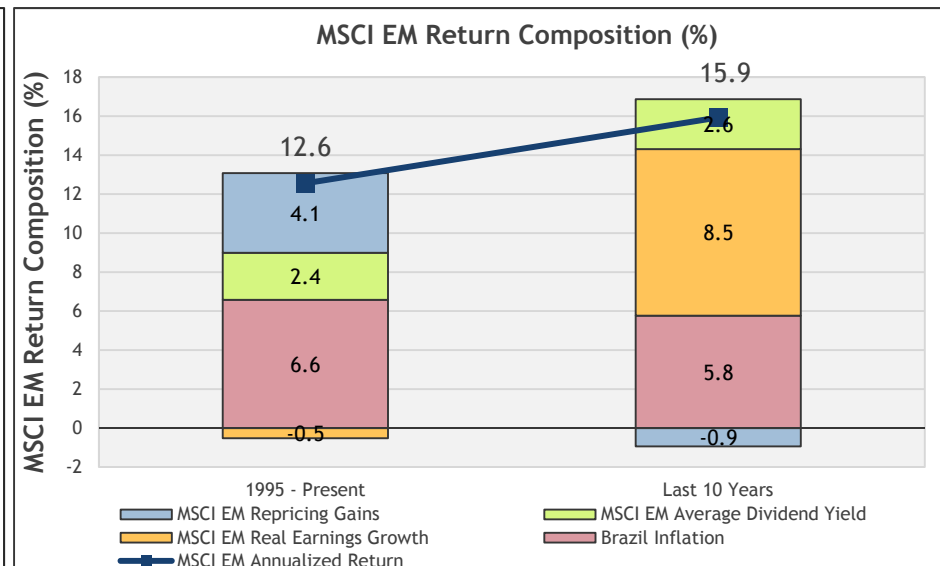
- We calculate the MSCI EM P/E using the Shiller S&P 500 P/E methodology. This analysis starts in 2005 because the MSCI EM index is relatively new and ten years of data is needed to calculate P/E ratio using the Shiller method.
- The average ten year real earnings growth has been 2.5% greater for emerging markets compared to that of developed; however, given the relative short history of this data, we assume a 1.0% net earnings differential as a conservative estimate.
- We also assume a repricing return of 1.0% given that the 12 month average MSCI EM P/E (Shiller adjusted) is closest to the bottom decile bucket.



Source: MSCI, Bloomberg, Wurts' Calculation, * Brazil Inflation used as a proxy for EM inflation



Source: MSCI, Wurts' Calculation

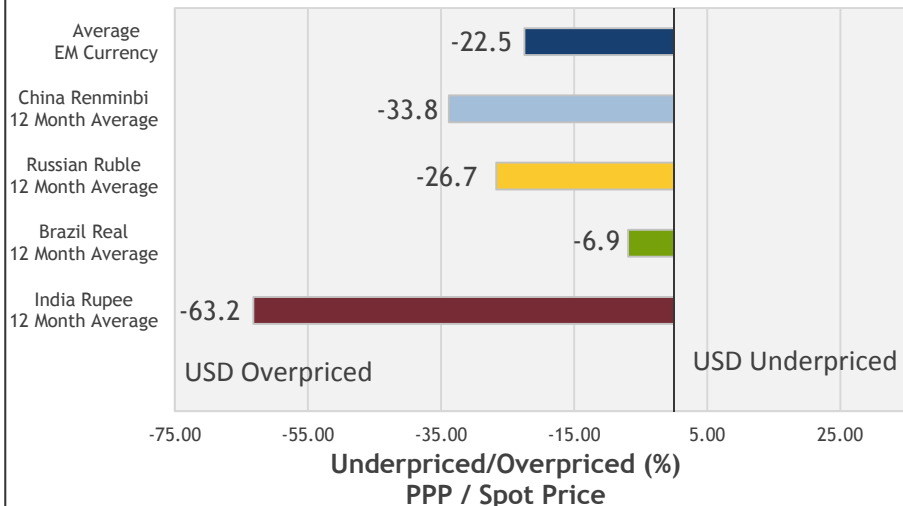


Source: MSCI, Bloomberg, Wurts' Calculation, * Brazil Inflation used as a proxy for EM inflation

EMERGING MARKETS

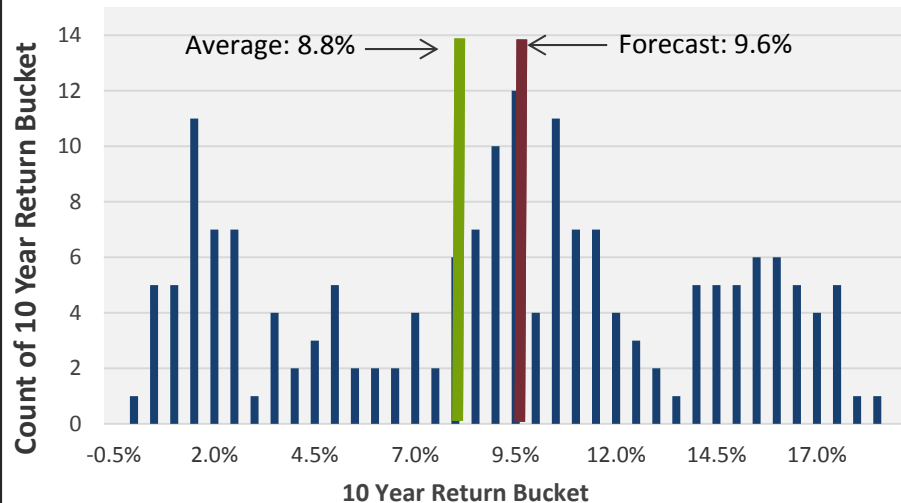
- We use an estimate of Purchasing Power Parity (PPP), which is a fair value calculation of a currency pairs' spot rate given inflation and interest rate differentials. Currently, the majority of EM regions/countries' spot rates are above fair value, implying that the US Dollar is underpriced. However, some EM currencies are either pegged to the US Dollar or are manipulated by the representative government. At this time, we assume no reversion to fair value.

EM Currencies' Purchasing Power Parity Relative to Spot Price



Source: Bloomberg, Wurts' Calculation

Rolling 10 Year MSCI EM Return Histogram Since 1997



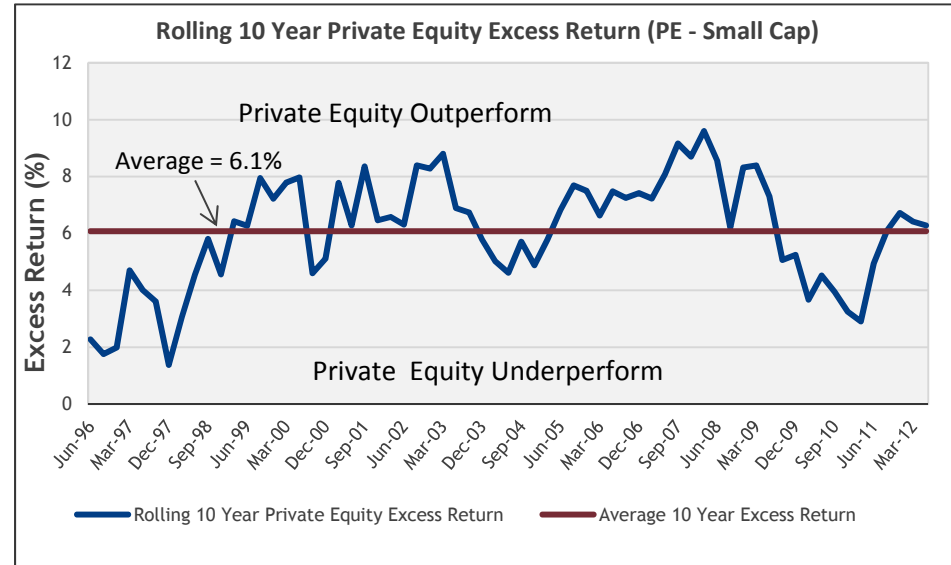
Source: MPI, Wurts' Calculation

	10 Year Forecast
Dividend Yield (MSCI EM 12 month average)	+2.9%
Real Earnings Growth	+3.1%
Inflation on Earnings	+2.6%
Repricing	+1.0%
Purchasing Power Parity	0.0%
Nominal Return	9.6%
Inflation	-2.6%
Real Return	7.0%

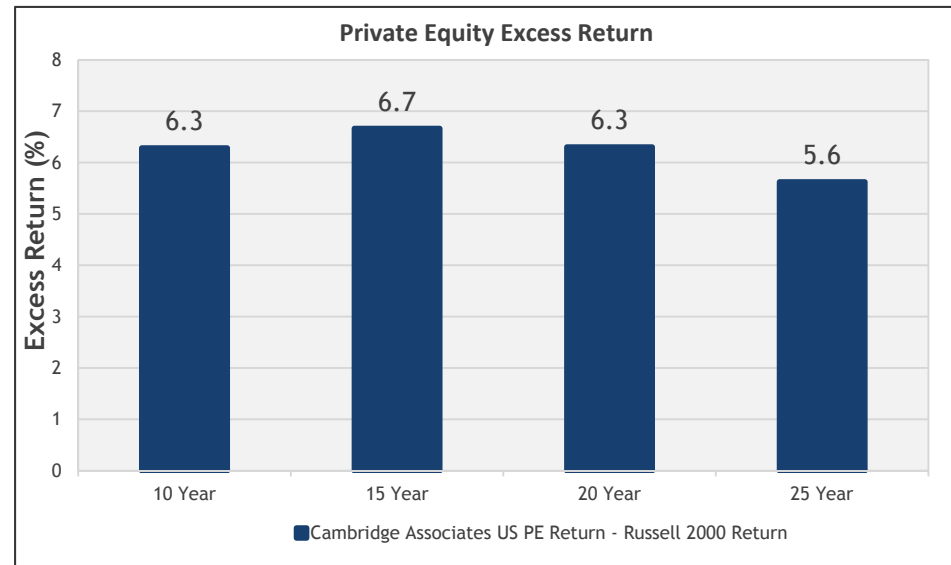
ALTERNATIVES

PRIVATE EQUITY

- Private equity and public equity returns should be correlated because the underlying economic forces driving these asset class returns are quite similar.
- The return relationship between the two can vary in the short-term, but over the long-term, the return to a private equity index should outperform public equities for two main reasons: 1) The illiquidity premium rational investors demand to hold a less liquid investment; and 2) The upwardly-biased performance of the index because of selection biases related to voluntary reporting.
- We estimate an illiquidity premium of 3.0% on top of our US small cap forecast of 6.9%.



Source: MPI

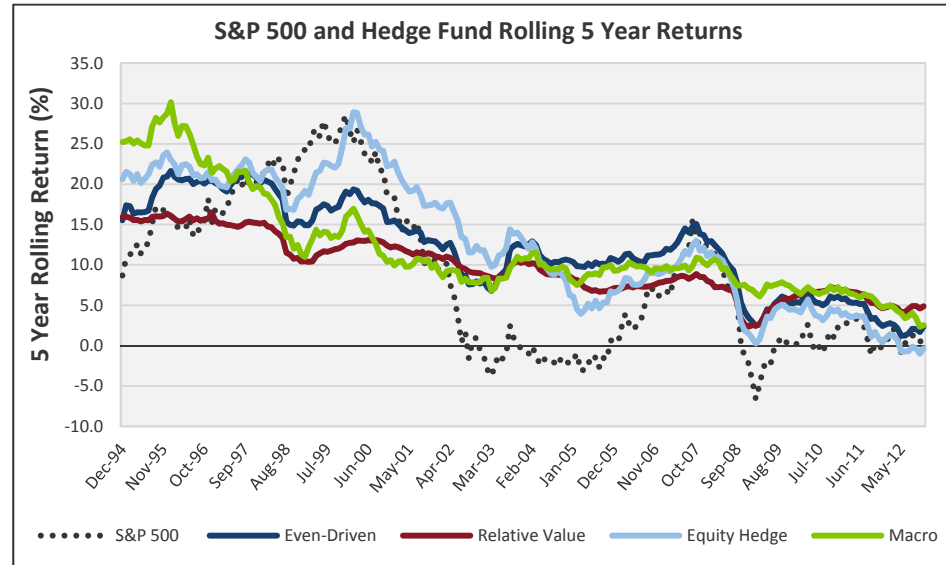


Source: MPI

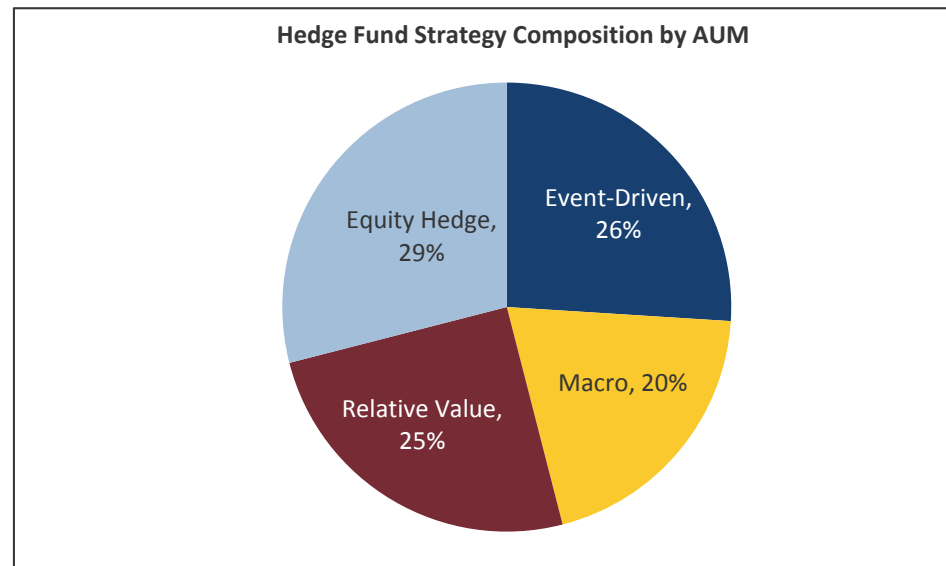
	10 Year Forecast
Small Cap Forecast	+6.9%
Illiquidity Premium Estimate	+3.0%
Nominal Return	9.9%
Inflation	-2.6%
Real Return	7.3%

HEDGE FUNDS

- Hedge Funds' returns are correlated with the movement in the S&P 500 index, albeit with less volatility. Projecting future returns is more difficult because the underlying strategies target an absolute return with unknown cash flows; however, we do know that each hedge fund strategy (e.g. event-driven) opportunity set is driven by macroeconomic and capital market conditions.
- Over the last 25 years, the HFRI Fund of Funds Composite has underperformed the S&P 500 index, although with a 37% higher Sharpe ratio (0.46 versus 0.63).
- We reference the HFRI Fund of Funds Composite to project future returns, taking into consideration the most recent 10 year return and historical average. From these we arrive at a 10 year forecast of 5.4% for the asset class.



Source: MPI



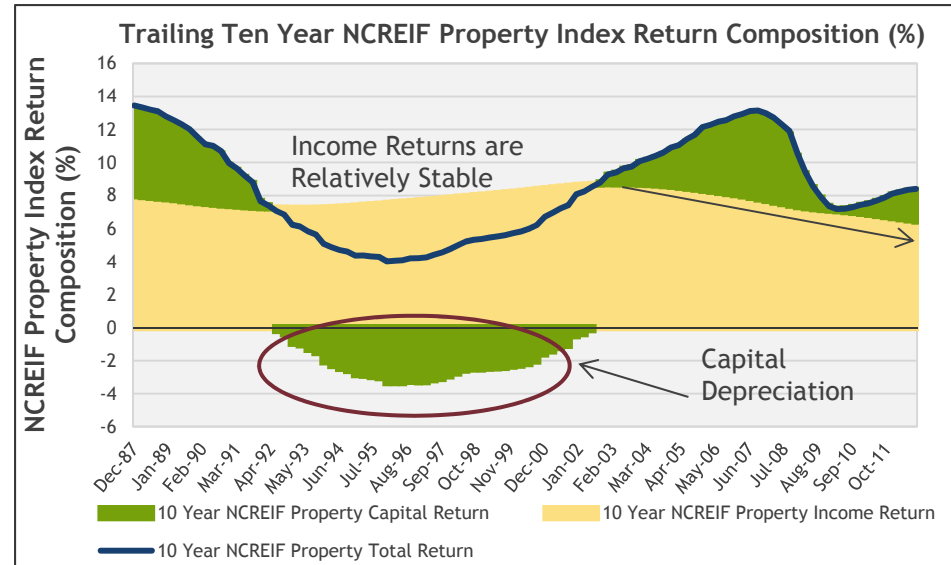
Source: HFR; MPI

	10 Year Forecast
Nominal Return	5.4%
Inflation	-2.6%
Real Return	2.8%

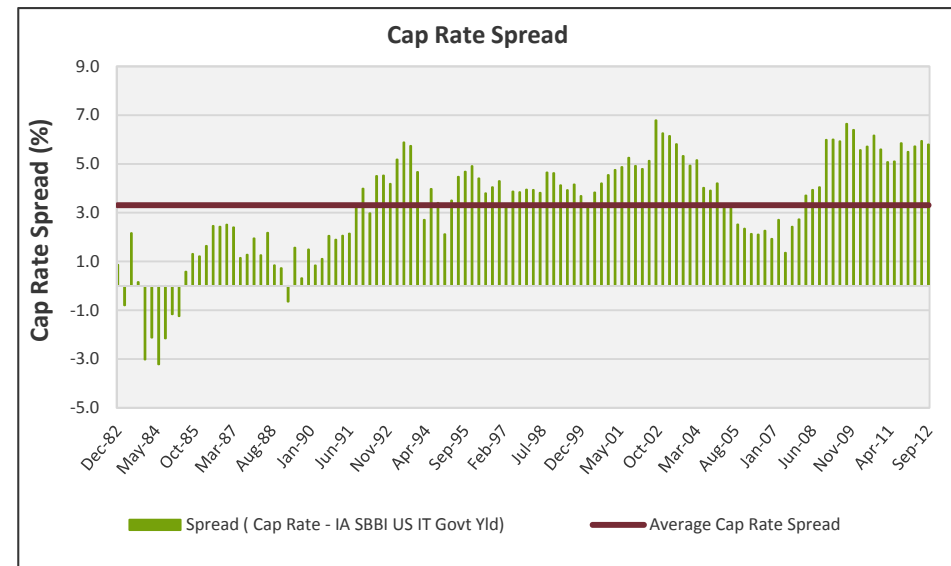
CORE REAL ESTATE/REITS

- Performance of the NCREIF property index can be decomposed into an income return and capital return. The return coming from income has historically been more stable than the return derived from capital changes.
- Return from income is currently in a downtrend, most likely due to the low rate environment which has pushed prices higher; however, current cap spreads to government Treasuries remain slightly wide to the historical average.
- Over the long run, 85% of the NCREIF property's total return has come from income, while 15% has come from capital appreciation. We assume this relationship holds going forward.
- Given the similarities in the underlying economic factors that affect private property and REITs, we apply the same forecast for REITs.

		10 Year Forecast
Cap Rate	6.1% *85%	+5.6%
Appreciation (Inflation)	2.5%*15%	
Inflation		-2.6%
Real Return		3.0%



Source: NCREIF

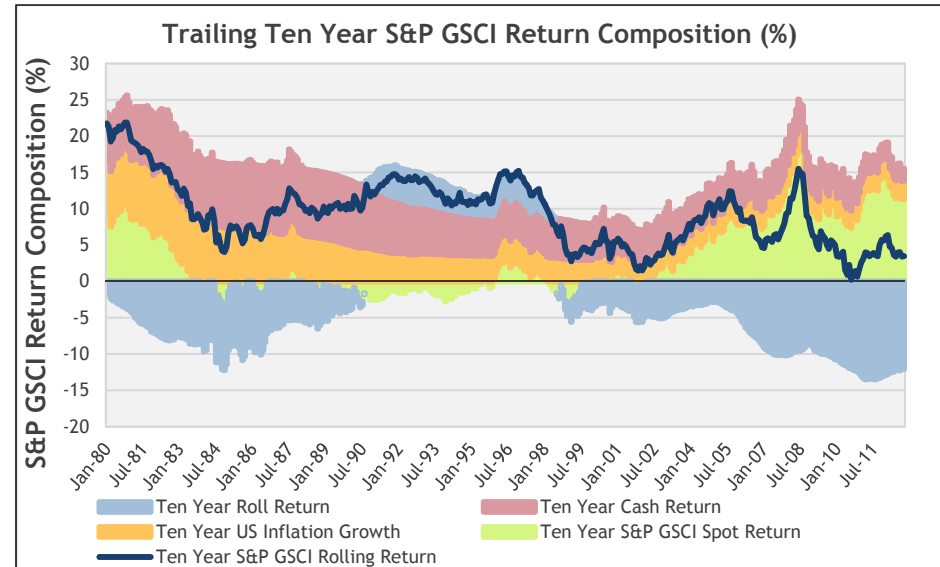


Source: NCREIF

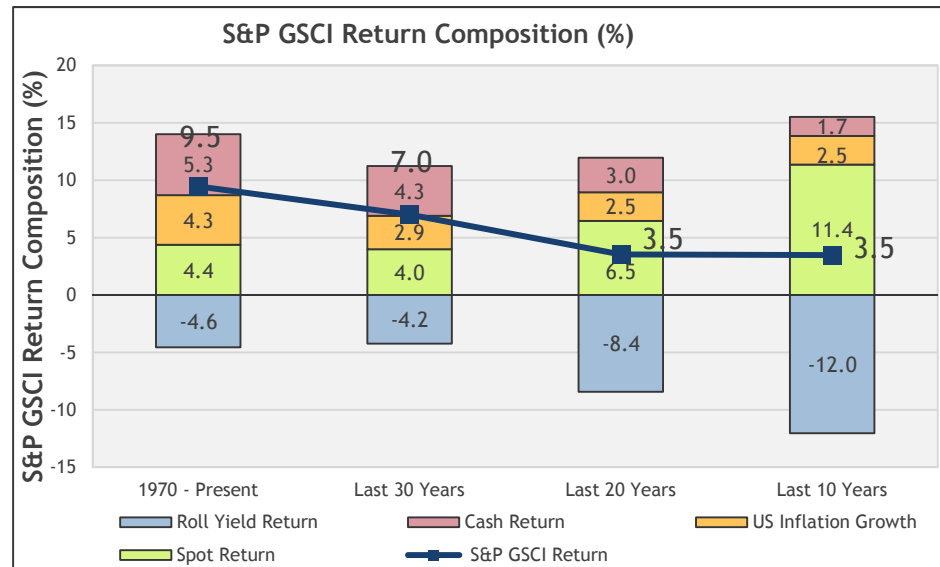
COMMODITIES

- Commodity returns can be decomposed into four sources: collateral return (cash), inflation, spot changes and roll yield.
- Roll Return represents either the backwardation or contango present in futures markets. Backwardation occurs when the futures price is below the spot price, which results in an additional profit. Contango occurs when the futures price is above the spot price, and this results in a loss to commodity investors. Historically, futures markets fluctuate between backwardation and contango.
- Over the most recent 10 year period, roll return has been negative, contributing -12% to the S&P GSCI total return. The wide adoption of commodities indexation in the last ten years as a means to access the asset class may have caused buying pressures on front month contracts, possibly leading to a regime change from backwardation to contango.

	10 Year Forecast
Collateral Return (Cash)	+1.7%
Roll Return	+0.0%
Inflation	+2.6%
Nominal Return	4.3%
Inflation	-2.6%
Real Return	1.7%



Source: MPI, Wurts' Calculation



Source: MPI, Wurts' Calculation

SUMMARY OF ASSUMPTIONS

SUMMARY OF ASSUMPTIONS: RETURNS

Asset Class	Index Proxy	2012 Ten Year Forecast	2013 Ten Year Return Forecast	2013 Ten Year Annual Standard Deviation Forecast	Change in Return Expectations '12-'13
<u>Equities</u>					
US Large	S&P 500	7.0	6.3	16.8	-0.7
US Small	Russell 2000	5.5	6.9	21.1	1.4
International Developed	MSCI EAFE	7.6	8.0	19.1	0.4
International Small	MSCI EAFE Small Cap	6.4	8.3	22.8	1.9
Emerging Markets	MSCI EM	8.6	9.6	27.6	1.0
Private Equity	Cambridge Private Equity	10.0	9.9	32.8	-0.1
<u>Fixed Income</u>					
Cash	30 Day T-Bills	2.7	1.7	1.0	-1.0
US TIPS	Barclays US TIPS Index	2.6	2.2	4.6	-0.4
Core Fixed Income	Barclays US Aggregate Bond	2.2	2.0	3.8	-0.2
Investment Grade Corp. Credit	Barclays US Credit	3.5	3.0	5.2	-0.5
High Yield Corp. Credit	Barclays High Yield	5.7	4.9	9.9	-0.8
Global Sovereign	Barclays Global Treasury ex US	2.9	2.2	3.5	-0.7
Global Credit	Barclays Global Credit	4.4	3.7	7.0	-0.7
Emerging Markets Debt (Hard)	JPM EMBI Global Diversified	5.8	5.0	12.8	-0.8
Emerging Markets Debt (Local)	JPM GBI EM Global Diversified	6.5	5.7	11.3	-0.8
<u>Other</u>					
Commodities	S&P GSCI	5.4	4.3	16.6	-1.1
Hedge Funds	HFR Fund of Funds	5.6	5.4	11.5	-0.2
Core Real Estate	NCREIF Property	6.0	5.6	10.9	-0.4
REITs	Wilshire REIT	6.0	5.6	21.8	-0.4
<u>Inflation</u>	Blend	2.7	2.6		-0.1

Estimated returns are gross of manager fees.

Historic standard deviations are based on the last 20 years or since inception of the index if 20 years of data is not available.

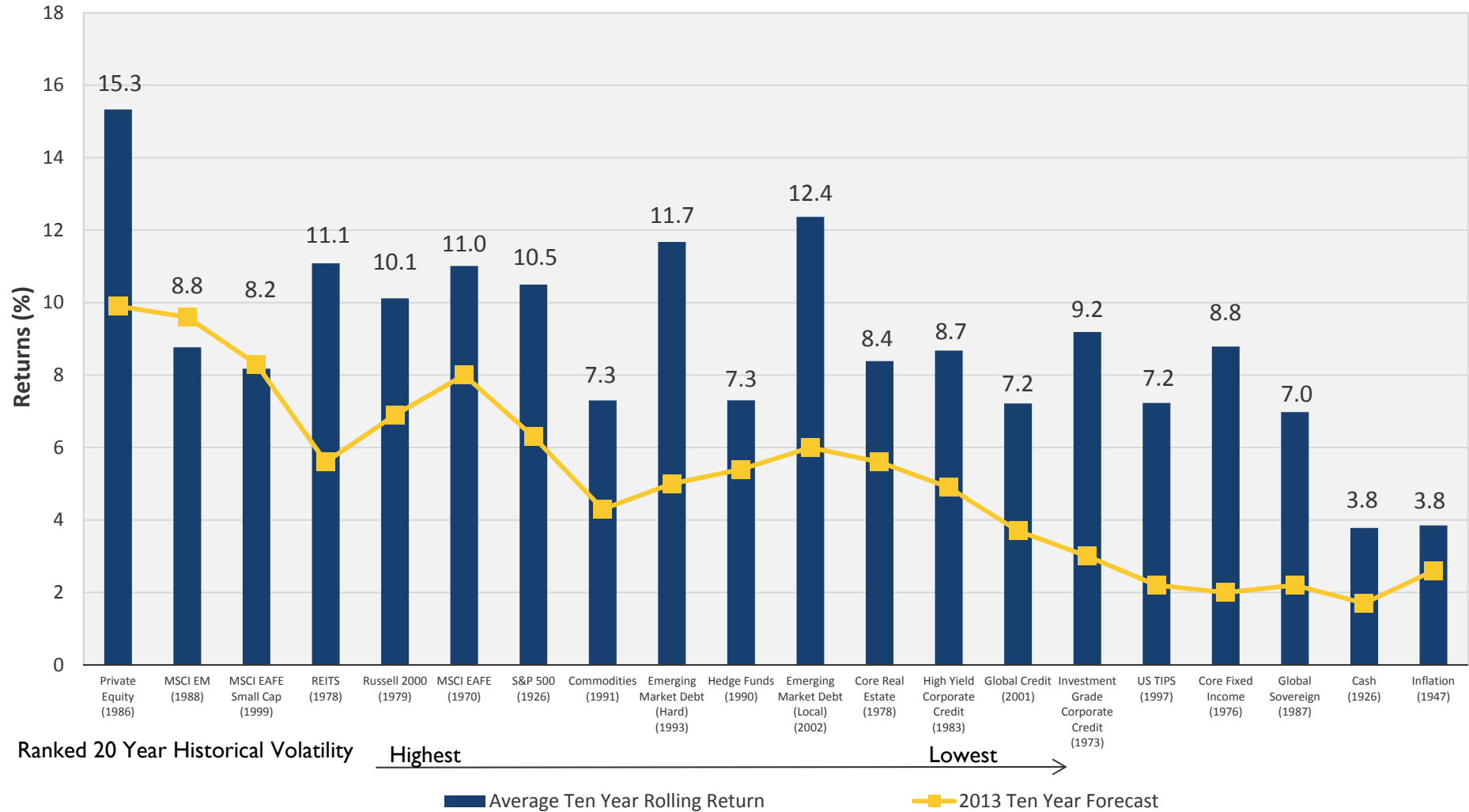
Hedge Funds' standard deviations was subjectively increased 50% in order to more accurately reflect the volatility of this asset class.

We apply our US Small Sharpe ratio estimate of 0.25 to our Private Equity return forecast to calculate a standard deviation for Private Equity.

Core Real Estate standard deviation was subjectively assumed to be 50% of the REIT standard deviation.

HISTORICAL RETURNS VERSUS TEN YEAR FORECAST

Average Ten Year Return versus Ten Year Forecast



Source: MPI; Wurts' Calculation

APPENDIX

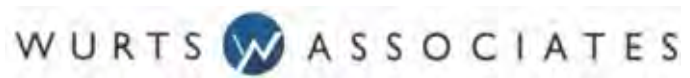
WURTS' CORRELATION ASSUMPTIONS

	S&P 500	Russell 2000	MSCI EAFE	MSCI EAFE Small Cap	MSCI EM	Private Equity	Cash	US TIPS	Core Fixed Income	Investment Grade Corporate Credit	High Yield Corporate Credit	Global Sovereign	Global Credit	Emerging Market Debt	Emerging Market Debt Local	Commodities	Hedge Funds	Core Real Estate	REITS	Inflation
S&P 500	1.0																			
Russell 2000	0.9	1.0																		
MSCI EAFE	0.9	0.8	1.0																	
MSCI EAFE Small Cap	0.8	0.8	0.9	1.0																
MSCI EM	0.8	0.8	0.9	0.9	1.0															
Private Equity	0.2	0.1	0.2	0.2	0.2	1.0														
Cash	-0.1	-0.1	0.0	-0.1	0.0	0.1	1.0													
US TIPS	0.1	0.0	0.1	0.2	0.2	-0.2	0.0	1.0												
Core Fixed Income	-0.1	-0.1	0.0	0.1	0.0	-0.2	0.0	0.8	1.0											
Investment Grade Corporate Credit	0.2	0.2	0.3	0.4	0.3	-0.1	-0.2	0.7	0.9	1.0										
High Yield Corporate Credit	0.7	0.7	0.7	0.7	0.7	0.1	-0.2	0.3	0.2	0.5	1.0									
Global Sovereign	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	0.1	0.4	0.7	0.5	-0.2	1.0								
Global Credit	0.5	0.5	0.7	0.7	0.6	0.0	-0.1	0.6	0.6	0.8	0.7	0.2	1.0							
Emerging Market Debt	0.6	0.5	0.6	0.6	0.7	0.0	-0.1	0.6	0.6	0.8	0.7	0.2	0.8	1.0						
Emerging Market Debt Local	0.6	0.6	0.7	0.7	0.8	0.1	0.0	0.4	0.3	0.5	0.6	0.0	0.8	0.7	1.0					
Commodities	0.4	0.3	0.5	0.5	0.5	0.1	-0.1	0.3	0.0	0.2	0.3	-0.3	0.4	0.3	0.4	1.0				
Hedge Funds	0.7	0.6	0.8	0.8	0.8	0.3	0.0	0.2	0.0	0.3	0.6	-0.3	0.6	0.5	0.6	0.6	1.0			
Core Real Estate	-0.1	-0.1	0.0	0.0	0.0	0.7	0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	0.1	0.1	1.0		
REITS	0.7	0.8	0.7	0.6	0.6	0.0	-0.1	0.2	0.2	0.3	0.7	-0.1	0.6	0.6	0.6	0.3	0.4	-0.1	1.0	
Inflation	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-0.3	-0.2	0.1	-0.3	0.0	0.0	0.1	0.4	0.2	0.1	0.1	1.0

Note: Correlation assumptions are based on historical, common-period observations going back to 2002.

QUARTERLY RESEARCH REPORT

March 2013



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Then and Now: What's Changed Since 2007?

The U.S. equity market climbed out the deep hole left by the Great Recession and reached a new high (congratulation Chairman Bernanke). The problem is, achievements in equity prices have yet to be matched by economic fundamentals.

Quarter-over-quarter (QoQ) GDP growth fell from 3.0% to 0.4%, and there are nearly 4 million more unemployed workers. Consumer confidence remains depressed. The rapid expansion of the Federal Reserve (Fed) balance sheet (by over \$2.3 trillion) and the increase in government debt (nearly \$8 trillion) are the supports behind the market.

How is the current recovery different from prior cycles, and why has so much stimulus been required to attain below potential growth?

Short But Not Sweet

The current recovery cycle is 48 months long. A cycle is defined as the number of months of GDP growth with no two quarters of consecutive decline (with the exception of 2001 cycle as NBER defined it as a recession). Relative to prior cycles, the current cycle length is less than average and nowhere near the cycle lengths of years 1957, 1981, or 1990. Though the current cycle may be shorter, total GDP growth is badly lagging at this point in the cycle relative to others, even those most similar in length (1948 and 1953). Finally, both the current and 2001 cycles' GDP growth rates are below the average trend line as the lack of wage and credit growth leaves behind a consumption void.

Your Problem is Obvious

In prior QRRs, we have discussed the fact that in order for the U.S. to generate self-sustaining growth, wages and credit need to expand. At this point, 48 months in, the current cycle is the only one where total payroll increase and wage growth are both still negative.

Wait, isn't the unemployment rate falling? Yes it is, but instead of falling due to workers finding jobs, it is falling because workers are leaving the labor force.

The labor force participation rate has fallen to 63.3%, a level last seen in 1979. If we hold the participation rate steady since June 2008 (66%), the current unemployment rate would be nearly unchanged at 11.5%, which translates into 6.8 million discouraged workers who have left the work force.

Are demographic changes (i.e., baby boomers retiring) influencing the participation rate decline? Perhaps, but it does not explain the 19 million new food stamp participants since June 2008.

The Housing "Recovery?" Back to the Lows

Enough bad news, how about some good news – like housing. Housing starts, new home sales, home prices – all of these are higher. Housing starts and new homes sales recovered – all the way back to their prior lows.

How about the 8% year-over-year (YoY) price gains? The problem with statistics is they only tell you a partial truth. In this case, the 8% gain masks the fact that the overall price index is barely above the 2009 lows and remains significantly below the peak. However, the "recovery" has once again captured investors' imaginations and we are seeing behavior reminiscent of 2007 with no-look bids, flips, and 300% returns.

Come on, Give Me Some Credit

Total household debt is keeping fairly static at \$11.3 trillion and mortgage debt is still the dominant sector (with 70% of the overall allocation); however, the student loan sector has experienced rapid growth since 2003 and is now the second largest sector. At the same time, 90+ day delinquencies have declined in all sectors but student loans. Rapid growth despite rising delinquencies is not a healthy market. To generate real, healthy credit growth, households need to increase their incomes via wages to support higher debt loads.

U.S. Economic Summary & Outlook

The U.S. economy continues to provide growth slightly below trend. To generate real self-sustaining growth, wages and/or credit must expand to allow for consumption increases. Look for a rebound in Q1 2013 GDP toward 2%,

however, the second half of 2013 holds the risk of growth slowing to 0 – 1%, and the risk of recession increasing.

U.S. Equity Valuation & Outlook

Valuations show the domestic equity market as slightly cheap; valuations showed the same thing in 2007 just before the Great Recession. Several indicators such as the VIX, dividend yield, earnings, and momentum have returned to ranges where the market peaked in 2000 and 2007. The current rally has produced the highest return for the least growth compared to any other cycle. The divergence between equity prices and underlying economic fundamentals increases the risk of equity market correction. Over the coming months, look for the market to test the strength of the recent rally and given the size of the rally, a pullback could exceed 10%.

U.S. Fixed Income Valuation & Outlook

All fixed income sectors remain rich with the exception of EM local debt. With negative real yields for the first time since the 1980s and a 200-year low in nominal rates, caution is understandable. A major difference, however, is that the inflationary environment of the 1970s is not currently present (no wage and credit growth). With weak economic growth, rates can stay lower, longer.

Along with Treasury yields, credit yields (both investment grade and high yield) are at record lows and remain rich from a valuation standpoint. With the high correlation between spreads and equities, expect to see spreads move wider in the coming equity correction.

European Economic Summary & Outlook

The European economy continues to contract with rising unemployment, lower consumption, and weak manufacturing. A weaker Euro helped to improve exports, but not enough to offset internal weakness. ECB's promise to do "whatever it takes," has not resulted in economic growth. Look for GDP to contract further as global growth continues to slow, with the risk that the recession could become severe.

Europe : Les Misérables

European household consumption continues to decline, along with confidence, as the unemployment rate continues to increase. Though the rise in unemployment has not been felt equally across countries; Germany experienced a new low while Spain reached a new high. One driver generating economic growth is expanding exports. While export growth remains positive, the rate of growth has declined significantly since the peak in 2010.

Japan: The World's Most Interesting Economy?!

It is indeed a rare occasion when one can say that Japan is the most interesting economy in the world. After decades of deflation and lackluster growth, the Bank of Japan (BoJ) instated an aggressive plan to meet a 2% inflation target over the next two years.

The BoJ, under new Governor Kuroda, has promised to double the money supply, injecting about \$1.4 trillion into the economy over the next two years. As prior QE attempts did not generate growth or inflation, will this round of QE work? Proponents of QE (such as Paul Krugman) say that QE programs have yet to work in the U.S. or Japan because no QE program has been large enough. Both the U.S. and Japanese QE programs were ~30% of GDP (apparently this was not large enough). According to the latest announcement by the BoJ, this QE round will be nearly 60% of GDP and is considered large enough to test if QE can result in growth and inflation. We will be keeping a close eye on Japanese growth and inflation to see if this grand monetary experiment (QE) works.

EAFE Valuation & Outlook

EAFE valuations remain cheap; however, prices have diverged from economic fundamentals as the ECB has promised to do "whatever it takes," encouraging speculation and risk taking. With development market central banks' QE programs and promises, risk market correlations remain high. With expectations for a U.S. equity market correction that is likely to exceed 10%, EAFE should be looking for a pullback as well, but it likely will not be as severe as the U.S. The

PIIGS have benefited from the ECB promises via lower funding rates. With the equity correction, expect to see rates move higher once again as they test the ECB promises to see if the correction grows deep enough. A move above 5.5% for the PIIGS could spell trouble once again.

U.S. centric investors fail to realize that while U.S. equity markets have returned to new highs, European indices remain significantly below their 2007 peaks. Yet, similar to the U.S., there are some valuation indicators (such as volatility) that are within the range where tops have occurred in the past.

Emerging Market Summary & Outlook

EM growth continues to slow, but still above recessionary levels despite central bank policy accommodation. Industrial production and exports have trended lower since peaking in 2010. With global growth slowing, expect to see further slowing in EM with the risk that they may slip into recession later in the year.

The expected corrections in developed market equities will likely lead to a correction in EM as well. Expect to see EM equities outperform both U.S. and EAFE equities as EM is not yet a participant in the recent rally.

On a relative basis, EM rates remain cheap to developed countries. On an absolute basis, EM rates are rich along with the rest of the world. EM rates may be pushed higher in a “risk-off” trade, but this is not due to underlying fundamental concerns.

Relative Value

U.S. equities are the second richest (Russia being the most expensive) relative to other countries when measured as equity returns relative to GDP growth. Other countries with similar growth to the U.S., such as Canada, Germany, and Australia, have experienced much more moderate equity returns.

While global interest rates remain rich, Brazilian rates remain relatively cheap to developed countries. Although EM countries tend to have higher volatility, the higher yield and steeper yield curves offer interesting trade-offs for fixed income investors.

Stocks vs. Bonds - The Great Non-Rotation

The Great Rotation that never really was. The year started with unbridled enthusiasm over the idea that investors were rotating out of fixed income and into equities as equity fund flows started the year significantly positive. There's just one problem, bond mutual fund flows were also positive. Rather than rotating out of fixed income and into equities, investors were simply investing the dividends and bonuses that were paid in December 2012 to avoid potential tax implication related to the coming fiscal cliff. Since the early inflows in January, mutual fund flows have returned to a more normal level and talks of the Great Rotation have subsided.

Overall Summary

The current cycle is still relatively young, but is the weakest in terms of GDP growth. The economy continues to be restricted by the lack of wage and credit growth despite the record monetary and fiscal accommodation. With slowing growth and higher equity prices, in anticipation of infinite QE, the risk of an equity market correction remains high. Several equity market valuations are in the same range as the 2000 and 2007 peaks. Interest rates remain rich, but are likely to stay lower for longer. Spreads, with the high equity correlation, are likely to move wider with the equity correction. Expect to see EAFE and EM equities outperform the U.S. in a correction.

GLOBAL ECONOMIC AND MARKET OUTLOOKS

THEN & NOW — WHAT'S CHANGED SINCE 2007?

	October 2007	April 2013	Change
S&P 500	1,576	1,576	
NYSE Avg. Daily Volume	1.3 Billion	545 Million	-755 Million
VIX (Equity Volatility)	16	13	-3
10-Year Yield	4.72%	1.72%	-3.0%
GDP Growth (QoQ)	3.0%	0.4%	-2.6%
Unemployed	6.9 Million	11.8 Million	+4.9 Million
Participation Rate	66.0%	63.3%	-2.7%
Consumer Confidence	99.5	59.7	-39.8
Fed Balance Sheet	\$0.89 Trillion	\$3.2 Trillion	+\$2.31 Trillion
Gov't Debt/GDP	67%	107%	+40%
Total Gov't Debt	\$9.1 Trillion	\$16.8 Trillion	+\$7.7 Trillion

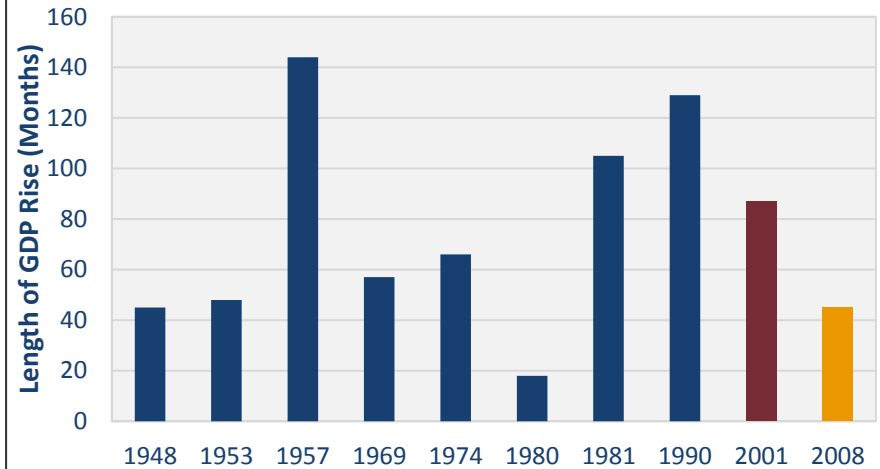
Sources: S&P, NYSE, BEA, BLS, Federal Reserve, Bloomberg, Wurts

- In Q1 2013, U.S. equity markets reached a new all time high (congratulations Chairman Bernanke).
- However, the equity market gains have not translated into economic growth:
 - QoQ GDP growth fell from 3.0% to 0.4%.
 - There are nearly 4 million more unemployed and the participation rate fell to a level not seen since 1979.
 - Consumer confidence remains depressed.
- Supporting the market has been the rapid expansion in both Federal Reserve balance sheet and total government debt.
- How is the current cycle different than the past?

SHORT BUT NOT SWEET

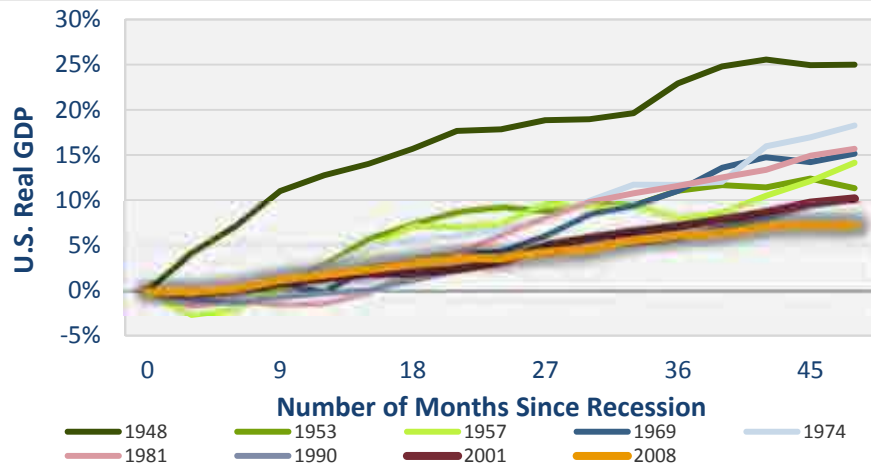
- The current cycle is 48 months long (as measured by the number of months of GDP growth with no two quarters of consecutive decline – with the exception of 2001).
- Relative to prior cycles, the current cycle length is less than average and nowhere near the length of 1957, 1981, or 1990.
- Total GDP growth in the current cycle is the weakest through 48 months of expansion relative to prior cycles.
- Compared to other cycles of similar length (1948 and 1953), the current cycle is badly lagging.
- Both the current and 2001 cycles GDP growth are below the average trend line as the lack of wage and credit growth has left a consumption and growth void.

Length of GDP Rise (Months)



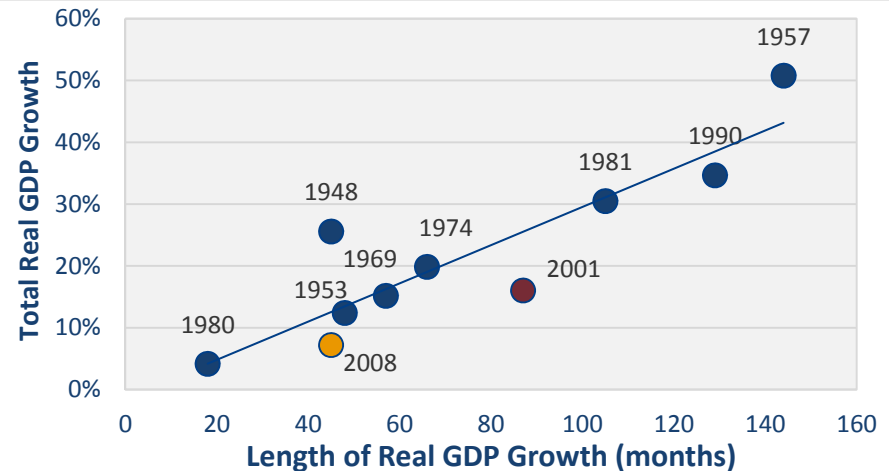
Sources: St. Louis Federal Reserve, Wurts

Total GDP Growth (through 48 Months)



Sources: St. Louis Federal Reserve, Wurts

Length of Real GDP Growth vs. Total Growth

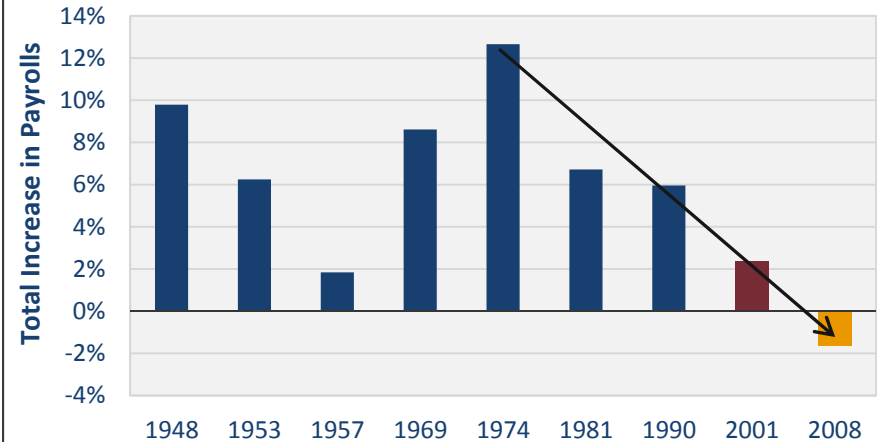


Sources: St. Louis Federal Reserve, Wurts

YOUR PROBLEM IS OBVIOUS

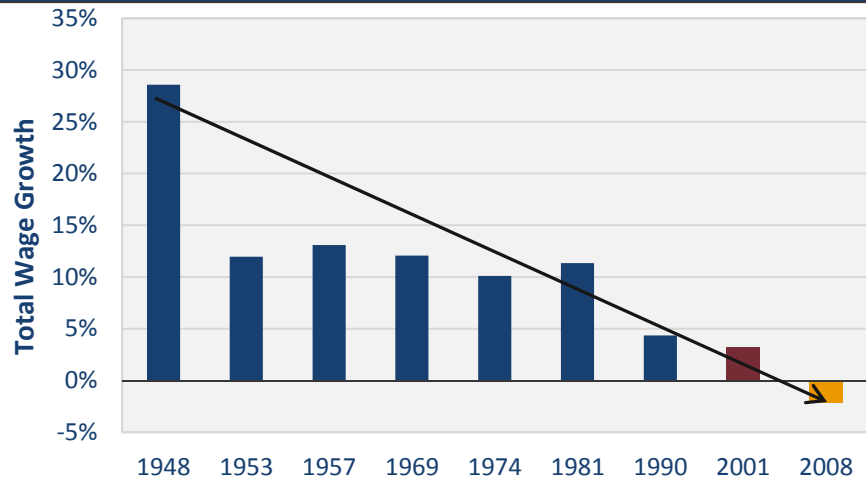
- The current cycle payroll increase has not only been the slowest of all the cycles, it has been the only one that is still negative after 48 months.
- Following the lack of job growth, wage growth has been equally weak and has likewise shown the only negative growth compared to other cycles.
- The combined payroll and wage growth weakness has resulted in weak consumption and GDP growth.
- What about the falling unemployment rate and are changing demographics influencing the decline in participation rate?

Total Payroll Increase (48 Months Post Recession)



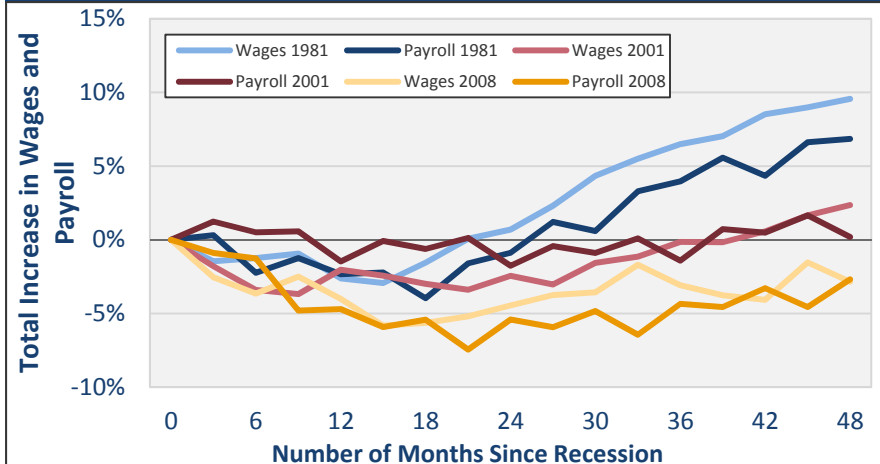
Sources: St. Louis Federal Reserve, Wurts

Total Wage Growth (48 Months Post Recession)



Sources: St. Louis Federal Reserve, Wurts

Payroll and Wage Growth Cycle Comparison



Sources: St. Louis Federal Reserve, Wurts

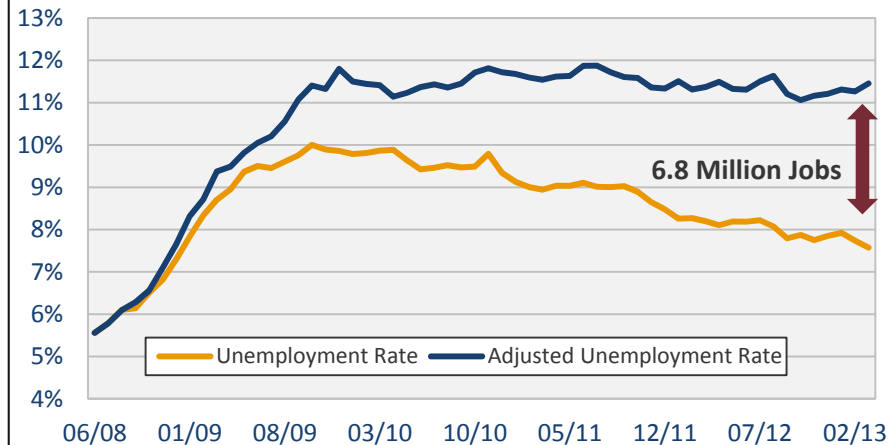
YOUR PROBLEM IS OBVIOUS

- Good news, the unemployment rate continues to decline and has fallen to 7.6%. Bad news, all of the decline is due to a decrease in the labor force participation rate, which fell to 63.3%, a level not seen since 1979.
- We can see this if we hold the participation rate steady from June 2008 (at 66%). The unemployment rate would be nearly unchanged at 11.5%, translating into 6.8 million workers that left the work force.
- Are demographic changes (baby boomers retiring) influencing the participation rate decline? Perhaps, but that does not explain the tremendous rise in food stamp recipients (over 19 million) since June 2008.



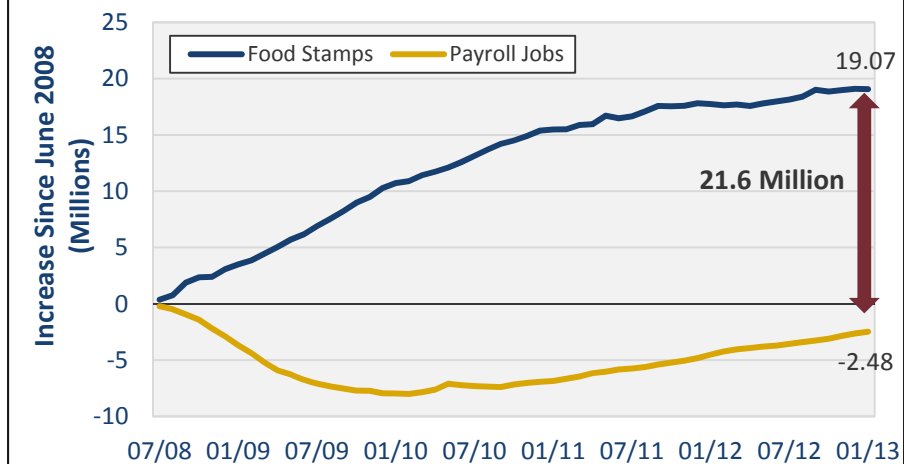
"I've stopped looking for work, which I believe, helps the economic numbers."

Adjusted Unemployment Rate



Sources: BLS, Bloomberg, Wurts

Cumulative Change in Food Stamps & Payrolls

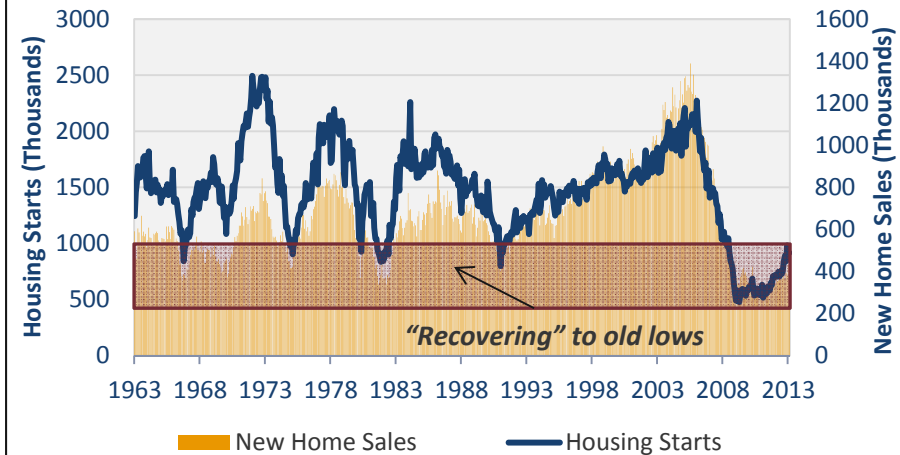


Sources: U.S. Department of Agriculture, BLS, Bloomberg, Wurts

THE HOUSING "RECOVERY?" SURE, BACK TO LOWS

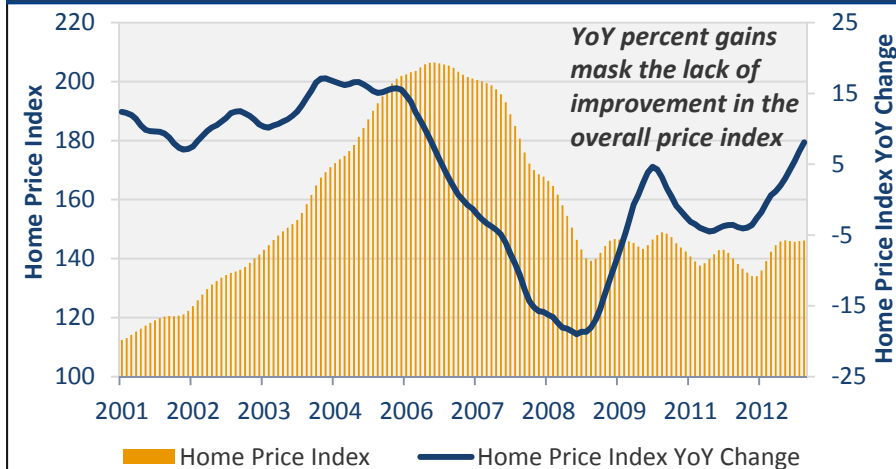
- Have you heard? The housing market is recovering. Housing starts, new home sales, and prices are all higher. Is it time to get excited about the housing market again?
- The recovery enabled housing starts and new home sales to move back to levels previously associated with lows – hardly a reason to celebrate.
- But wait, what about the 8% year-over-year (YoY) gain in prices? The problem with statistics is they only tell you a partial truth. In this case, the YoY gains mask the fact that the overall price index is barely above the 2009 lows and remains significantly below the peak.
- Despite these facts, the housing market has again captured investors' attention and behavior is reminiscent of 2007; with no-look bids, flips, and 300% returns.

Housing Recovering to Old Lows



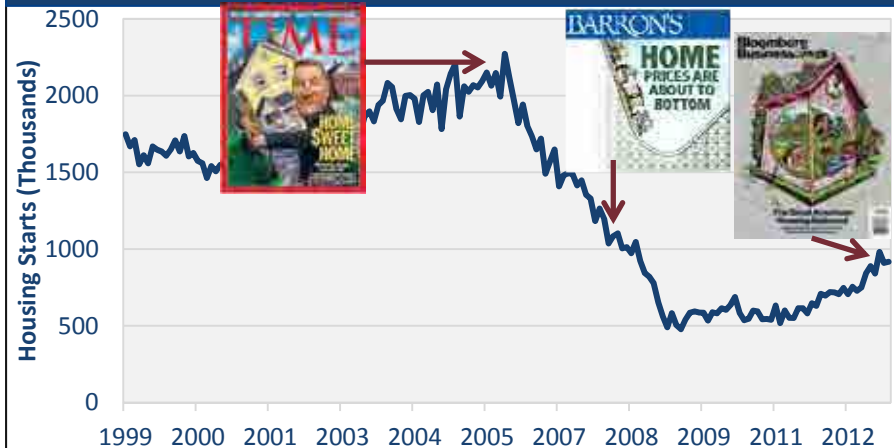
Sources: Federal Reserve Bank of New York, Bloomberg, Wurts

Home Prices Improving? Not So Much



Sources: Case-Shiller, U.S. Census Bureau, Bloomberg, Wurts

Here We Go Again

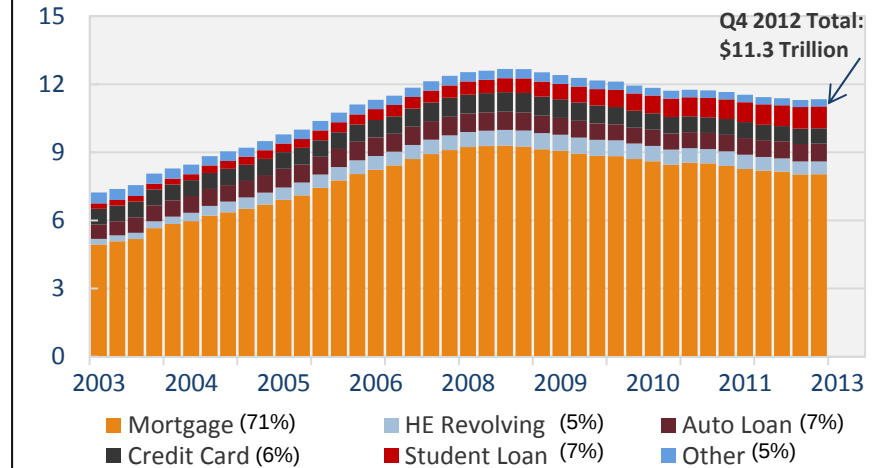


Sources: Federal Reserve Bank of New York, Wurts

COME ON, GIVE ME SOME CREDIT

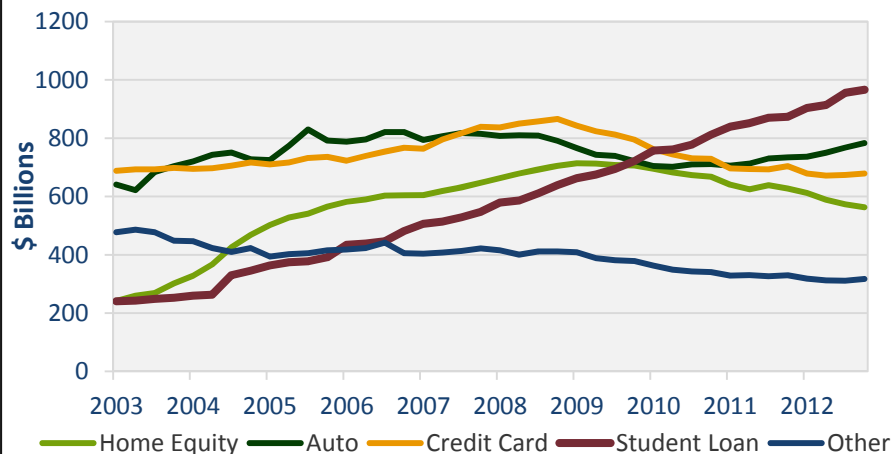
- Total household debt has remained fairly static at \$11.3 trillion; mortgage debt comprises over 70% of total household debt and remains the dominant sector.
- For the non-mortgage sectors, student loans have expanded so rapidly since 2003, they became **the second largest household debt sector after mortgages**.
- The student loan sector was the only household debt sector that expanded during the Great Recession, rising from \$250 billion in 2003 to over \$1 trillion currently.
- While most debt sectors experienced declining 90+ days delinquencies, the student loan sector continues to experience rapid increases in delinquencies.
- Rapid growth despite rising delinquencies – didn't we see this play out before in 2007?

Household Debt Outstanding (\$Trillions)



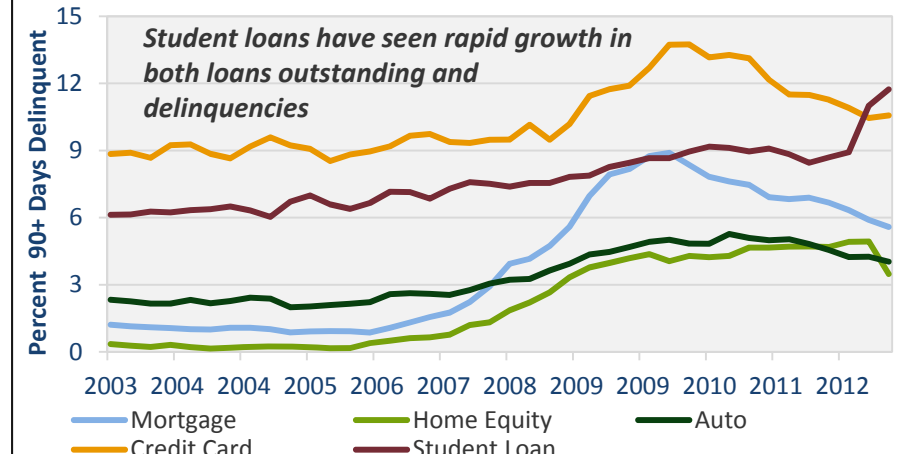
Sources: Federal Reserve Bank of New York, Bloomberg, Wurts

Non-Mortgage Debt Balances



Sources: Federal Reserve Bank of New York, Bloomberg, Wurts

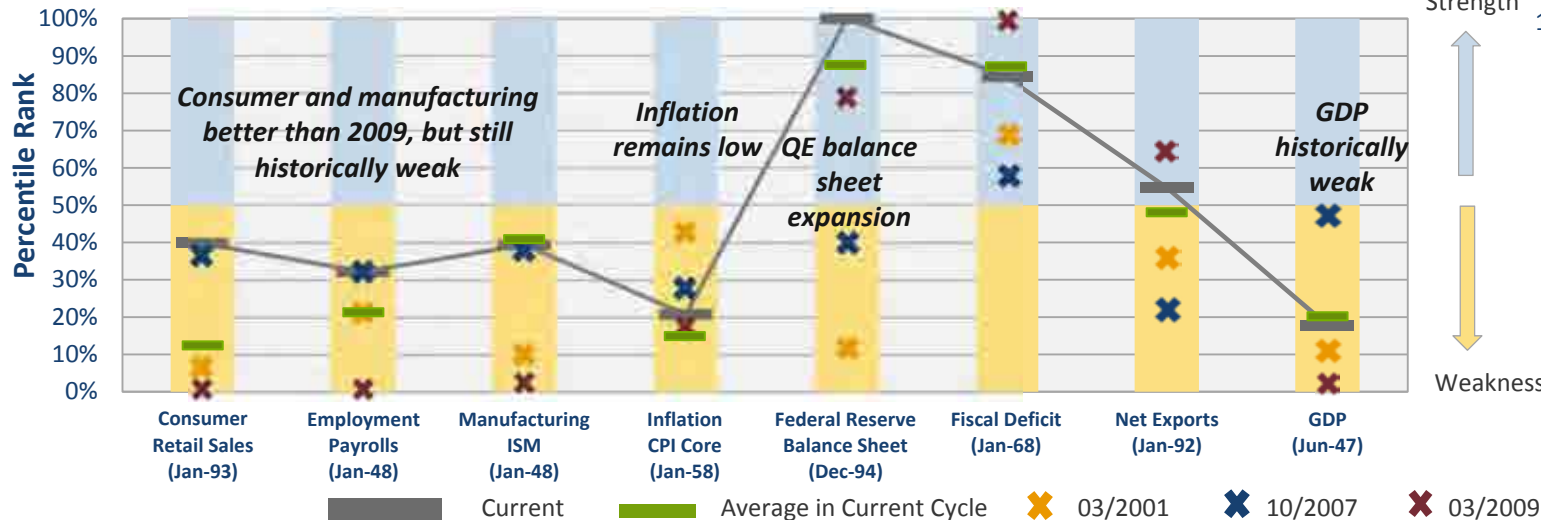
Percent 90+ Days Delinquent by Sector



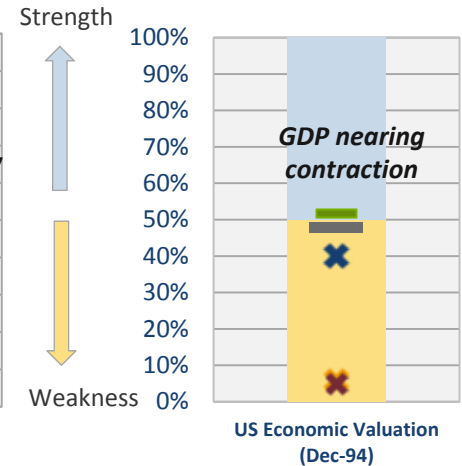
Sources: Federal Reserve Bank of New York, Wurts

U.S. ECONOMIC SUMMARY & OUTLOOK

US Economics



US Economic Valuation



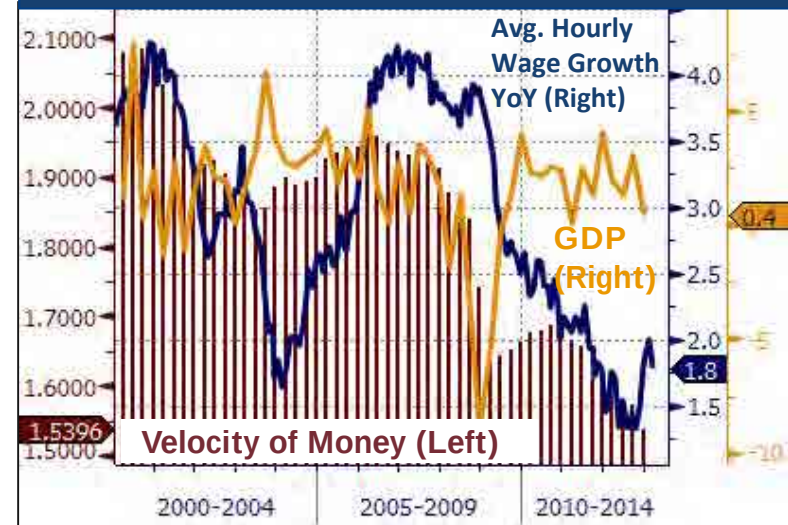
Summary: Economy continues to provide growth slightly below trend, with no sustained driver of growth. Hopes of improvement in the labor and housing markets mask the underlying weakness.

Keys to Watch:

1. **Wage growth:** Headline payroll growth is of little importance without wage growth. Increased wages can increase consumption and GDP.
2. **Credit growth:** Expanding money supply via Fed QE will not improve the economy without increased credit growth. A dollar printed will stay a dollar without increased velocity of money (credit growth).

Outlook (Next 3 – 6 Months): Look for a rebound in Q1 2013 GDP growth toward 2%, with economic data to be "mixed." As we move into the 2nd half of 2013, growth will trend toward 1% or lower.

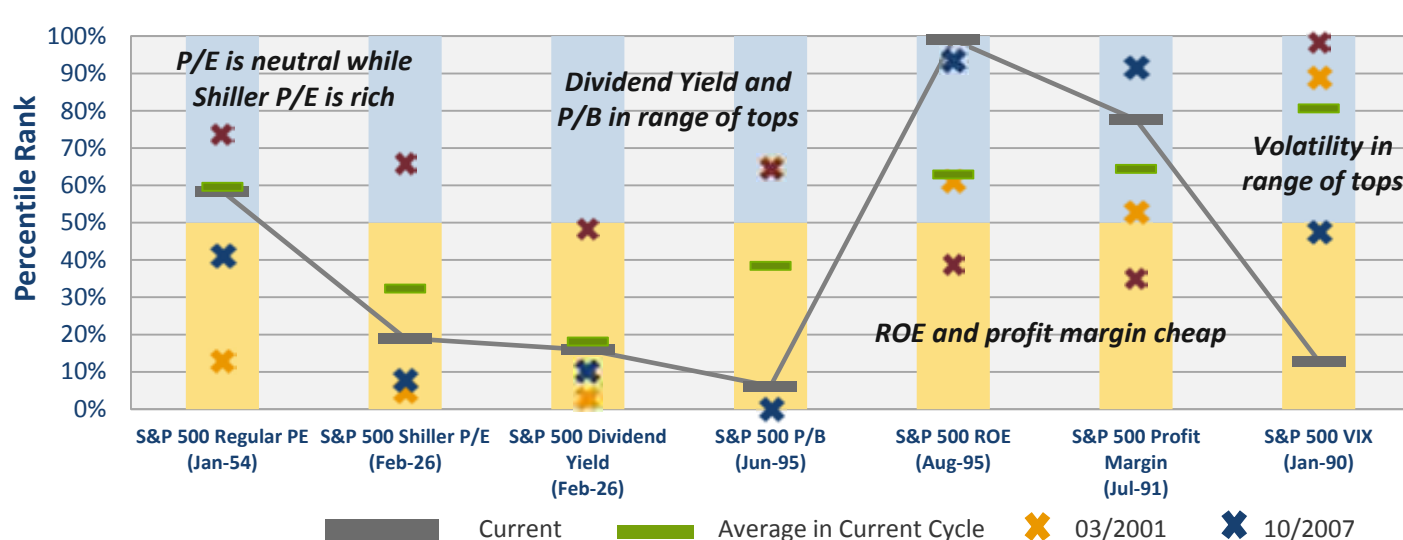
Keys to Watch



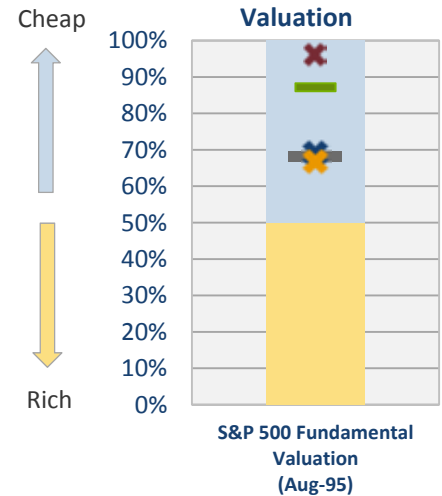
Sources: Federal Reserve, BLS, NBER, Bloomberg, Wurts

DOMESTIC EQUITY VALUATION & OUTLOOK

S&P 500 Fundamentals



S&P 500 Fundamental Valuation



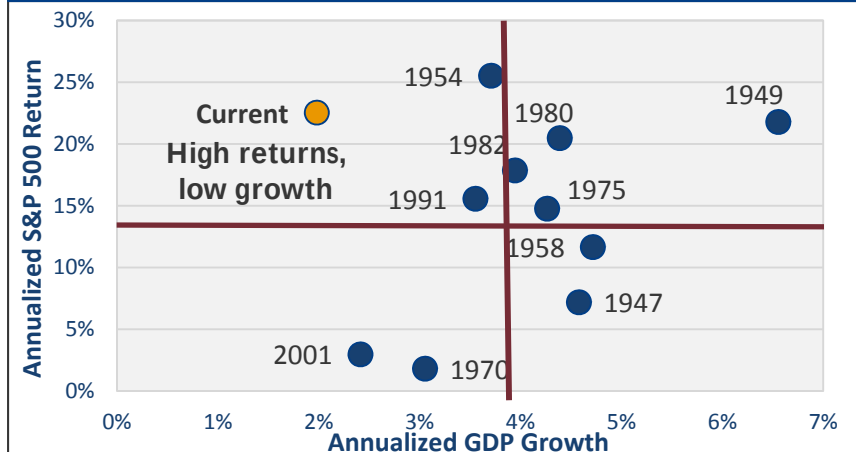
Summary: Valuations show that the market is slightly cheap. However, they showed the same thing in 2007 just before the Great Recession. Statistics are only a partial truth. Expect to see a correction in the coming months.

Keys to Watch:

1. Results of QE: The equity surge must result in economic and revenue growth or fundamentals/valuations will not support prices.
2. Warning signs flashing: The VIX, dividend yield, earnings, and other indicators have returned to levels where the market turned in 2000 and 2007. Remain diligent.

Outlook: Look for a pullback where the market will test the strength of the recent rally. Given the size of the rally since November 2012, the pullback could exceed 10%. Following the pullback, market direction will depend on the ability of QE to produce economic and corporate revenue growth.

Annualized Equity Returns Relative to GDP Growth by Economic Cycle



Sources: St. Louis Fed, Bloomberg, Wurts

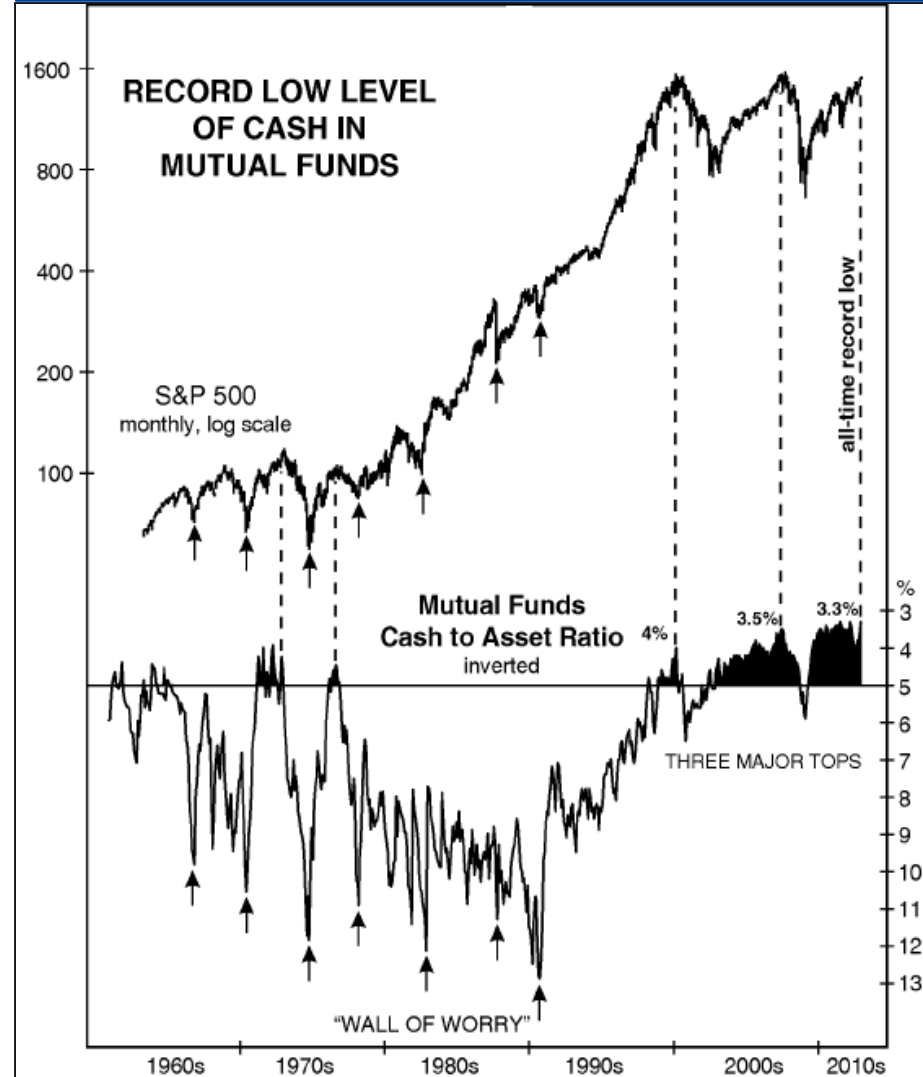
S & P 500 FUNDAMENTAL VALUATION

S&P 500 vs. VIX



Sources: S&P 500, Bloomberg, Wurts

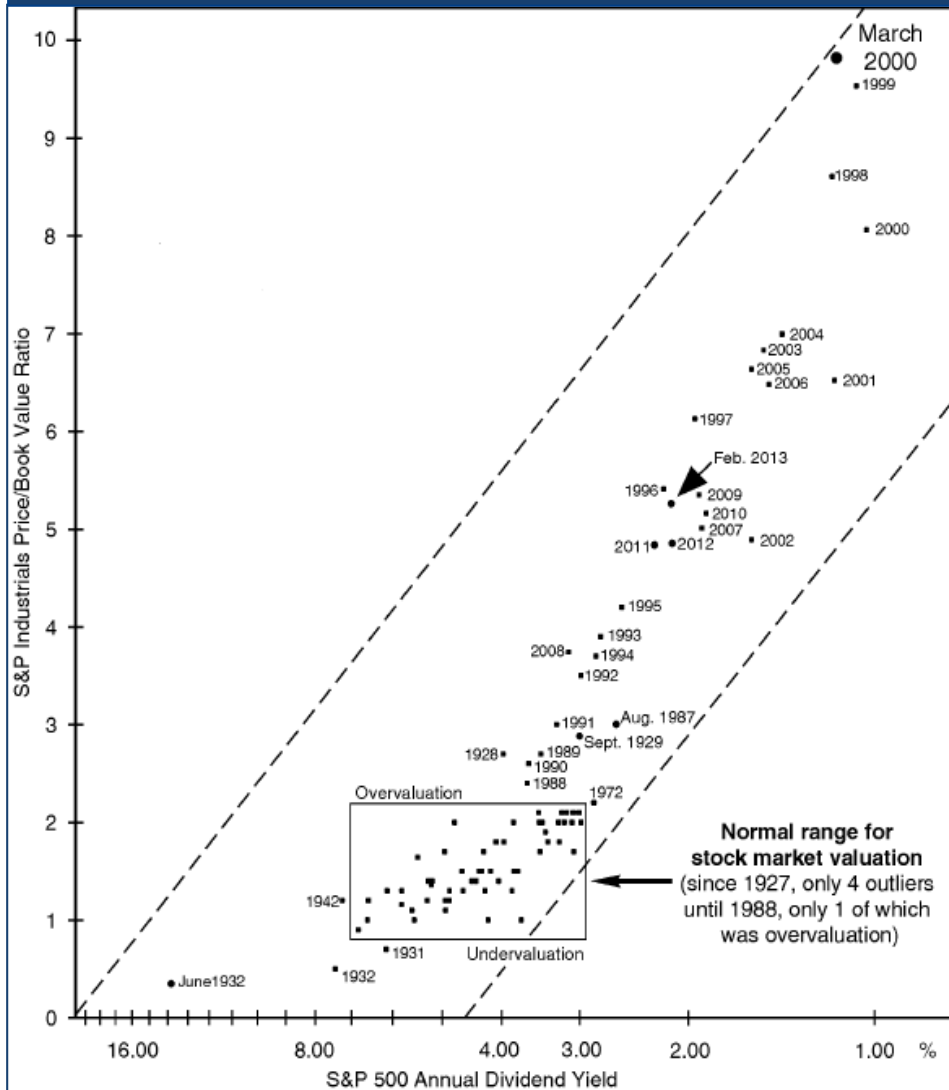
S&P 500 vs. Mutual Fund Cash to Asset Ratio



Sources: S&P, ICI

S & P 500 FUNDAMENTAL VALUATION

Year End Stock Market Valuations (1927-2012)



Sources: Robert Shiller, Ned Davis

S&P 500 Momentum

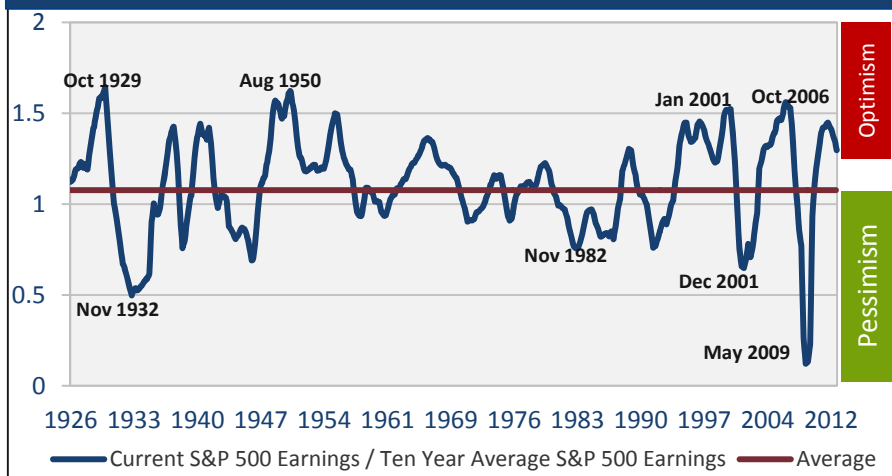


Sources: S&P, Bloomberg, Wurts



S & P 500 FUNDAMENTAL VALUATION

Ratio of S&P Earnings vs. 10-Year Average



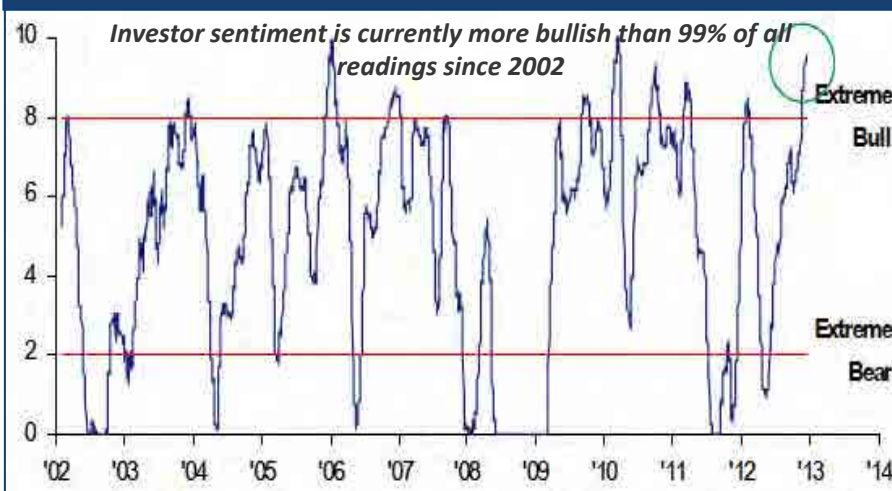
Sources: S&P, Bloomberg, Wurts

2013 S&P 500 Earnings Expectations



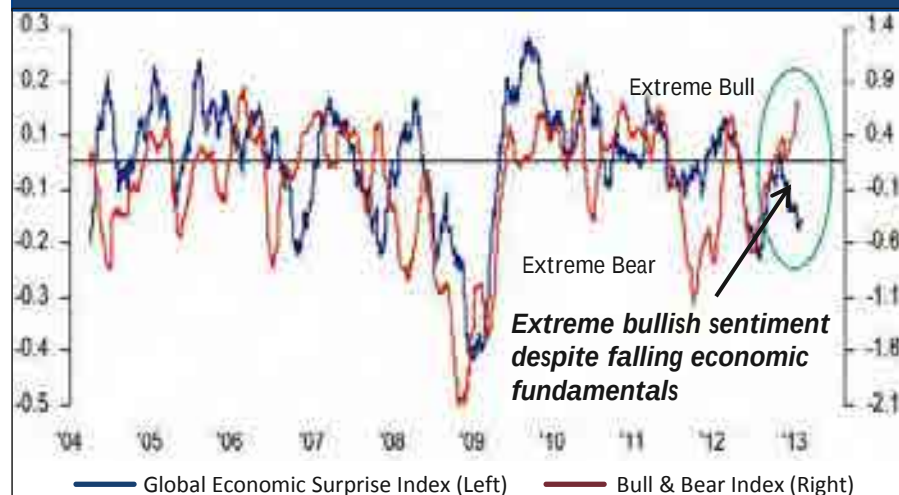
Sources: S&P, Bloomberg

Equity Sentiment



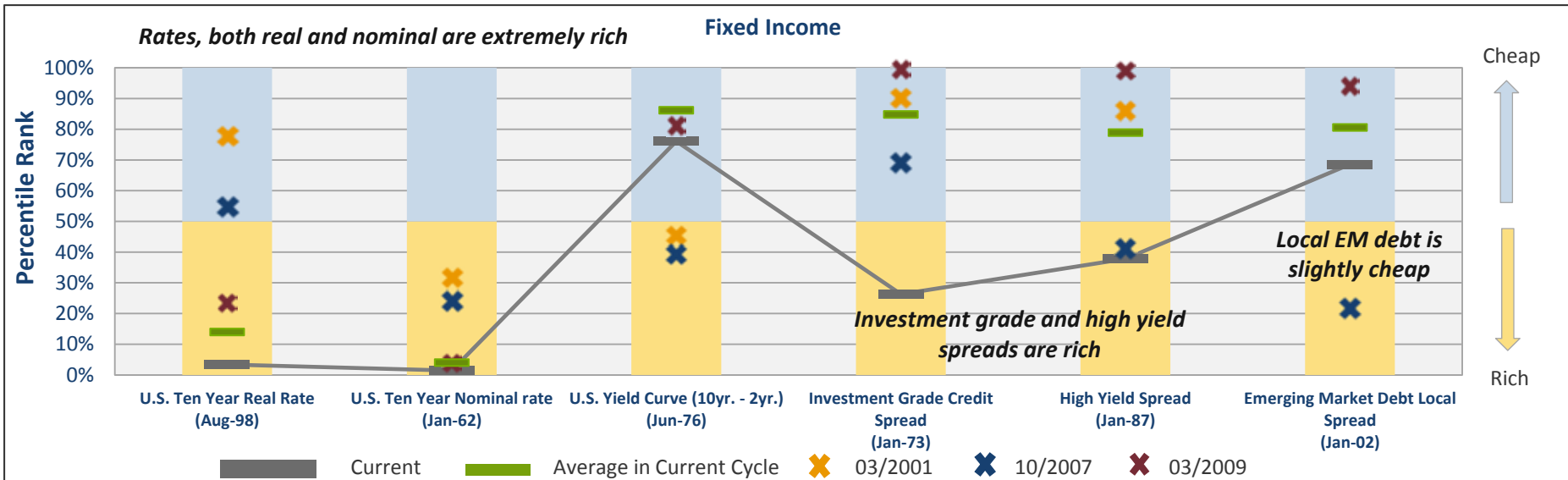
Sources: BofA Merrill Lynch, Bloomberg

Equity Sentiment vs. Economics



Sources: BofA Merrill Lynch, Bloomberg

FIXED INCOME VALUATION & OUTLOOK



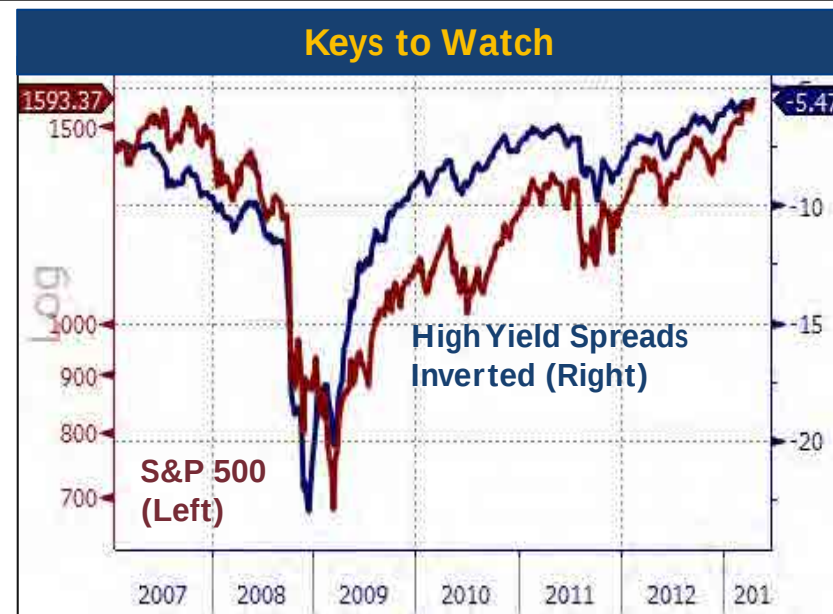
Summary: All fixed income sectors are rich with the exception of local emerging market debt.

Keys to Watch:

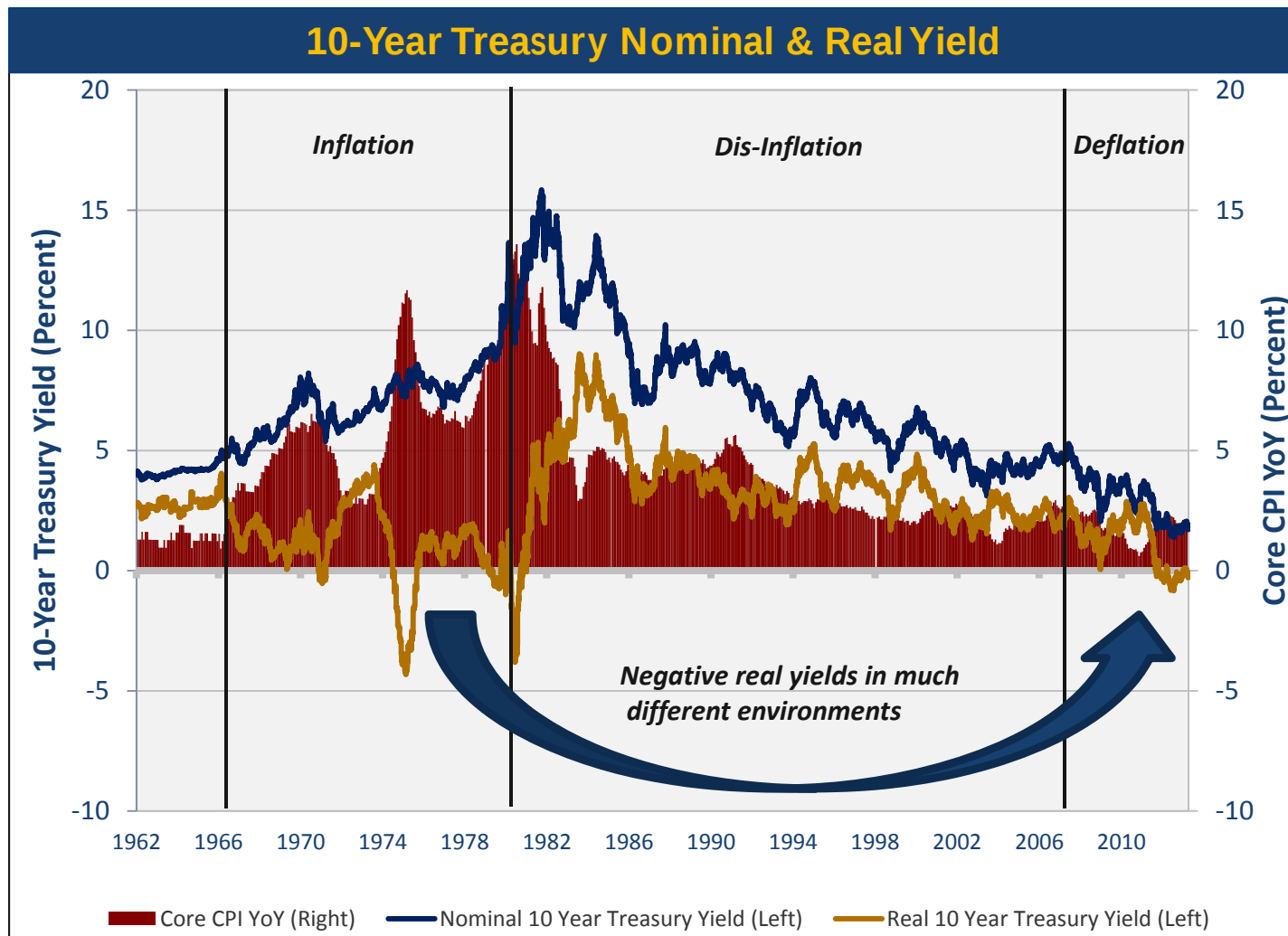
- Watch spreads and interest rate trends with the coming equity pullback – we should see spreads widening and rates trending lower. If growth continues to slow, the trend could become more developed.

Outlook (Next 3 – 6 Months):

- Interest Rates:** With negative yields for the first time since 1980s and a 200-year low in nominal rates, caution is understandable. But the inflationary environment of the 1970s is not currently present. With weak economic growth, rates can stay lower, longer.
- Spreads:** Along with the low Treasury yield, credit yields are at record lows. Spreads remain just above the 2007 lows. With the high correlation to equities, look for spreads to widen with the coming equity pullback.



Sources: Barclays, S&P, Bloomberg, Wurts



Sources: U.S. Treasury Department, Bloomberg, Wurts

FIXED INCOME VALUATION

Response to Wilbur Ross' comment that 10-year Treasury yields could go to 4.5% and investors could lose 23%.

- Bond bearishness (looking for higher rates) is nothing new. Since 2002 economists have predicted higher rates 97% of the time according to a Bloomberg survey.
- So why am I picking on Wilbur? His comment is emblematic of many current investors and it is important we consider the following:
 1. There are very few "investors" in Treasuries.
 - Most real money investors that own any fixed income, own spreads (investment grade, high yield, or emerging markets) as they look for yield.
 - The Federal Reserve and foreigners (mostly China and Japan) own most of the Treasuries.
 2. Please find an example in the last 100 years when rates rose 300 bps (from the 1.5% low to the 4.5% target provided by Wilbur) that was a good period for the real economy or stocks.
 - In every example for a rate rise of this magnitude, the result was either a recession or a major equity bear market (a topic we discussed over the past 2 QRRs).
 3. Wilbur is correct that a 300 bps move would result in a 23% loss, however, the equity loss under such a scenario is likely to be far greater (i.e., bonds outperform stocks under such a scenario).
 4. For anyone looking for significantly higher rates, are you short equity risk?

Credit Yields



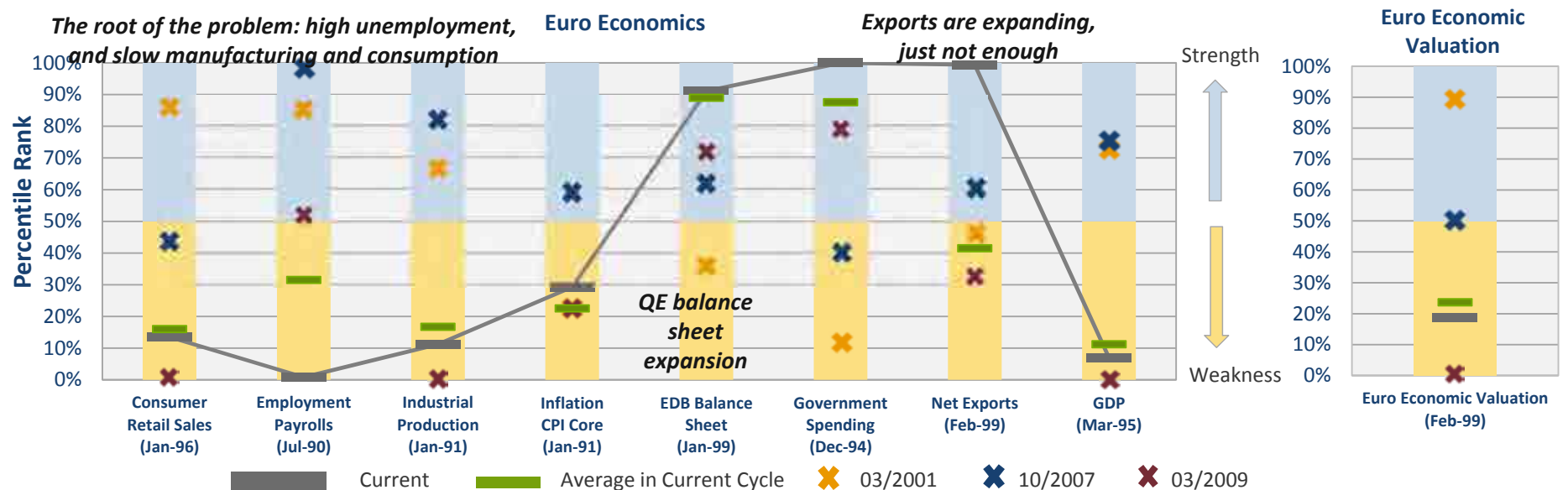
Sources: Barclays, Bloomberg, Wurts

Credit Spreads



Sources: Barclays, Bloomberg, Wurts

EUROPEAN ECONOMIC SUMMARY & OUTLOOK



Summary: The economy continues to contract with rising unemployment, lower consumption, and slowing manufacturing. A weaker Euro helped exports, but not enough to offset internal weakness. ECB's promise to do "whatever it takes," has not resulted in economic growth.

Keys to Watch:

1. Consumption & Employment: With rising unemployment, consumption continues to contract, leading GDP lower.
2. Euro & Exports: Can a weaker Euro with expanding exports lead to improved business conditions? Will the labor market improve? Will wages begin to expand to help grow GDP?

Outlook (Next 3 – 6 Months):

- With depressed consumer confidence and consumption, look for GDP to contract further. If the U.S. and other developed growth continues to slow, expect to see Euro growth potentially enter into a severe recession.

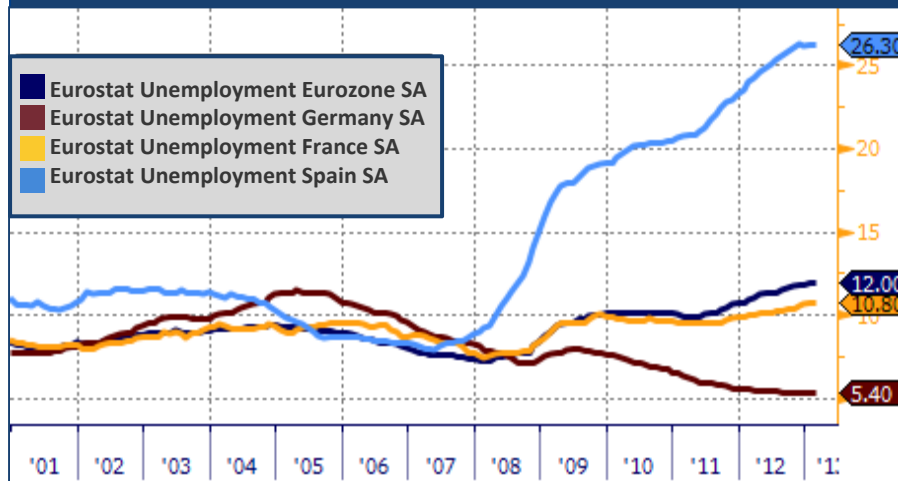


Sources: Eurostat, Markit, Bloomberg, Wurts

EUROPE: LES MISÉRABLES

- Household consumption continues to decline, along with confidence, as the unemployment rate continues to increase.
- The rise in unemployment is not being felt equally across countries. Germany's unemployment fall to a new low, while other countries such as Spain are seeing new highs.
- One key to generating economic growth has been export expansion. While export growth remains positive, the rate of growth has declined significantly since the peak in 2010.

Unemployment – Not all Equal



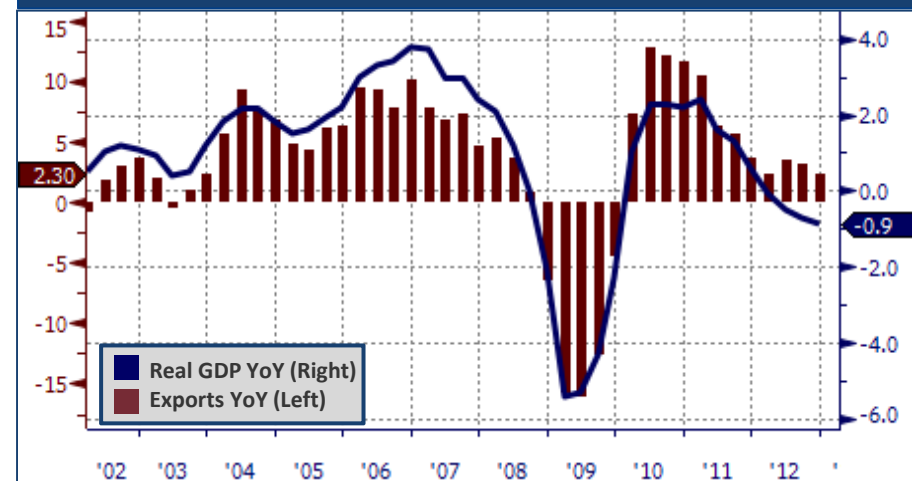
Sources: Eurostat, Bloomberg, Wurts

Consumer & GDP



Sources: Eurostat, Bloomberg, Wurts

Exports & GDP

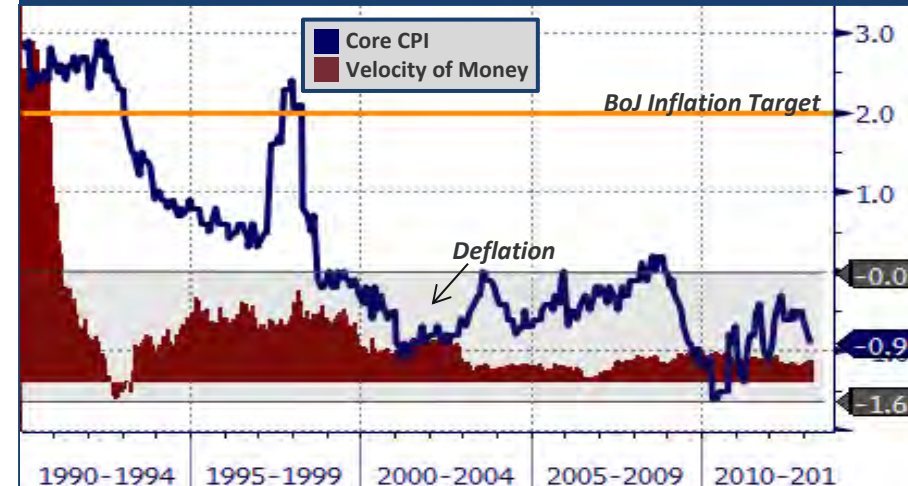


Sources: Eurostat, Bloomberg, Wurts

JAPAN: THE WORLD'S MOST INTERESTING ECONOMY?

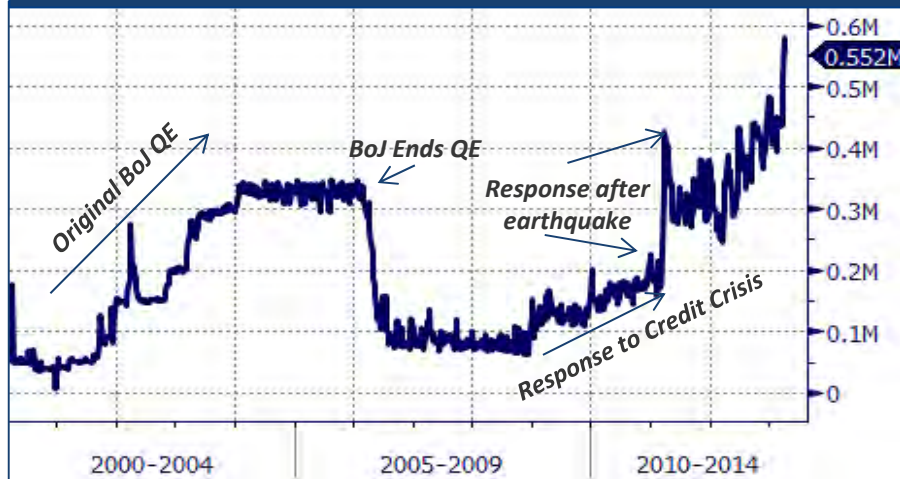
- It is a rare occasion when one can say that Japan is the most interesting economy in the world.
- After decades of deflation and lackluster growth, the BoJ has taken aggressive steps to meet a 2% inflation target over the next two years.
- The BoJ, under new Governor Kuroda, promised to double the money supply, which will inject about \$1.4 trillion into the economy over the next two years.
- The market has responded in kind:
 - Pushing 10-year Japanese government bonds (JGBs) to an all-time, all-human low for 10-year government bonds of 0.32%.
 - The Nikkei soared, rallying over 55% since October 2012 and the Yen fell versus the Dollar by 65%.
- Why such an aggressive response, and will QE work?

Japan Core CPI & Velocity vs. BoJ Target



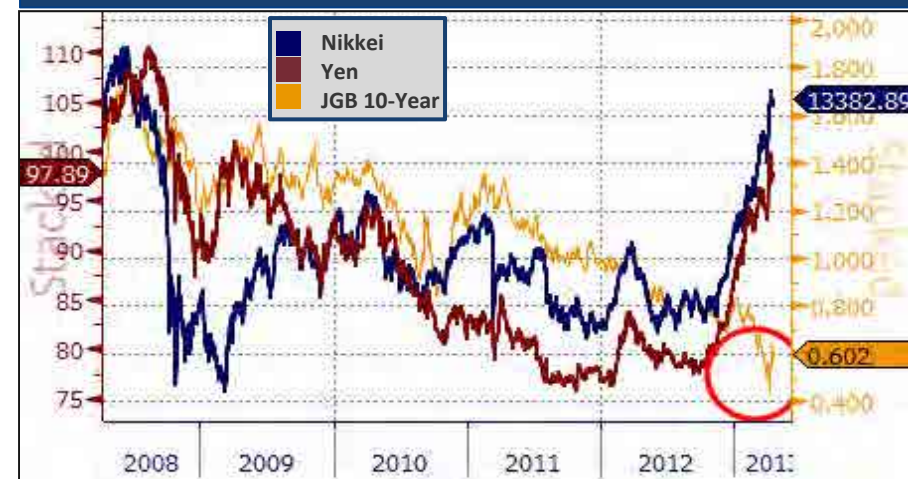
Sources: Japan Ministry of Internal Affairs & Communication, Bank of Japan, Bloomberg, Wurts

Bank of Japan Current Account Balances



Sources: Bank of Japan, Bloomberg, Wurts

Market Response to BoJ



Sources: Bloomberg, Wurts

JAPAN: THE WORLD'S MOST INTERESTING ECONOMY?

US Monetary and Fiscal Stimulus

Recession Cycle	Length (Months)	GDP Change	Stimulus as % of GDP		
			Monetary*	Fiscal**	Combined
1948	11	-0.017	-2.2%	5.5%	3.3%
1953	10	-0.027	0.0%	-1.4%	-1.4%
1957	8	-3.2%	0.0%	3.2%	3.2%
1960	10	-1.0%	0.7%	1.0%	1.7%
1969	11	-0.2%	0.3%	2.4%	2.7%
1973	16	-3.1%	0.9%	3.1%	4.0%
1980	6	-2.2%	0.4%	1.1%	1.5%
1981	16	-2.6%	0.3%	3.5%	3.8%
1990	8	-1.3%	1.0%	1.8%	2.8%
2001	8	-0.2%	1.3%	5.9%	7.2%
Average	10	-1.8%	0.3%	2.6%	2.9%
Sum			2.7%	26.1%	28.8%
2007	18	-3.3%	18.0%	11.9%	29.9%

*Monetary Stimulus = Cumulative Change in Federal Reserve Balance Sheet

**Fiscal Stimulus = Federal Budget Deficit % of GDP

Sources: Federal Reserve, Bureau of Economic Analysis, Bloomberg, Wurts

Japan Monetary and Fiscal Stimulus

Recession Cycle	Stimulus as % of GDP		
	Monetary*	Fiscal**	Combined
2000	3.2%	0.7%	3.9%
2004	27.3%	6.2%	33.5%
Average	15.3%	3.5%	18.7%
Sum	30.5%	6.9%	37.4%
2013	52.3%	5.5%	57.8%

*Monetary Stimulus = Cumulative Change in Current Account Balance

**Fiscal Stimulus = Budget Deficit % of GDP

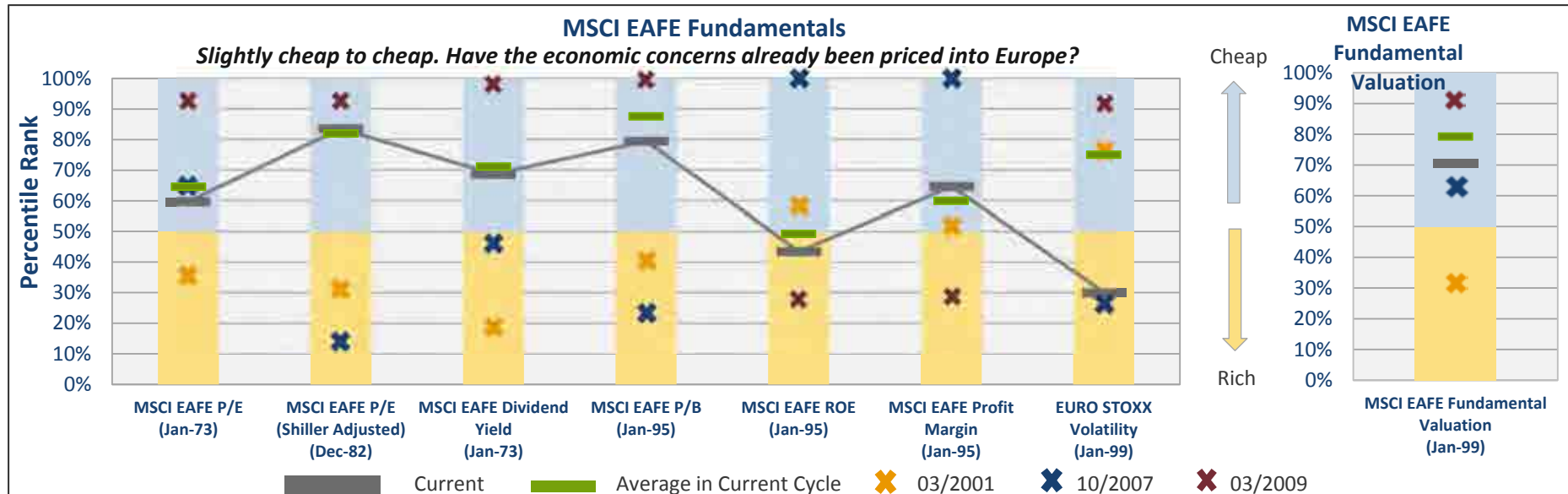
Sources: Bank of Japan, Japan Ministry of Internal Affairs & Communication, Bloomberg, Wurts

Similar Size Programs

New program nearly twice the size at ~60% of GDP. Wow!

- QE is only successful if the result of higher asset prices translates into real economic growth.
- So far, QE has been unsuccessful in both Japan (2000) and the U.S. (2009).
- Proponents of QE (Paul Krugman), say that QE has yet to work because no QE program has been big enough (even at 30% of GDP). At 60% of GDP (BoJ), we will finally see if QE is able to generate economic growth and inflation.

EAFE VALUATION & OUTLOOK



Summary: EAFE remains cheap, however, prices have diverged from economic fundamentals as the “whatever it takes” promise encouraged risk taking.

Keys to Watch:

1. Euro stocks correlation: With developed central bank QE promises, risk market correlations remain high. With expectations for a U.S. equity correction, EAFE should be looking for a pullback as well.
2. PIIGS Funding Rates: The PIIGS have benefited from ECB promises via lower funding rates, but watch rates as equities correct. A move back above 5.5% could spell trouble once again.

Outlook (Next 3 – 6 Months):

- Expect to see an EAFE equity market correction: The EAFE correction is likely to be less severe than the U.S. If the market fails to find support during the correction, ECB’s promises will likely be tested by the PIIGS.



Sources: S&P, Bloomberg, Wurts

EAFE FUNDAMENTAL VALUATION

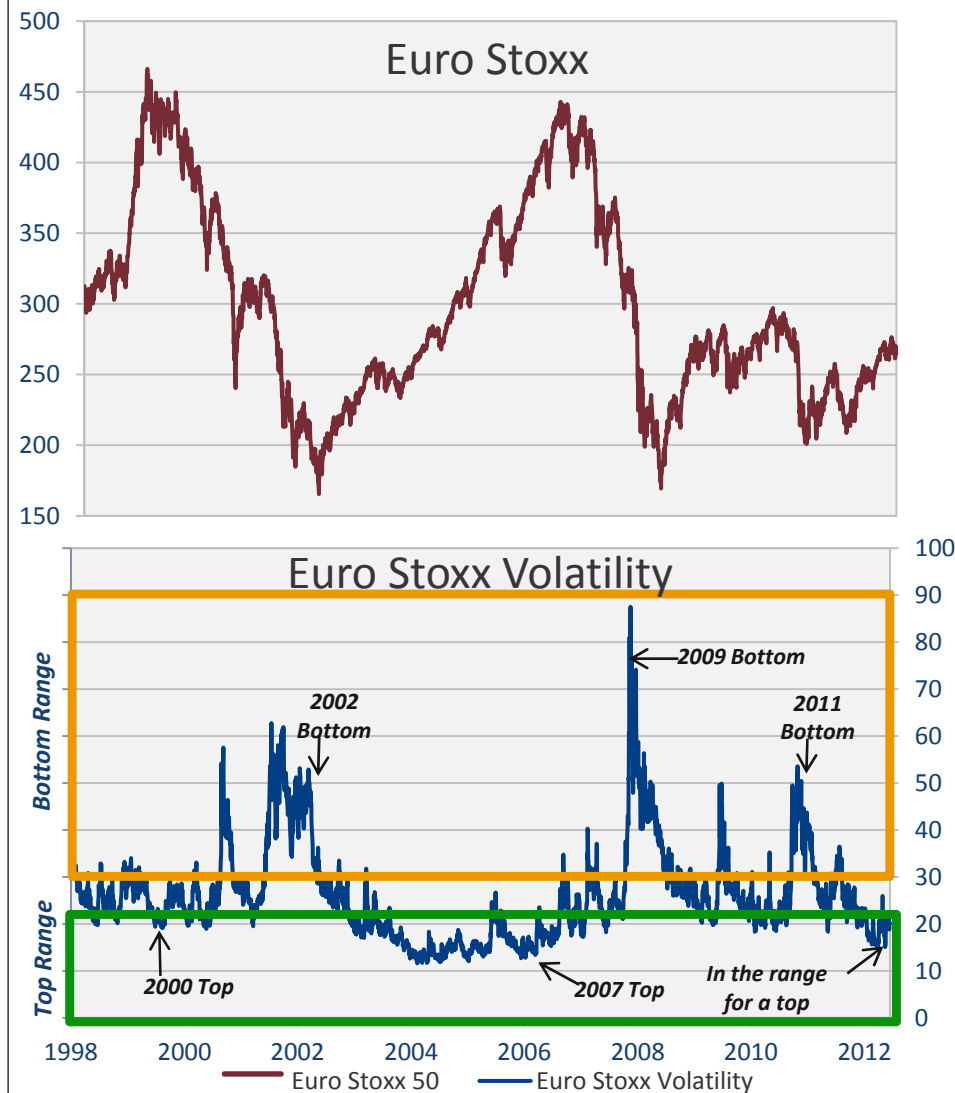
- U.S. centric investors fail to realize that while U.S. equity markets have returned to new highs, European indices remain significantly below their 2007 peaks.
- Similar to the U.S., there are some valuation indicators (such as volatility) that are in range of where tops occurred in the past.
- While the European economy has experienced greater weakness relative to the U.S., the equity valuation is fully pricing in the differences.
- Given the significant underperformance of European equities relative to the U.S., expect to see U.S. equities underperform during a correction.

Euro Stoxx 50 vs. S&P 500

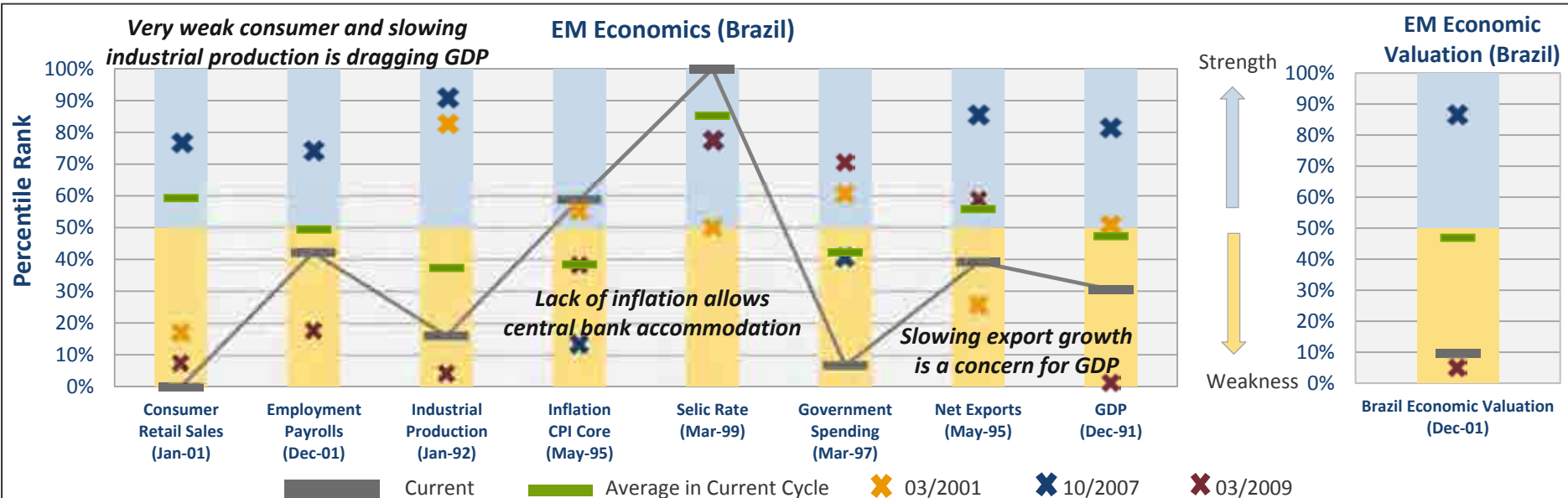


Sources: S&P, Bloomberg, Wurts

Euro Stoxx vs. Volatility



EMERGING MARKETS ECONOMIC SUMMARY & OUTLOOK



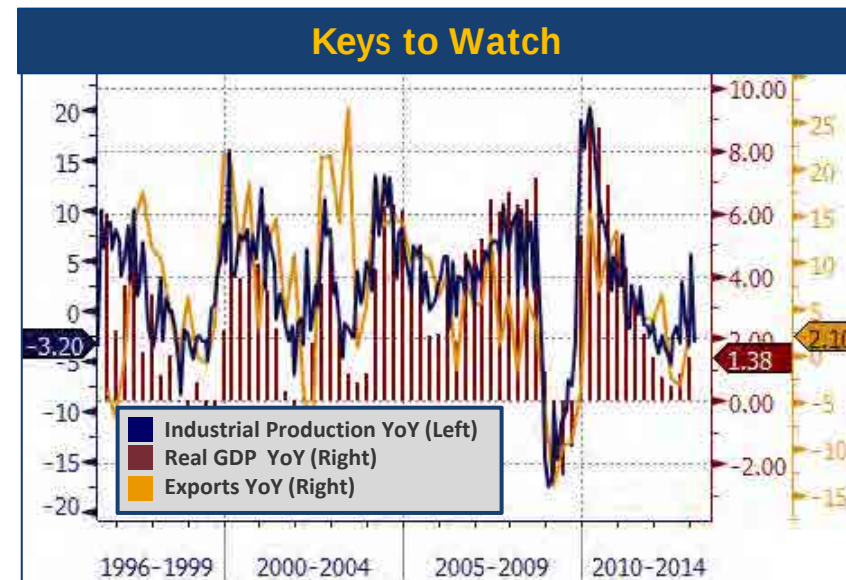
Summary: Brazil's economy (and EM overall) continues to slow despite central bank policy accommodation. Industrial production and exports peaked in 2010 and have trended lower, along with GDP.

Keys to Watch:

1. Industrial Production: Continues to slow, leading GDP and exports lower.
2. Exports: Although exports contribute a lower percentage to GDP growth, exports remain an important consideration. Since peaking in 2010, export growth has slowed along with GDP.

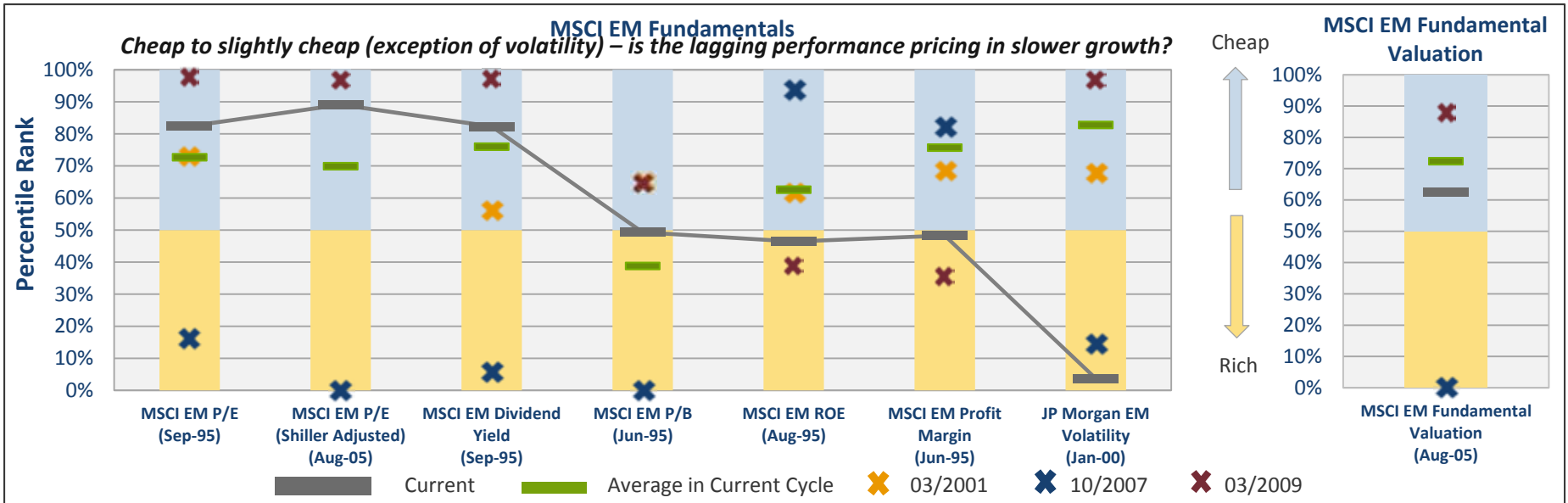
Outlook (Next 3 – 6 Months):

1. Next 3 Months: With global growth slowing, look for EM growth to remain slow. Central bank policy should remain accommodative.
2. Next 6 Months: If developed market growth continues to slow, EM growth will also be at risk to entering a recession.



Sources: IBGE, Bloomberg, Wurts

EM VALUATION & SUMMARY



Summary: EM valuation is neutral and has been underperforming U.S. stocks since late 2010/early 2011 as growth was peaking. EM equity returns have been flat over the past year while U.S. equities have returned nearly 16%.

Keys to Watch:

- Relative Performance: Are EM equities leading developed stocks lower or will EM “catch-up” to the U.S.?

Outlook (Next 3 – 6 Months): With expected corrections in the U.S. and EAFE equity markets, expect a pullback in EM equities as well, though EM is likely to outperform given the underperformance over the past year. If the correction is deep enough, it could start to pose a risk of starting an economic recession.

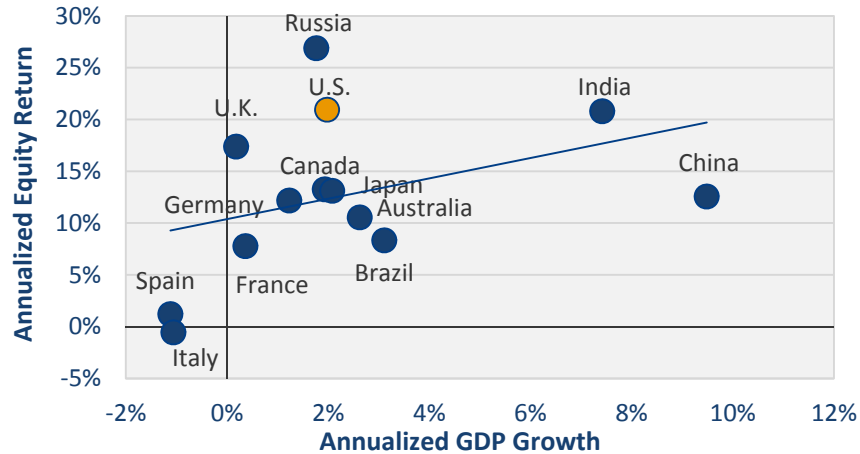
Cumulative Return Since March 2009



Sources: MSCI, S&P, Bloomberg, Wurts

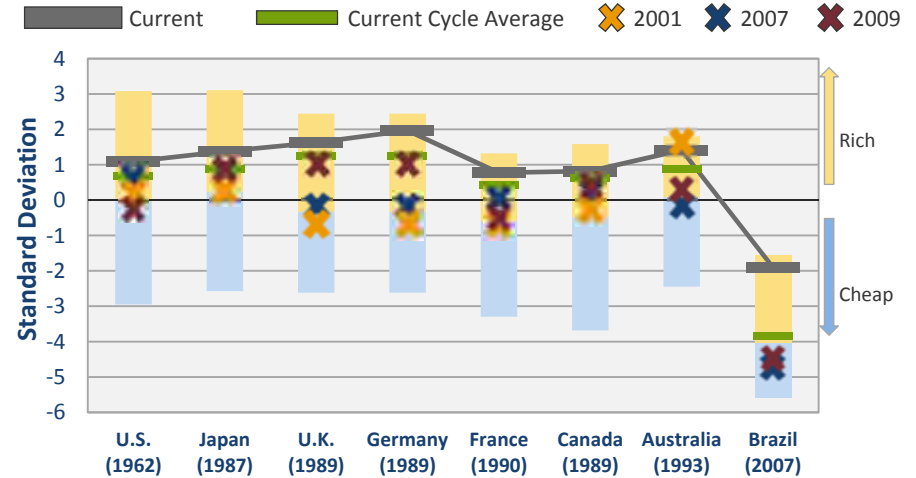
RELATIVE VALUE

Annualized Equity Returns Relative to GDP Growth by Country



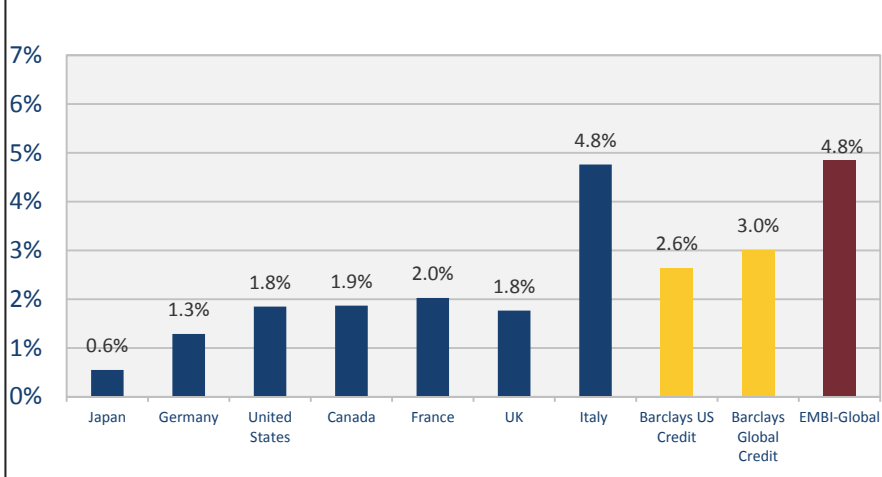
Sources: St. Louis Fed, Bloomberg, Wurts

Global Interest Rate Valuations



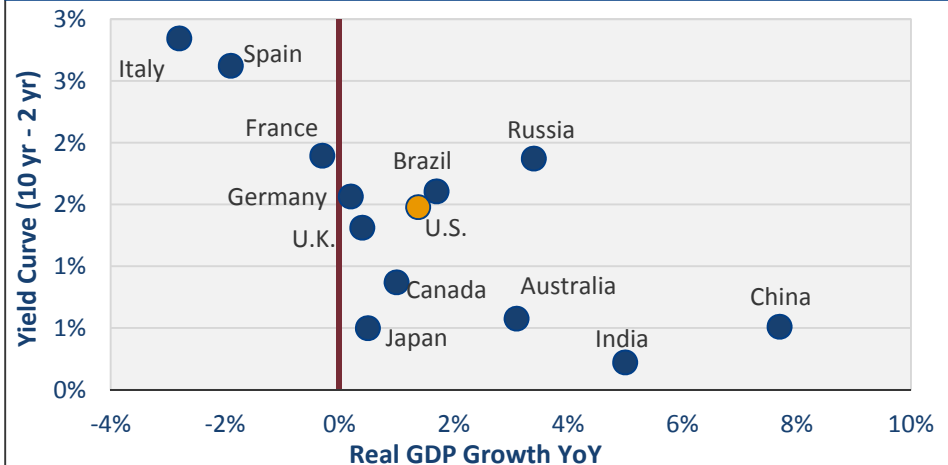
Sources: Bloomberg, Wurts

Global Sovereign 10-Year Yields



Source: Bloomberg, JP Morgan

Global Yield Curves vs. GDP Growth



Sources: Bloomberg, Wurts

STOCKS VS. BONDS - THE GREAT NON-ROTATION

The Great Rotation was the headline topic to start the year. You could not read a newspaper or turn on a financial news channel without being overwhelmed with talk of the Great Rotation. According to Reuters on January 23, 2013:

“The Great Rotation...one of the big investment shifts of our day may be at hand.”

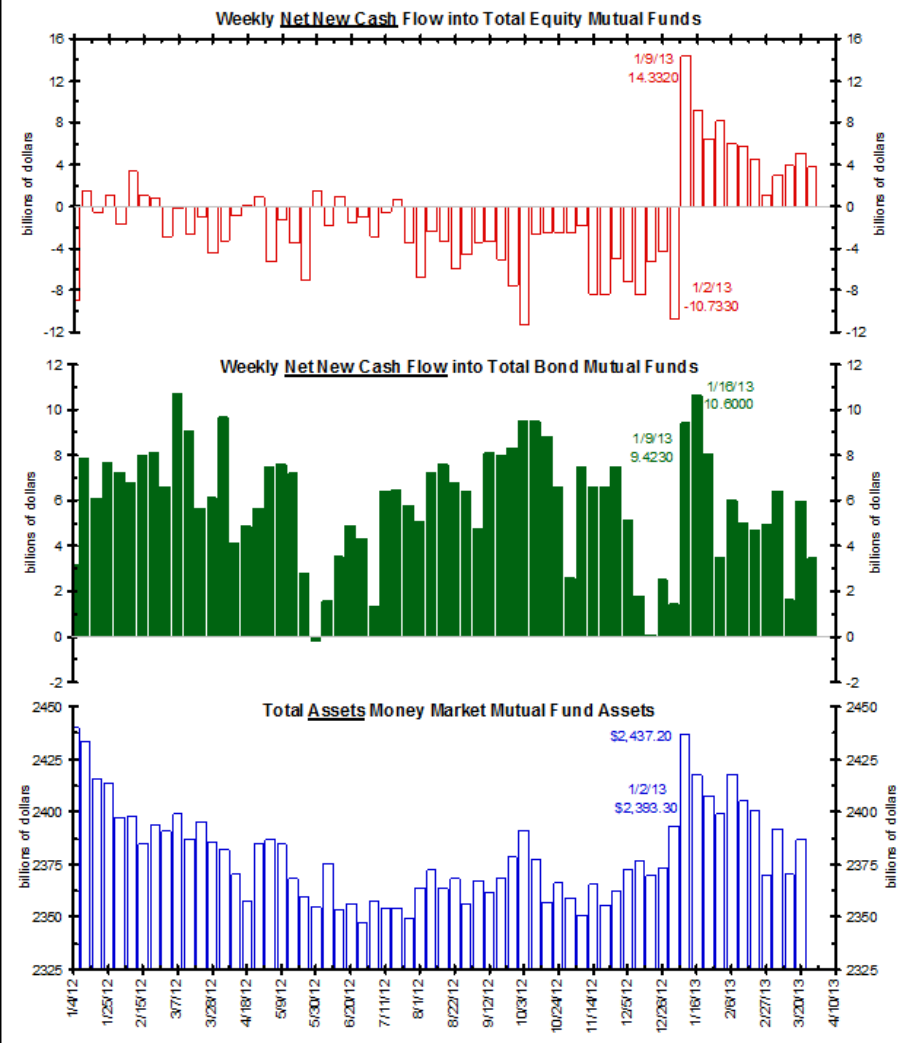
The reason was simple, equity fund flows were so strong in the first few weeks of January that it must be coming from bonds. Just one problem, bond fund flows were also positive.

How so much could be written, talked about, and invested in based on an idea without actually looking at the data is truly surprising.

The fact is, the positive fund flows (into BOTH equity and bond funds) were due to dividends and bonuses paid early in December 2012 to avoid potential changes in the tax code following the fiscal cliff. The fund flows and equity surge was the money getting put to work.

Going forward, the portion of income (dividends and bonuses) that would have been paid in 2013 have already been received and will not be coming into the system later in the year (becoming a drag on GDP). Additionally, for those that believe the Great Rotation will result in higher interest rates, the fund flows show the money going INTO bonds (not out).

Weekly Net Mutual Fund Flows



Sources: ICI

ECONOMIC & CAPITAL MARKET SUMMARY

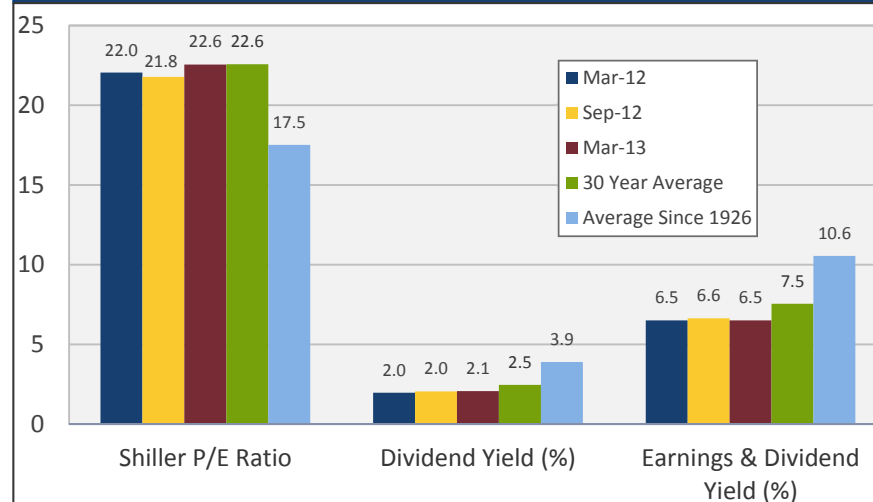
		US	Europe	EM	
Economy	Valuation	Below Potential	Contracting	Below Potential	
	3 - 6 Month Outlook	Below Potential	Contracting	Contracting	
	Comment	Look for a rebound in Q1 GDP toward 2%, however, second half of 2013 has the risk of slower growth (toward 0 - 1%), with risk of recession growing.	Rising unemployment and declining consumption has pushed GDP into contraction. Will a lower Euro help expand exports enough to end the contraction?	Slow industrial production and exports resulted in GDP slowing toward close to 0%. With slowing global growth, the risk of recession increases.	
Equity	Valuation	Slightly Cheap	Slightly Cheap	Neutral	
	3 - 6 Month Outlook	Bearish	Bearish	Bearish	
	Comment	Look for a pullback where the market will test the strength of the recent rally. Given the size of the rally since Oct. 2012, the pullback could exceed 10%. Valuation statistics are only a partial truth and several metrics are in range where tops occurred in 2000 and 2007.	Along with the US, expect to see a correction, though it is likely to be less severe as EAFE stocks have not risen as dramatically as the US. If the market fails to find support, expect the ECB promises to be tested as PIIGS yields rise.	The expected correction in US and EAFE will lead EM equities lower in sympathy. However, expect to see EM equities outperform the US as EM has not participated in the most recent rally.	
Fixed Income	Rates	Valuation	Extremely Rich	Extremely Rich	Rich
		3 - 6 Month Outlook	Neutral to Slightly Bullish (Lower Rates)	Core Europe: Bullish (Lower Rates) PIIGS: Bearish (Higher Rates)	Neutral to Slightly Bearish (Higher Rates)
		Comment	With negative yields for the first time since 1980s and a 200-year low in nominal rates, caution is understandable. But the inflationary environment of the 1970s is not currently present. With weak economic growth, rates can stay lower, longer.	Core European rates should benefit from the risk-off trade and see lower yields. However, PIIGS rates (benefited from the "whatever it takes") should see higher yields. If correction becomes deep enough, expect to see ECB promises put to the test.	On a relative basis, EM rates remain cheap to developed countries. On an absolute basis, EM rates are rich along with the rest of the world. Rates may be pushed higher on a "risk off" trade but not due to underlying fundamental concerns.
	Spreads	Valuation	Rich		Slightly Cheap
		3 - 6 Month Outlook	Bearish (Wider Spreads)		Bearish (Wider Spreads)
		Comment	Along with the low Treasury yield, credit yields are at record lows. Spreads remain just above the 2007 lows. With the high correlation to equities, look for spreads to widen with the coming equity pullback.		Likely to widen in sympathy with other spread markets during the equity market correction. However, given the difference in valuation, local EM debt may outperform other spread sectors on a total return basis.
Overall Outlook		With slowing growth and higher equity prices on the expectation of unlimited QE, the risk of a market correction remains high. Several equity market valuations are in the same range as 2000 and 2007 and warn of a potential top. Interest rates remain rich, but are likely to remain lower for longer. Given the high correlation to equities, spreads are at risk of moving wider and underperforming Treasuries over the coming months.	Europe remains one of the weaker economies in the world. With continued banking concerns, rising unemployment, and decreased consumption, the risk of a more severe recession remains. However, EAFE stocks are likely to outperform the US. Along with the US, risks are high for an equity contraction that may become severe. Core European rates will likely benefit from the equity drawdown, however PIIGS rates will likely rise under such a scenario.	EM growth has yet to materialize despite central bank policy accommodation. EM equities are likely to experience a drawdown along with US and EAFE equities, however, the drawdown is likely to be less severe. EM rates remain cheap to developed rates, but are rich on an absolute basis. Expect to see EM rates pushed higher in the equity drawdown as the risk-off trade works through the system and not due to underlying fundamental concerns.	

APPENDIX

US LARGE CAP EQUITIES

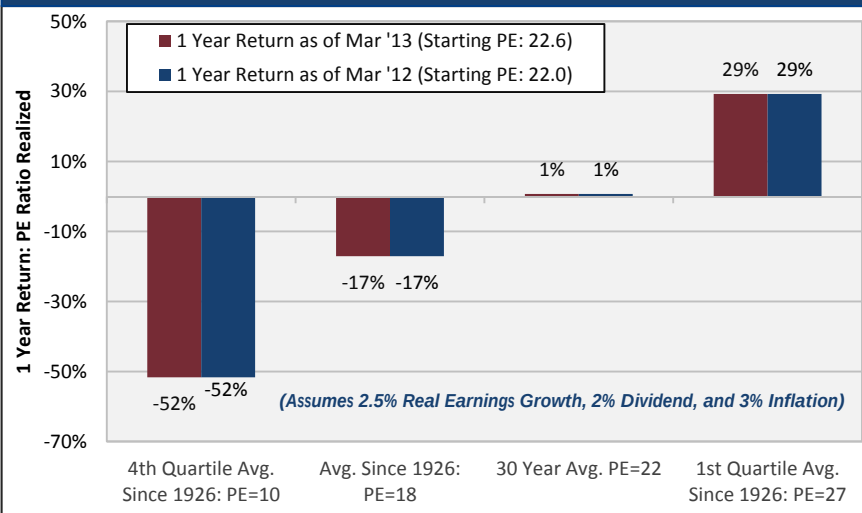
- The S&P 500 gained 3.8% in March and 10.6% for the first quarter. The Shiller P/E slightly increased from 22.5 to 22.6 over the month and is up from 21.4 for the quarter.
- The S&P 500 one-year return is 14.0% while the Shiller P/E is up 2.7% over the last year.
- The current Shiller P/E ratio suggests the market is fairly valued from a 30-year perspective, but overvalued relative to its longer historical average.
- Earnings and dividend yields are slightly below their 30-year averages but well below their historical average since 1926.

U.S. Large Cap (S&P 500) Valuation Snapshot



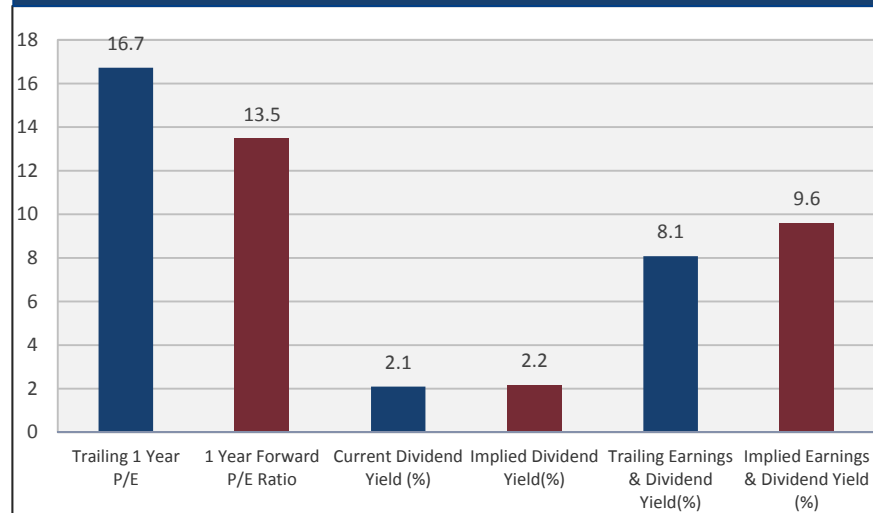
Source: Yale/Shiller, Wurts

Effects of Changes in Shiller PE Ratio



Source: Yale/Shiller, Wurts

S&P 500 Valuation Snapshot (Mar '13)

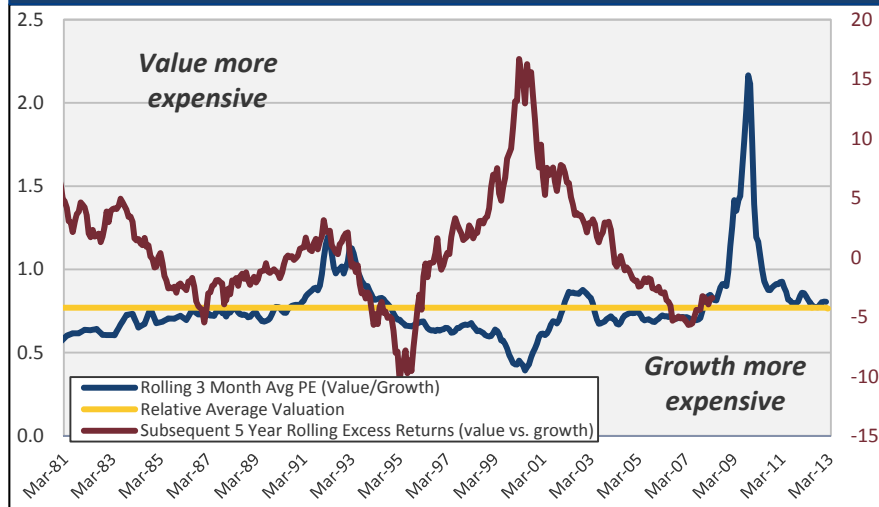


Source: S&P, Wurts

STYLE TILTS: US LARGE VALUE VS. GROWTH

- U.S. large cap growth equities gained 3.8% while large cap value equity returns gained 4.0% over the month. For the quarter large cap growth returned 9.5% and large cap value returned 12.3%
- U.S. large cap value stocks have outperformed growth stocks by 8.7% over the trailing 12 months, continuing the recent trend of strong relative performance.
- Value and growth stocks remain fairly valued relative to each other when compared to the long-run average P/E relationship.

Relative PE Ratio of U.S. Value vs. Growth



Source: Russell

U.S. Value vs. Growth Absolute Performance

	Russell 1000 Growth Annualized Return to date, %	Russell 1000 Value Annualized Return to date, %
QTD	9.54	12.31
YTD	9.54	12.31
1 Year	10.09	18.77
3 Years	13.06	12.74
5 Years	7.30	4.85
7 Years	6.08	4.19
10 Years	8.62	9.18
20 Years	7.65	9.21
	Sharpe Ratio	Sharpe Ratio
3 Years	0.87	0.84
5 Years	0.45	0.32
7 Years	0.34	0.23
10 Years	0.51	0.53
20 Years	0.33	0.46

Source: MPI

U.S. Value vs. Growth to Date Performance

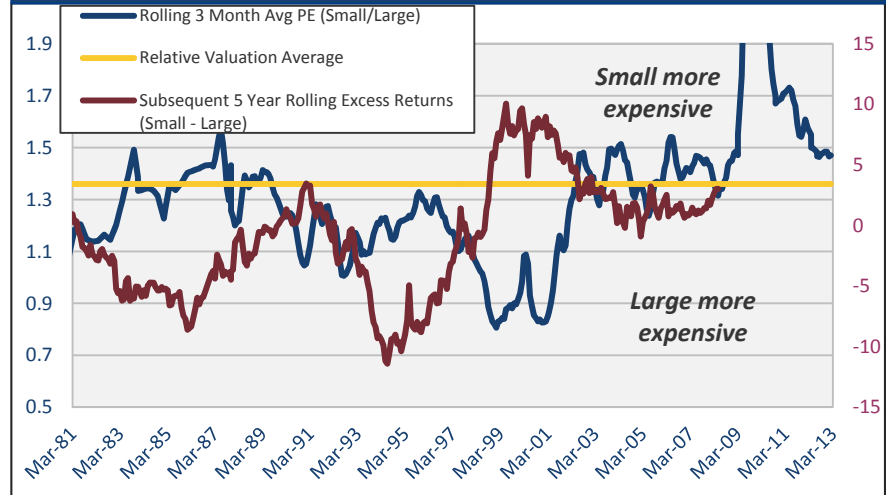


Source: MPI

STYLE TILTS: US LARGE VS. SMALL

- U.S. large and small cap equities continued their run into March with the Russell 1000 up 3.9% and the Russell 2000 gaining 4.6%. For the quarter the Russell 1000 returned 11.0% and the Russell 2000 returned 12.4%.
- Small cap equities have outperformed large cap equities YTD by 1.4% and the trailing 12-month period by 1.9%. They continue to generate higher returns over all time periods.
- The relative P/E ratio between small and large cap stocks is beginning to show that both styles are close to fair value on a rolling 3-month timeframe.

Relative PE Ratio of U.S. Small vs. Large



Source: Russell, Wurts & Associates

U.S. Small vs. Large Absolute Performance

	Russell 1000 Annualized Return to date, %	Russell 2000 Annualized Return to date, %
QTD	10.96	12.39
YTD	10.96	12.39
1 Year	14.43	16.30
3 Years	12.93	13.45
5 Years	6.15	8.24
7 Years	5.20	4.59
10 Years	8.97	11.52
20 Years	8.69	8.84
	Sharpe Ratio	Sharpe Ratio
3 Years	0.86	0.72
5 Years	0.39	0.43
7 Years	0.29	0.24
10 Years	0.53	0.56
20 Years	0.42	0.37

Source: MPI

U.S. Small vs. Large to Date Performance



Source: MPI

PERIODIC TABLE OF RETURNS – MARCH 2013

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	YTD
World	74.8	16.6	38.4	23.2	35.2	38.7	66.4	31.8	14.0	25.9	56.3	26.0	34.5	32.6	39.8	5.2	79.0	29.1	14.3	18.6	13.2
	32.9	8.1	37.8	23.1	32.9	27.0	43.1	22.8	8.4	10.3	48.5	22.2	21.4	26.9	16.2	1.4	37.2	26.9	7.8	18.1	12.4
	26.3	6.4	37.2	22.4	31.8	20.3	33.2	12.2	7.3	6.7	47.3	20.7	20.1	23.5	15.8	-6.5	34.5	24.5	2.6	17.9	12.3
	23.8	4.4	31.0	21.6	30.5	16.2	27.3	11.6	3.3	1.6	46.0	18.3	14.0	22.2	11.8	-21.4	32.5	19.2	1.5	17.5	11.6
	18.9	2.6	28.5	21.4	22.4	15.6	26.5	7.0	2.8	1.0	39.2	16.5	8.0	18.4	11.6	-25.5	28.4	16.8	1.2	16.4	11.0
	18.1	0.4	25.7	16.5	19.1	13.8	24.3	6.0	2.5	-6.0	30.0	14.5	7.5	16.6	10.3	-28.9	27.2	16.7	0.4	16.3	9.5
	13.4	-0.2	24.4	15.5	16.2	8.7	21.3	4.1	-2.4	-8.9	29.9	14.3	7.1	15.5	8.7	-33.8	20.6	16.1	0.1	15.3	5.2
	13.2	-1.5	18.5	14.4	13.9	4.9	20.9	0.4	-4.3	-11.4	29.7	11.9	6.3	14.0	7.0	-35.6	19.7	15.5	-2.9	14.6	4.5
	10.2	-1.8	15.2	11.3	12.9	1.2	16.8	-3.0	-5.6	-15.5	23.9	11.4	5.3	13.3	7.0	-36.8	18.9	13.1	-4.2	12.6	3.4
	9.7	-2.0	11.6	10.3	9.7	-2.5	11.4	-7.8	-9.2	-15.7	22.9	9.1	4.7	10.4	5.8	-37.6	18.4	13.0	-5.5	10.5	2.6
	3.1	-2.4	11.1	6.4	5.2	-5.1	7.3	-14.0	-12.4	-20.5	11.6	6.9	4.6	9.1	4.4	-38.4	11.5	8.2	-5.7	4.8	0.0
	2.9	-2.9	7.5	6.0	2.1	-6.5	4.8	-22.4	-19.5	-21.7	9.0	6.3	4.2	4.8	-0.2	-38.5	5.9	6.5	-11.7	4.2	-0.1
	1.4	-3.5	5.7	5.1	-3.4	-25.3	-0.8	-22.4	-20.4	-27.9	4.1	4.3	3.2	4.3	-1.6	-43.1	0.2	5.7	-13.3	0.1	-1.1
	-1.1	-7.3	-5.2	3.6	-11.6	-27.0	-1.5	-30.6	-21.2	-30.3	1.0	1.4	2.4	2.1	-9.8	-53.2	-16.9	0.1	-18.2	-1.1	-1.6

Large Cap Equity

Large Cap Value

Large Cap Growth

Small Cap Equity

Small Cap Value

Small Cap Growth

International Equity

Emerging Markets Equity

US Bonds

Cash

Commodities

Real Estate

Hedge Funds of Funds

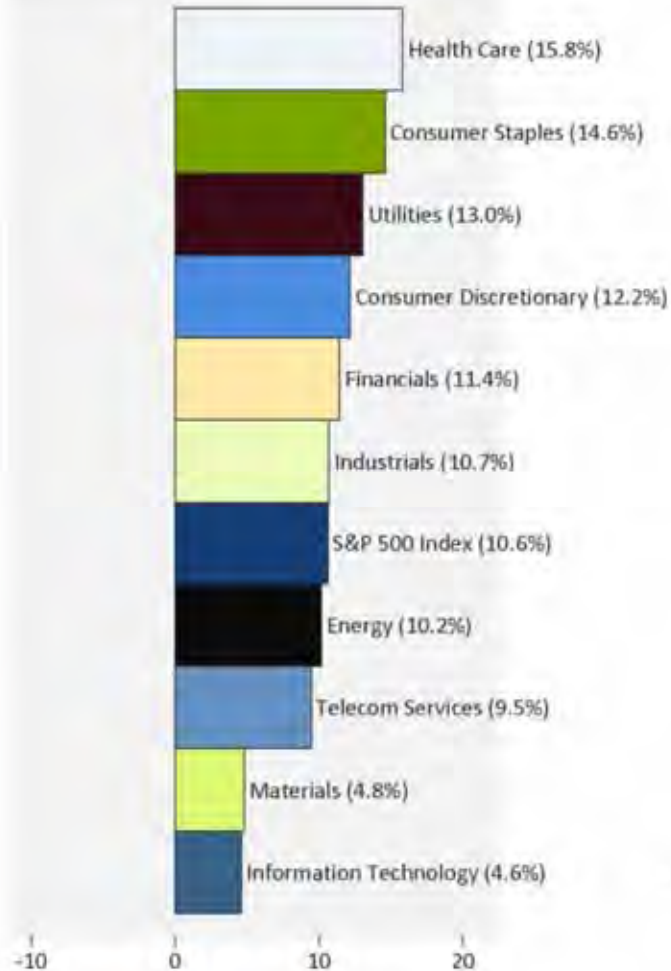
Universe Median Total Funds

Source: Data: Morningstar, Inc., Hedge Fund Research, Inc. (HFR), National Council of Real Estate Investment Fiduciaries (NCREIF) and BNY Mellon

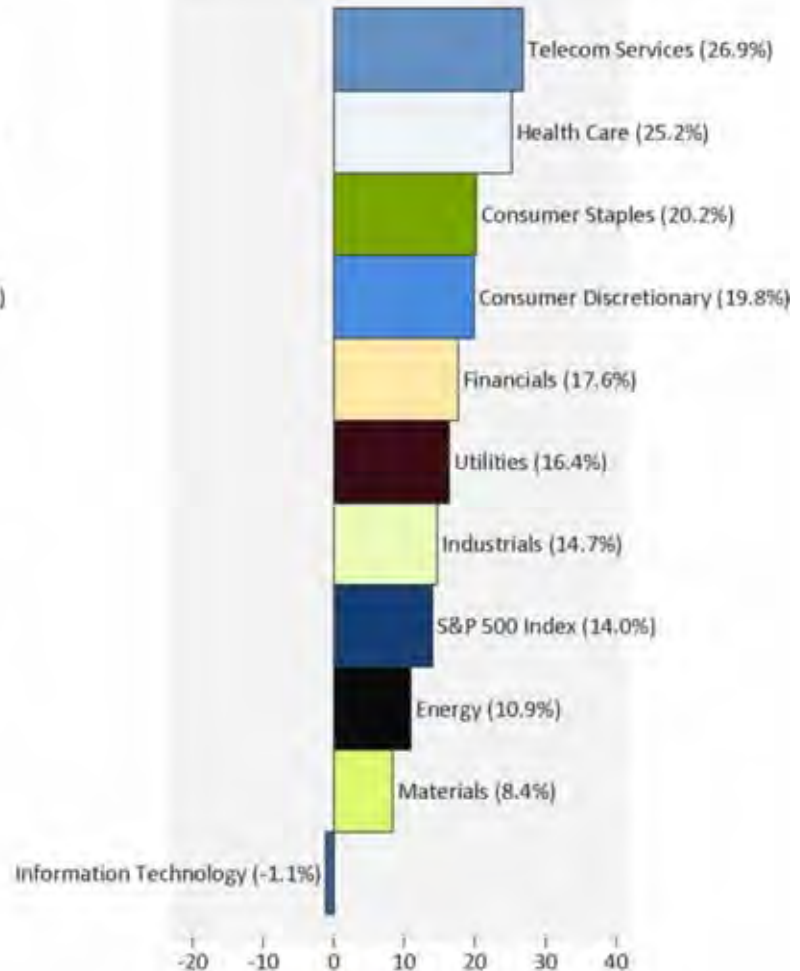
Indices used: Russell 1000, Russell 1000 Value, Russell 1000 Growth, Russell 2000, Russell 2000 Value, Russell 2000 Growth, MSCI EAFE, MSCI EM, BC Agg, T-Bill 90 Day, DJ UBS Comm, NCREIF Property, HFRI FOF, BNY Universe Median Total Funds

S & P 500 AND S & P 500 SECTOR RETURNS

One Quarter Ending March 2013



One Year Ending March 2013



DETAILED INDEX RETURNS

Domestic Equity 3/2013	1-Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years
Core Index							
S&P 500 Index	3.8	10.6	10.6	14.0	12.7	5.8	8.5
S&P 500 Equal Weighted	4.4	12.5	12.5	17.5	14.8	9.2	12.0
DJ Industrial Average	3.9	11.9	11.9	13.4	13.3	6.5	8.9
Russell Top 200	3.7	10.1	10.1	14.2	12.7	5.3	7.8
Russell 1000	3.9	11.0	11.0	14.4	12.9	6.2	9.0
Russell 2000	4.6	12.4	12.4	16.1	13.5	8.2	11.5
Russell 3000	3.8	11.1	11.1	14.6	13.0	6.3	9.2
Russell Mid-Cap	4.3	13.0	13.0	17.3	14.6	8.4	12.3
Style Index							
Russell 1000 Growth	3.8	9.5	9.5	10.1	13.1	7.3	8.6
Russell 1000 Value	4.0	12.3	12.3	18.8	12.7	4.9	9.2
Russell 2000 Growth	5.1	13.2	13.2	14.5	14.8	9.0	11.6
Russell 2000 Value	4.2	11.6	11.6	15.1	12.1	7.3	11.3

Fixed Income 3/2013	1-Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years
Broad Index							
Barclays US Treasury US TIPS	0.3	(0.4)	(0.4)	5.7	8.6	5.9	6.3
Barclays US Treasury Bills	0.0	0.0	0.0	0.1	0.2	0.5	1.8
Barclays US Agg Bond	0.1	(0.1)	(0.1)	3.8	5.5	5.5	5.0
Duration							
Barclays US Treasury 1-3 Yr	0.0	0.1	0.1	0.6	1.3	1.8	2.7
Barclays US Treasury Long	(0.1)	(2.4)	(2.4)	7.3	12.5	8.3	7.2
Barclays US Treasury	0.1	(0.2)	(0.2)	5.1	5.4	4.5	4.6
Issuer							
Barclays US Corp. High Yield	1.0	2.9	2.9	13.1	11.2	11.7	10.1
Barclays EMT	(0.6)	(1.5)	(1.5)	10.2	10.3	9.9	10.7
Barclays US MBS	0.1	(0.1)	(0.1)	2.0	4.2	5.2	5.0
Barclays US Agency Interim	0.1	0.2	0.2	1.7	2.8	3.4	3.9
Barclays US Credit	0.0	(0.2)	(0.2)	7.0	7.9	7.5	6.0

International Equity 3/2013	1-Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years
Broad Index							
MSCI EAFE	0.3	5.2	5.2	11.8	5.5	(0.4)	10.2
MSCI AC World ex-US	0.3	3.3	3.3	8.9	4.9	0.1	11.4
MSCI EM	(1.7)	(1.6)	(1.6)	2.3	3.6	1.4	17.4
MSCI EAFE Small Cap	1.9	8.5	8.5	13.7	8.8	2.4	13.6
Style Index							
MSCI EAFE Growth	1.6	6.8	6.8	11.7	6.8	0.2	9.8
MSCI EAFE Value	0.2	3.6	3.6	11.7	4.1	(1.1)	10.5
Regional Index							
MSCI UK	1.2	2.5	2.5	9.8	8.0	0.7	9.3
MSCI Japan	5.0	11.7	11.7	8.7	3.5	(0.4)	7.1
MSCI Euro	(1.6)	(0.9)	(0.9)	8.8	1.2	(5.2)	9.2
MSCI EM Asia	(2.3)	(1.3)	(1.3)	5.6	5.3	2.5	18.1
MSCI EM Latin America	0.0	0.9	0.9	(4.1)	0.1	0.6	23.1

Other 3/2013	1-Month	QTD	YTD	1 Year	3 Years	5 Years	10 Years
Index							
DJ US Commodity	0.7	(1.1)	(1.1)	(3.0)	1.4	(7.1)	3.7
Wishare US REIT	2.8	7.4	7.4	14.0	17.4	6.3	12.2

GLOBAL ECONOMIC OVERVIEW & TREND SUMMARY

Down Trend from last Quarter

Up Trend from last Quarter

Primary Economic Indicators													
		Real GDP YoY			Manufacturing			CPI YoY			Government Debt % GDP		
	Country	Prior	Latest	Trend	Prior	Latest	Trend	Prior	Latest	Trend	Prior	Latest	Trend
\$ Bloc	United States	2.0%	2.6%	Higher	3.2%	2.5%	Lower	3.0%	1.8%	Lower	102.9%	107.2%	Higher
	Canada	1.9%	1.1%	Lower	5.6%	-0.5%	Lower	2.3%	0.8%	Lower	85.4%	87.5%	Higher
Europe	United Kingdom	0.8%	0.1%	Lower	-1.6%	-3.0%	Lower	4.2%	2.7%	Lower	81.8%	88.7%	Higher
	Germany	1.9%	0.9%	Lower	5.6%	-3.6%	Lower	2.1%	2.1%	Flat	80.6%	83.0%	Higher
	France	1.2%	0.0%	Lower	1.3%	-3.6%	Lower	2.5%	1.4%	Lower	86.0%	90.0%	Higher
	Japan	-0.2%	0.5%	Higher	-2.4%	-5.8%	Lower	-0.2%	-0.2%	Flat	229.6%	236.6%	Higher
Emerging Markets	Brazil	1.4%	0.9%	Lower	-1.5%	-1.0%	Higher	6.5%	5.5%	Lower	64.9%	64.1%	Lower
	China	8.9%	7.4%	Lower	13.8%	10.1%	Lower	4.1%	2.0%	Lower	25.8%	22.2%	Lower
	Mexico	3.9%	3.3%	Lower	3.7%	3.6%	Lower	3.8%	4.2%	Higher	43.8%	43.1%	Lower
Critical Economic Indicators													
		Unemployment Rate (%)			Wages & Salary			Household Credit			Household Consumption		
	Country	Prior	Latest	Trend	Prior	Latest	Trend	Prior	Latest	Trend	Prior	Latest	Trend
\$ Bloc	United States	8.5%	7.8%	Lower	2.1%	2.1%	Flat	3.4%	6.0%	Higher	1.7%	2.1%	Higher
	Canada	7.5%	7.1%	Lower	2.9%	2.3%	Lower	3.4%	2.9%	Lower	3.9%	1.7%	Lower
Europe	United Kingdom	8.4%	7.8%	Lower	1.9%	1.3%	Lower	-1.6%	-2.3%	Lower	1.4%	2.0%	Higher
	Germany	6.8%	6.9%	Higher	4.1%	3.1%	Lower	-0.2%	-1.7%	Lower	0.9%	-0.9%	Lower
	France	9.9%	10.7%	Higher	2.3%	2.4%	Higher	6.7%	2.3%	Lower	-0.1%	0.2%	Higher
	Japan	4.5%	4.1%	Lower	0.0%	-1.1%	Lower	1.9%	7.3%	Higher	0.5%	-0.4%	Lower
Emerging Markets	Brazil	5.2%	5.4%	Higher	10.6%	9.9%	Lower	16.3%	10.5%	Lower	1.0%	0.9%	Lower
	China	4.1%	4.1%	Flat	17.1%	17.3%	Higher	7.5%	-1.2%	Lower	17.1%	14.2%	Lower
	Mexico	5.0%	5.1%	Higher	1.6%	2.6%	Higher	23.9%	20.8%	Lower	1.5%	11.8%	Higher

FORM ADV**UNIFORM APPLICATION FOR INVESTMENT ADVISER REGISTRATION AND REPORT
BY EXEMPT REPORTING ADVISERS****Primary Business Name: WURTS & ASSOCIATES INC.****CRD Number: 110565****Annual Amendment - All Sections****Rev. 10/2012****3/19/2013 3:52:34 PM**

WARNING: Complete this form truthfully. False statements or omissions may result in denial of your application, revocation of your registration, or criminal prosecution. You must keep this form updated by filing periodic amendments. See Form ADV General Instruction 4.

Item 1 Identifying Information

Responses to this Item tell us who you are, where you are doing business, and how we can contact you.

A. Your full legal name (if you are a sole proprietor, your last, first, and middle names):

WURTS & ASSOCIATES INC.

B. Name under which you primarily conduct your advisory business, if different from Item 1.A.:

WURTS & ASSOCIATES INC.

List on Section 1.B. of Schedule D any additional names under which you conduct your advisory business.

C. If this filing is reporting a change in your legal name (Item 1.A.) or primary business name (Item 1.B.), enter the new name and specify whether the name change is of

☐ your legal name or ☐ your primary business name:

D. (1) If you are registered with the SEC as an investment adviser, your SEC file number: **801-33895**

(2) If you report to the SEC as an *exempt reporting adviser*, your SEC file number:

E. If you have a number ("CRD Number") assigned by the *FINRA's CRD* system or by the IARD system, your *CRD* number: **110565**

If your firm does not have a CRD number, skip this Item 1.E. Do not provide the CRD number of one of your officers, employees, or affiliates.

F. *Principal Office and Place of Business*

(1) Address (do not use a P.O. Box):

Number and Street 1:

999 THIRD AVENUE

City:

SEATTLE

State:

Washington

Number and Street 2:

SUITE 4200

Country:

UNITED STATES

ZIP+4/Postal Code:

98104

If this address is a private residence, check this box: ☐

List on *Section 1.F. of Schedule D* any office, other than your principal office and place of business, at which you conduct investment advisory business. If you are applying for registration, or are registered, with one or more state securities authorities, you must list all of your offices in the state or states to which you are applying for registration or with whom you are registered. If you are applying for SEC registration, if you are registered only with the SEC, or if you are reporting to the SEC as an exempt reporting adviser, list the largest five offices in terms of numbers of employees.

(2) Days of week that you normally conduct business at your *principal office and place of business*:

☒ Monday - Friday ☐ Other:

Normal business hours at this location:

8:00 AM TO 5:00 PM

(3) Telephone number at this location:

206-622-3700

(4) Facsimile number at this location:

206-622-0548

G. Mailing address, if different from your *principal office and place of business* address:

Number and Street 1:

Number and Street 2:

City:

State:

Country:

ZIP+4/Postal Code:

If this address is a private residence, check this box: ☐

H. If you are a sole proprietor, state your full residence address, if different from your *principal office and place of business* address in Item 1.F.:

Number and Street 1:

Number and Street 2:

City:

State:

Country:

ZIP+4/Postal Code:

Yes No

I. Do you have one or more websites?

☒ ☐

If "yes," list all website addresses on *Section 1.I. of Schedule D*. If a website address serves as a portal through which to access other information you have published on the web, you may list the portal without listing addresses for all of the other information. Some advisers may need to list more than one portal address. Do not provide individual electronic mail (e-mail) addresses in response to this Item.

J. Provide the name and contact information of your Chief Compliance Officer: If you are an *exempt reporting adviser*, you must provide the contact information for your Chief Compliance Officer, if you have one. If not, you must complete Item 1.K. below.

Name:

Other titles, if any:

ANGELA SWENSEN

DIRECTOR OF HR, TREASURER, SECRETARY

Telephone number:

Facsimile number:

(206)622-3700

(206)622-0548

Number and Street 1:

Number and Street 2:

999 THIRD AVENUE

SUITE 4200

City:

State:

Country:

ZIP+4/Postal Code:

SEATTLE

Washington

UNITED STATES

98104

Electronic mail (e-mail) address, if Chief Compliance Officer has one:
ASWENSEN@WURTS.COM

- K. Additional Regulatory Contact Person: If a person other than the Chief Compliance Officer is authorized to receive information and respond to questions about this Form ADV, you may provide that information here.

Name:	Titles:
Telephone number:	Facsimile number:
Number and Street 1:	Number and Street 2:
City:	State:
Country:	ZIP+4/Postal Code:

Electronic mail (e-mail) address, if contact person has one:

- | | | |
|---|-----------------------|-----------------------|
| | Yes | No |
| L. Do you maintain some or all of the books and records you are required to keep under Section 204 of the Advisers Act, or similar state law, somewhere other than your <i>principal office and place of business</i> ? | ☐ | ☐ |

If "yes," complete *Section 1.L. of Schedule D.*

- | | | |
|--|-----------------------|----------------------------------|
| | Yes | No |
| M. Are you registered with a <i>foreign financial regulatory authority</i> ? | ☐ | ☒ |

Answer "no" if you are not registered with a foreign financial regulatory authority, even if you have an affiliate that is registered with a foreign financial regulatory authority. If "yes," complete *Section 1.M. of Schedule D.*

- | | | |
|--|-----------------------|----------------------------------|
| | Yes | No |
| N. Are you a public reporting company under Sections 12 or 15(d) of the Securities Exchange Act of 1934? | ☐ | ☒ |

If "yes," provide your CIK number (Central Index Key number that the SEC assigns to each public reporting company):

- | | | |
|--|-----------------------|----------------------------------|
| | Yes | No |
| O. Did you have \$1 billion or more in assets on the last day of your most recent fiscal year? | ☐ | ☒ |

- P. Provide your *Legal Entity Identifier* if you have one:

A *legal entity identifier* is a unique number that companies use to identify each other in the financial marketplace. In the first half of 2011, the *legal entity identifier* standard was still in development. You may not have a *legal entity identifier*.

SECTION 1.B. Other Business Names

No Information Filed

SECTION 1.F. Other Offices

Complete the following information for each office, other than your *principal office and place of business*, at which you conduct investment advisory business. You must complete a separate Schedule D Section 1.F. for each location. If you are applying for SEC registration, if you are registered only with the SEC, or if you are an *exempt reporting adviser*, list only the largest five offices (in terms of numbers of employees).

Number and Street 1:

2321 ROSECRANS SUITE 2250

City:

EL SEGUNDO

State:

California

Number and Street 2:

Country:

UNITED STATES

ZIP+4/Postal Code:

90245

If this address is a private residence, check this box: ☐

Telephone Number:

(310)297-1777

Facsimile Number:

(310)297-0878

Complete the following information for each office, other than your *principal office and place of business*, at which you conduct investment advisory business. You must complete a separate Schedule D Section 1.F. for each location. If you are applying for SEC registration, if you are registered only with the SEC, or if you are an *exempt reporting adviser*, list only the largest five offices (in terms of numbers of employees).

Number and Street 1:

22540 SW CHILKAT TERRACE

City:

TUALATIN

State:

Oregon

Number and Street 2:

Country:

UNITED STATES

ZIP+4/Postal Code:

97062

If this address is a private residence, check this box: ☒

Telephone Number:

503-692-3538

Facsimile Number:

SECTION 1.I. Website Addresses

List your website addresses. You must complete a separate Schedule D Section 1.I. for each website address.

Website Address: WWW.WURTS.COM

SECTION 1.L. Location of Books and Records

Complete the following information for each location at which you keep your books and records, other than your *principal office and place of business*. You must complete a separate Schedule D Section 1.L. for each location.

Name of entity where books and records are kept:

IRON MOUNTAIN STORAGE

Number and Street 1:

8950 154TH AVE. NE

Number and Street 2:

City:

REDMOND

State:

Washington

Country:

UNITED STATES

ZIP+4/Postal Code:

98052

If this address is a private residence, check this box: ☐

Telephone Number:

800-934-3453

Facsimile number:

800-934-5348

This is (check one):

- ☐ one of your branch offices or affiliates.
☒ a third-party unaffiliated recordkeeper.
☐ other.

Briefly describe the books and records kept at this location:

HISTORICAL RECORDS AT LEAST TWO YEARS OLD THAT WE DO NOT HAVE ROOM FOR IN OUR OFFICES.

Name of entity where books and records are kept:

WURTS & ASSOCIATES INC.

Number and Street 1:

2321 ROSECRANS SUITE 2250

Number and Street 2:

City:

EL SEGUNDO

State:

California

Country:

UNITED STATES

ZIP+4/Postal Code:

90245

If this address is a private residence, check this box: ☐

Telephone Number:

(310) 297-1777

Facsimile number:

(310) 297-0878

This is (check one):

- ☒ one of your branch offices or affiliates.
☐ a third-party unaffiliated recordkeeper.
☐ other.

Briefly describe the books and records kept at this location:

CLIENT FILES AND CLIENT REPORTS FOR THIS OFFICE ARE KEPT AT THIS LOCATION.

SECTION 1.M. Registration with Foreign Financial Regulatory Authorities

No Information Filed

Item 2 SEC Registration/Reporting

Responses to this Item help us (and you) determine whether you are eligible to register with the SEC. Complete this Item 2.A. only if you are applying for SEC registration or submitting an *annual updating amendment* to your SEC registration.

- A. To register (or remain registered) with the SEC, you must check **at least one** of the Items 2.A.(1) through 2.A.(12), below. If you are submitting an *annual updating amendment* to your SEC registration and you are no longer eligible to register with the SEC, check Item 2.A.(13). [Part 1A Instruction 2](#) provides information to help you determine whether you may affirmatively respond to each of these items.

You (the adviser):

- ☒ (1) are a **large advisory firm** that either:
- (a) has regulatory assets under management of \$100 million (in U.S. dollars) or more, or
 - (b) has regulatory assets under management of \$90 million (in U.S. dollars) or more at the time of filing its most recent *annual updating amendment* and is registered with the SEC;
- ☐ (2) are a **mid-sized advisory firm** that has regulatory assets under management of \$25 million (in U.S. dollars) or more but less than \$100 million (in U.S. dollars) and you are either:
- (a) not required to be registered as an adviser with the *state securities authority* of the state where you maintain your *principal office and place of business*, or
 - (b) not subject to examination by the *state securities authority* of the state where you maintain your *principal office and place of business*;
- Click [HERE](#) for a list of states in which an investment adviser, if registered, would not be subject to examination by the state securities authority.*
- ☐ (3) have your *principal office and place of business* **in Wyoming** (which does not regulate advisers);
- ☐ (4) have your *principal office and place of business* **outside the United States**;
- ☐ (5) are an **investment adviser (or sub-adviser) to an investment company** registered under the Investment Company Act of 1940;
- ☐ (6) are an **investment adviser to a company which has elected to be a business development company** pursuant to section 54 of the Investment Company Act of 1940 and has not withdrawn the election, and you have at least \$25 million of regulatory assets under management;
- ☒ (7) are a **pension consultant** with respect to assets of plans having an aggregate value of at least \$200,000,000 that qualifies for the exemption in rule 203A-2(a);
- ☐ (8) are a **related adviser** under rule 203A-2(b) that *controls*, is *controlled* by, or is under common *control* with, an investment adviser that is registered with the SEC, and your *principal office and place of business* is the same as the registered adviser;
- If you check this box, complete [Section 2.A.\(8\) of Schedule D](#).*
- ☐ (9) are a **newly formed adviser** relying on rule 203A-2(c) because you expect to be eligible for SEC registration within 120 days;

If you check this box, complete *Section 2.A.(9) of Schedule D.*

- ☐ (10) are a **multi-state adviser** that is required to register in 15 or more states and is relying on rule 203A-2(d);

If you check this box, complete *Section 2.A.(10) of Schedule D.*

- ☐ (11) are an **Internet adviser** relying on rule 203A-2(e);
- ☐ (12) have **received an SEC order** exempting you from the prohibition against registration with the SEC;

If you check this box, complete *Section 2.A.(12) of Schedule D.*

- ☐ (13) are **no longer eligible** to remain registered with the SEC.

State Securities Authority Notice Filings and State Reporting by Exempt Reporting Advisers

- C. Under state laws, SEC-registered advisers may be required to provide to *state securities authorities* a copy of the Form ADV and any amendments they file with the SEC. These are called *notice filings*. In addition, *exempt reporting advisers* may be required to provide *state securities authorities* with a copy of reports and any amendments they file with the SEC. If this is an initial application or report, check the box(es) next to the state(s) that you would like to receive notice of this and all subsequent filings or reports you submit to the SEC. If this is an amendment to direct your *notice filings* or reports to additional state(s), check the box(es) next to the state(s) that you would like to receive notice of this and all subsequent filings or reports you submit to the SEC. If this is an amendment to your registration to stop your *notice filings* or reports from going to state(s) that currently receive them, uncheck the box(es) next to those state(s).

Jurisdictions

☐ AL	☐ ID	☐ MO	☐ PA
☐ AK	☐ IL	☐ MT	☐ PR
☐ AZ	☐ IN	☐ NE	☐ RI
☐ AR	☐ IA	☐ NV	☐ SC
☒ CA	☐ KS	☐ NH	☐ SD
☐ CO	☐ KY	☐ NJ	☐ TN
☐ CT	☐ LA	☐ NM	☐ TX
☐ DE	☐ ME	☐ NY	☐ UT
☐ DC	☐ MD	☐ NC	☐ VT
☐ FL	☐ MA	☐ ND	☐ VI
☐ GA	☐ MI	☐ OH	☐ VA
☐ GU	☐ MN	☐ OK	☒ WA
☐ HI	☐ MS	☒ OR	☐ WV
			☐ WI

If you are amending your registration to stop your notice filings or reports from going to a state that currently receives them and you do not want to pay that state's notice filing or report filing fee for the coming year, your amendment must be filed before the end of the year (December 31).

SECTION 2.A.(8) Related Adviser

If you are relying on the exemption in rule 203A-2(b) from the prohibition on registration because you *control*, are *controlled by*, or are under common *control* with an investment adviser that is registered with the SEC and your *principal office and place of business* is the same as that of the registered adviser, provide the following information:

Name of Registered Investment Adviser

CRD Number of Registered Investment Adviser

SEC Number of Registered Investment Adviser
801 -

SECTION 2.A.(9) Newly Formed Adviser

If you are relying on rule 203A-2(c), the newly formed adviser exemption from the prohibition on registration, you are required to make certain representations about your eligibility for SEC registration. By checking the appropriate boxes, you will be deemed to have made the required representations. You must make both of these representations:

- ☐ I am not registered or required to be registered with the SEC or a *state securities authority* and I have a reasonable expectation that I will be eligible to register with the SEC within 120 days after the date my registration with the SEC becomes effective.
- ☐ I undertake to withdraw from SEC registration if, on the 120th day after my registration with the SEC becomes effective, I would be prohibited by Section 203A(a) of the Advisers Act from registering with the SEC.

SECTION 2.A.(10) Multi-State Adviser

If you are relying on rule 203A-2(d), the multi-state adviser exemption from the prohibition on registration, you are required to make certain representations about your eligibility for SEC registration. By checking the appropriate boxes, you will be deemed to have made the required representations.

If you are applying for registration as an investment adviser with the SEC, you must make both of these representations:

- ☐ I have reviewed the applicable state and federal laws and have concluded that I am required by the laws of 15 or more states to register as an investment adviser with the *state securities authorities* in those states.
- ☐ I undertake to withdraw from SEC registration if I file an amendment to this registration indicating that I would be required by the laws of fewer than 15 states to register as an investment adviser with the *state securities authorities* of those states.

If you are submitting your *annual updating amendment*, you must make this representation:

- ☐ Within 90 days prior to the date of filing this amendment, I have reviewed the applicable state and federal laws and have concluded that I am required by the laws of at least 15 states to register as an investment adviser with the *state securities authorities* in those states.

SECTION 2.A.(12) SEC Exemptive Order

If you are relying upon an SEC *order* exempting you from the prohibition on registration, provide the following information:

Application Number:

803-

Date of *order*:

Item 3 Form of Organization

A. How are you organized?

- ☒ Corporation
- ☐ Sole Proprietorship
- ☐ Limited Liability Partnership (LLP)
- ☐ Partnership
- ☐ Limited Liability Company (LLC)
- ☐ Limited Partnership (LP)
- ☐ Other (specify):

If you are changing your response to this Item, see Part 1A Instruction 4.

B. In what month does your fiscal year end each year?

DECEMBER

C. Under the laws of what state or country are you organized?

State Country

Washington UNITED STATES

If you are a partnership, provide the name of the state or country under whose laws your partnership was formed. If you are a sole proprietor, provide the name of the state or country where you reside.

If you are changing your response to this Item, see Part 1A Instruction 4.

Item 4 Successions

- A. Are you, at the time of this filing, succeeding to the business of a registered investment adviser?

Yes No☐ ☒

If "yes", complete Item 4.B. and Section 4 of Schedule D.

- B. Date of Succession: (MM/DD/YYYY)

If you have already reported this succession on a previous Form ADV filing, do not report the succession again. Instead, check "No." See Part 1A Instruction 4.

SECTION 4 Successions

No Information Filed

Item 5 Information About Your Advisory Business - Employees, Clients, and Compensation

Responses to this Item help us understand your business, assist us in preparing for on-site examinations, and provide us with data we use when making regulatory policy. [Part 1A Instruction 5.a.](#) provides additional guidance to newly formed advisers for completing this Item 5.

Employees

If you are organized as a sole proprietorship, include yourself as an employee in your responses to Item 5.A. and Items 5.B.(1), (2), (3), (4), and (5). If an employee performs more than one function, you should count that employee in each of your responses to Items 5.B.(1), (2), (3), (4), and (5).

- A. Approximately how many *employees* do you have? Include full- and part-time *employees* but do not include any clerical workers.

46

- B. (1) Approximately how many of the *employees* reported in 5.A. perform investment advisory functions (including research)?
41
- (2) Approximately how many of the *employees* reported in 5.A. are registered representatives of a broker-dealer?
0
- (3) Approximately how many of the *employees* reported in 5.A. are registered with one or more *state securities authorities* as *investment adviser representatives*?
0
- (4) Approximately how many of the *employees* reported in 5.A. are registered with one or more *state securities authorities* as *investment adviser representatives* for an investment adviser other than you?
0
- (5) Approximately how many of the *employees* reported in 5.A. are licensed agents of an insurance company or agency?
0
- (6) Approximately how many firms or other *persons* solicit advisory *clients* on your behalf?
0

In your response to Item 5.B.(6), do not count any of your employees and count a firm only once – do not count each of the firm's employees that solicit on your behalf.

Clients

In your responses to Items 5.C. and 5.D. do not include as "clients" the investors in a private fund you advise, unless you have a separate advisory relationship with those investors.

- C. (1) To approximately how many *clients* did you provide investment advisory services during your most recently completed fiscal year?

☐ 0

☐ 1-10

☐ 11-25

☐ 26-100

☒ More than 100

If more than 100, how many?

(round to the nearest 100)

100

(2) Approximately what percentage of your *clients* are non-United States persons?

0%

D. For purposes of this Item 5.D., the category "individuals" includes trusts, estates, and 401(k) plans and IRAs of individuals and their family members, but does not include businesses organized as sole proprietorships. The category "business development companies" consists of companies that have made an election pursuant to section 54 of the Investment Company Act of 1940. Unless you provide advisory services pursuant to an investment advisory contract to an investment company registered under the Investment Company Act of 1940, check "None" in response to Item 5.D.(1)(d) and do not check any of the boxes in response to Item 5.D.(2)(d).

(1) What types of *clients* do you have? Indicate the approximate percentage that each type of *client* comprises of your total number of *clients*. If a *client* fits into more than one category, check all that apply.

	None	<u>Up to</u> 10%	<u>11-</u> <u>25%</u>	<u>26-</u> <u>50%</u>	<u>51-</u> <u>75%</u>	<u>76-</u> <u>99%</u>	100%
(a) Individuals (other than <i>high net worth individuals</i>)	☒	☐	☐	☐	☐	☐	☐
(b) <i>High net worth individuals</i>	☐	☒	☐	☐	☐	☐	☐
(c) Banking or thrift institutions	☒	☐	☐	☐	☐	☐	☐
(d) Investment companies	☒	☐	☐	☐	☐	☐	☐
(e) Business development companies	☒	☐	☐	☐	☐	☐	☐
(f) Pooled investment vehicles (other than investment companies)	☒	☐	☐	☐	☐	☐	☐
(g) Pension and profit sharing plans (but not the plan participants)	☐	☐	☐	☒	☐	☐	☐
(h) Charitable organizations	☐	☐	☒	☐	☐	☐	☐
(i) Corporations or other businesses not listed above	☐	☐	☒	☐	☐	☐	☐
(j) State or municipal <i>government entities</i>	☐	☐	☒	☐	☐	☐	☐
(k) Other investment advisers	☒	☐	☐	☐	☐	☐	☐
(l) Insurance companies	☒	☐	☐	☐	☐	☐	☐
(m) Other: UNIONS	☐	☐	☐	☒	☐	☐	☐

(2) Indicate the approximate amount of your regulatory assets under management (reported in Item 5.F. below) attributable to each of the following type of *client*. If a *client* fits into more than one category, check all that apply.

	<u>Up to</u> None	<u>Up to</u> 25%	<u>Up to</u> 50%	<u>Up to</u> 75%	<u>Up to</u> >75%
--	----------------------	---------------------	---------------------	---------------------	----------------------

- | | | | | | |
|--|----------------------------------|----------------------------------|-----------------------|----------------------------------|-----------------------|
| (a) Individuals (other than <i>high net worth individuals</i>) | ☒ | ☐ | ☐ | ☐ | ☐ |
| (b) <i>High net worth individuals</i> | ☐ | ☒ | ☐ | ☐ | ☐ |
| (c) Banking or thrift institutions | ☒ | ☐ | ☐ | ☐ | ☐ |
| (d) Investment companies | ☒ | ☐ | ☐ | ☐ | ☐ |
| (e) Business development companies | ☒ | ☐ | ☐ | ☐ | ☐ |
| (f) Pooled investment vehicles (other than investment companies) | ☒ | ☐ | ☐ | ☐ | ☐ |
| (g) Pension and profit sharing plans (but not the plan participants) | ☒ | ☐ | ☐ | ☐ | ☐ |
| (h) Charitable organizations | ☐ | ☒ | ☐ | ☐ | ☐ |
| (i) Corporations or other businesses not listed above | ☐ | ☐ | ☐ | ☒ | ☐ |
| (j) State or municipal <i>government entities</i> | ☒ | ☐ | ☐ | ☐ | ☐ |
| (k) Other investment advisers | ☒ | ☐ | ☐ | ☐ | ☐ |
| (l) Insurance companies | ☒ | ☐ | ☐ | ☐ | ☐ |
| (m) Other: UNIONS | ☐ | ☒ | ☐ | ☐ | ☐ |

Compensation Arrangements

E. You are compensated for your investment advisory services by (check all that apply):

- ☒ (1) A percentage of assets under your management
☒ (2) Hourly charges
☐ (3) Subscription fees (for a newsletter or periodical)
☒ (4) Fixed fees (other than subscription fees)
☐ (5) Commissions
☐ (6) *Performance-based fees*
☒ (7) Other (specify): A PERCENTAGE OF ASSETS UNDER CONSULTATIVE REVIEW

Item 5 Information About Your Advisory Business - Regulatory Assets Under Management

Regulatory Assets Under Management

- | | | Yes | No |
|---|----------------------|----------------------------------|--------------------------|
| F. (1) Do you provide continuous and regular supervisory or management services to securities portfolios? | | ☒ | ☐ |
| (2) If yes, what is the amount of your regulatory assets under management and total number of accounts? | | | |
| | U.S. Dollar Amount | | Total Number of Accounts |
| Discretionary: | (a) \$ 1,432,516,972 | | (d) 7 |
| Non-Discretionary: | (b) \$ 728,084,895 | | (e) 50 |
| Total: | (c) \$ 2,160,601,867 | | (f) 57 |

Part 1A Instruction 5.b. explains how to calculate your regulatory assets under management. You must follow these instructions carefully when completing this Item.

Item 5 Information About Your Advisory Business - Advisory Activities**Advisory Activities**

G. What type(s) of advisory services do you provide? Check all that apply.

- ☒ (1) Financial planning services
- ☐ (2) Portfolio management for individuals and/or small businesses
- ☐ (3) Portfolio management for investment companies (as well as "business development companies" that have made an election pursuant to section 54 of the Investment Company Act of 1940)
- ☐ (4) Portfolio management for pooled investment vehicles (other than investment companies)
- ☒ (5) Portfolio management for businesses (other than small businesses) or institutional *clients* (other than registered investment companies and other pooled investment vehicles)
- ☒ (6) Pension consulting services
- ☒ (7) Selection of other advisers (including *private fund* managers)
- ☐ (8) Publication of periodicals or newsletters
- ☐ (9) Security ratings or pricing services
- ☐ (10) Market timing services
- ☐ (11) Educational seminars/workshops
- ☐ (12) Other(specify):

Do not check Item 5.G.(3) unless you provide advisory services pursuant to an investment advisory contract to an investment company registered under the Investment Company Act of 1940, including as a subadviser. If you check Item 5.G.(3), report the 811 or 814 number of the investment company or investment companies to which you provide advice in Section 5.G.(3) of Schedule D.

H. If you provide financial planning services, to how many *clients* did you provide these services during your last fiscal year?

- ☐ 0
- ☐ 1 - 10
- ☐ 11 - 25
- ☐ 26 - 50
- ☐ 51 - 100
- ☒ 101 - 250
- ☐ 251 - 500
- ☐ More than 500

If more than 500, how many?
(round to the nearest 500)

In your responses to this Item 5.H., do not include as "clients" the investors in a private fund you advise, unless you have a separate advisory relationship with those investors.

I. If you participate in a *wrap fee program*, do you (check all that apply):

- ☐ (1) *sponsor* the *wrap fee program*?
- ☐ (2) act as a portfolio manager for the *wrap fee program*?

If you are a portfolio manager for a wrap fee program, list the names of the programs and their sponsors in Section 5.I.(2) of Schedule D.

If your involvement in a wrap fee program is limited to recommending wrap fee programs to your clients, or you advise a mutual fund that is offered through a wrap fee program, do not check either Item 5.I.(1) or 5.I.(2).

Yes No

- J. In response to Item 4.B. of Part 2A of Form ADV, do you indicate that you provide investment advice only with respect to limited types of investments?

☐ ☒

SECTION 5.G.(3) Advisers to Registered Investment Companies and Business Development Companies

No Information Filed

SECTION 5.I.(2) Wrap Fee Programs

No Information Filed

Item 6 Other Business Activities

In this Item, we request information about your firm's other business activities.

A. You are actively engaged in business as a (check all that apply):

- ☐ (1) broker-dealer (registered or unregistered)
- ☐ (2) registered representative of a broker-dealer
- ☐ (3) commodity pool operator or commodity trading advisor (whether registered or exempt from registration)
- ☐ (4) futures commission merchant
- ☐ (5) real estate broker, dealer, or agent
- ☐ (6) insurance broker or agent
- ☐ (7) bank (including a separately identifiable department or division of a bank)
- ☐ (8) trust company
- ☐ (9) registered municipal advisor
- ☐ (10) registered security-based swap dealer
- ☐ (11) major security-based swap participant
- ☐ (12) accountant or accounting firm
- ☐ (13) lawyer or law firm
- ☐ (14) other financial product salesperson (specify):

If you engage in other business using a name that is different from the names reported in Items 1.A. or 1.B, complete Section 6.A. of Schedule D.

Yes No

- B. (1) Are you actively engaged in any other business not listed in Item 6.A. (other than giving investment advice)? ☐ ☒
- (2) If yes, is this other business your primary business? ☐ ☐

If "yes," describe this other business on Section 6.B.(2) of Schedule D, and if you engage in this business under a different name, provide that name.

Yes No

- (3) Do you sell products or provide services other than investment advice to your advisory clients? ☐ ☒

If "yes," describe this other business on Section 6.B.(3) of Schedule D, and if you engage in this business under a different name, provide that name.

SECTION 6.A. Names of Your Other Businesses

No Information Filed

SECTION 6.B.(2) Description of Primary Business

Describe your primary business (not your investment advisory business):

If you engage in that business under a different name, provide that name:

SECTION 6.B.(3) Description of Other Products and Services

Describe other products or services you sell to your *client*, You may omit products and services that you listed in Section 6.B.(2) above.

If you engage in that business under a different name, provide that name.

Item 7 Financial Industry Affiliations and *Private Fund* Reporting

In this Item, we request information about your financial industry affiliations and activities. This information identifies areas in which conflicts of interest may occur between you and your *clients*.

- A. This part of Item 7 requires you to provide information about you and your *related persons*, including foreign affiliates. Your *related persons* are all of your *advisory affiliates* and any *person* that is under common *control* with you.

You have a *related person* that is a (check all that apply):

- ☐ (1) broker-dealer, municipal securities dealer, or government securities broker or dealer (registered or unregistered)
- ☒ (2) other investment adviser (including financial planners)
- ☐ (3) registered municipal advisor
- ☐ (4) registered security-based swap dealer
- ☐ (5) major security-based swap participant
- ☐ (6) commodity pool operator or commodity trading advisor (whether registered or exempt from registration)
- ☐ (7) futures commission merchant
- ☐ (8) banking or thrift institution
- ☐ (9) trust company
- ☐ (10) accountant or accounting firm
- ☐ (11) lawyer or law firm
- ☐ (12) insurance company or agency
- ☐ (13) pension consultant
- ☐ (14) real estate broker or dealer
- ☐ (15) sponsor or syndicator of limited partnerships (or equivalent), excluding pooled investment vehicles
- ☐ (16) sponsor, general partner, managing member (or equivalent) of pooled investment vehicles

For each related person, including foreign affiliates that may not be registered or required to be registered in the United States, complete Section 7.A. of Schedule D.

You do not need to complete Section 7.A. of Schedule D for any related person if: (1) you have no business dealings with the related person in connection with advisory services you provide to your clients; (2) you do not conduct shared operations with the related person; (3) you do not refer clients or business to the related person, and the related person does not refer prospective clients or business to you; (4) you do not share supervised persons or premises with the related person; and (5) you have no reason to believe that your relationship with the related person otherwise creates a conflict of interest with your clients.

You must complete Section 7.A. of Schedule D for each related person acting as qualified custodian in connection with advisory services you provide to your clients (other than any mutual fund transfer agent pursuant to rule 206(4)-2(b)(1)), regardless of whether you have determined the related person to be operationally independent under rule 206(4)-2 of the Advisers Act.

Yes No

- B. Are you an adviser to any *private fund*?

☐ ☒

If "yes," then for each private fund that you advise, you must complete a Section 7.B.(1) of Schedule D, except in certain circumstances described in the next sentence and in Instruction 6 of the Instructions to Part 1A. If another adviser reports this information with respect to any such private

fund in Section 7.B.(1) of Schedule D of its Form ADV (e.g., if you are a subadviser), do not complete Section 7.B.(1) of Schedule D with respect to that private fund. You must, instead, complete Section 7.B.(2) of Schedule D.

In either case, if you seek to preserve the anonymity of a private fund client by maintaining its identity in your books and records in numerical or alphabetical code, or similar designation, pursuant to rule 204-2(d), you may identify the private fund in Section 7.B.(1) or 7.B.(2) of Schedule D using the same code or designation in place of the fund's name.

SECTION 7.A. Financial Industry Affiliations

Complete a separate Schedule D Section 7.A. for each *related person* listed in Item 7.A.

1. Legal Name of *Related Person*:

KEI INVESTMENTS, LLC

2. Primary Business Name of *Related Person*:

KEI INVESTMENTS, LLC

3. *Related Person's* SEC File Number (if any) (e.g., 801-, 8-, 866-, 802-)

-

or

Other

4. *Related Person's* CRD Number (if any):

5. *Related Person* is: (check all that apply)

(a) ☐ broker-dealer, municipal securities dealer, or government securities broker or dealer

(b) ☒ other investment adviser (including financial planners)

(c) ☐ registered municipal advisor

(d) ☐ registered security-based swap dealer

(e) ☐ major security-based swap participant

(f) ☐ commodity pool operator or commodity trading advisor (whether registered or exempt from registration)

(g) ☐ futures commission merchant

(h) ☐ banking or thrift institution

(i) ☐ trust company

(j) ☐ accountant or accounting firm

(k) ☐ lawyer or law firm

(l) ☐ insurance company or agency

(m) ☐ pension consultant

(n) ☐ real estate broker or dealer

(o) ☐ sponsor or syndicator of limited partnerships (or equivalent), excluding pooled investment vehicles

(p) ☐ sponsor, general partner, managing member (or equivalent) of pooled investment vehicles

	Yes	No
6. Do you <i>control</i> or are you <i>controlled</i> by the <i>related person</i> ?	☒	☐
7. Are you and the <i>related person</i> under common <i>control</i> ?	☒	☐
8. (a) Does the <i>related person</i> act as a qualified custodian for your <i>clients</i> in connection with advisory services you provide to <i>clients</i> ?	☐	☒
(b) If you are registering or registered with the SEC and you have answered "yes," to question 8(a) above, have you overcome the presumption that you are not operationally independent (pursuant to rule 206(4)-(2)(d)(5)) from the <i>related person</i> and thus are not required to obtain a surprise examination for your <i>clients'</i> funds or securities that are maintained at the <i>related person</i> ?	☐	☐
(c) If you have answered "yes" to question 8.(a) above, provide the location of the <i>related person's</i> office responsible for <i>custody</i> of your <i>clients'</i> assets: Number and Street 1: _____ Number and Street 2: _____ City: _____ State: _____ Country: _____ ZIP+4/Postal Code: _____ If this address is a private residence, check this box: ☐		
9. (a) If the <i>related person</i> is an investment adviser, is it exempt from registration?	☐	☒
(b) If the answer is yes, under what exemption? STAFF NO-ACTION LETTERS (RELYING ADVISOR)		
10. (a) Is the <i>related person</i> registered with a <i>foreign financial regulatory authority</i> ?	☐	☒
(b) If the answer is yes, list the name and country, in English, of each <i>foreign financial regulatory authority</i> with which the <i>related person</i> is registered. No Information Filed		
11. Do you and the <i>related person</i> share any <i>supervised persons</i> ?	☒	☐
12. Do you and the <i>related person</i> share the same physical location?	☒	☐

SECTION 7.B.(1) Private Fund Reporting

No Information Filed

SECTION 7.B.(2) Private Fund Reporting

No Information Filed

Item 8 Participation or Interest in *Client* Transactions

In this Item, we request information about your participation and interest in your *clients'* transactions. This information identifies additional areas in which conflicts of interest may occur between you and your *clients*.

Like Item 7, Item 8 requires you to provide information about you and your *related persons*, including foreign affiliates.

Proprietary Interest in *Client* Transactions

- | A. Do you or any <i>related person</i> : | Yes | No |
|--|-----------------------|----------------------------------|
| (1) buy securities for yourself from advisory <i>clients</i> , or sell securities you own to advisory <i>clients</i> (principal transactions)? | ☐ | ☒ |
| (2) buy or sell for yourself securities (other than shares of mutual funds) that you also recommend to advisory <i>clients</i> ? | ☐ | ☒ |
| (3) recommend securities (or other investment products) to advisory <i>clients</i> in which you or any <i>related person</i> has some other proprietary (ownership) interest (other than those mentioned in Items 8.A.(1) or (2))? | ☐ | ☒ |

Sales Interest in *Client* Transactions

- | B. Do you or any <i>related person</i> : | Yes | No |
|--|-----------------------|----------------------------------|
| (1) as a broker-dealer or registered representative of a broker-dealer, execute securities trades for brokerage customers in which advisory <i>client</i> securities are sold to or bought from the brokerage customer (agency cross transactions)? | ☐ | ☒ |
| (2) recommend purchase of securities to advisory <i>clients</i> for which you or any <i>related person</i> serves as underwriter, general or managing partner, or purchaser representative? | ☐ | ☒ |
| (3) recommend purchase or sale of securities to advisory <i>clients</i> for which you or any <i>related person</i> has any other sales interest (other than the receipt of sales commissions as a broker or registered representative of a broker-dealer)? | ☐ | ☒ |

Investment or Brokerage Discretion

- | C. Do you or any <i>related person</i> have <i>discretionary authority</i> to determine the: | Yes | No |
|---|----------------------------------|----------------------------------|
| (1) securities to be bought or sold for a <i>client's</i> account? | ☒ | ☐ |
| (2) amount of securities to be bought or sold for a <i>client's</i> account? | ☒ | ☐ |
| (3) broker or dealer to be used for a purchase or sale of securities for a <i>client's</i> account? | ☒ | ☐ |
| (4) commission rates to be paid to a broker or dealer for a <i>client's</i> securities transactions? | ☐ | ☒ |
| D. If you answer "yes" to C.(3) above, are any of the brokers or dealers <i>related persons</i> ? | ☐ | ☒ |
| E. Do you or any <i>related person</i> recommend brokers or dealers to <i>clients</i> ? | ☒ | ☐ |
| F. If you answer "yes" to E above, are any of the brokers or dealers <i>related persons</i> ? | ☐ | ☒ |
| G. (1) Do you or any <i>related person</i> receive research or other products or services other than execution from a broker-dealer or a third party ("soft dollar benefits") in connection with <i>client</i> securities transactions? | ☐ | ☒ |
| (2) If "yes" to G.(1) above, are all the "soft dollar benefits" you or any <i>related persons</i> receive eligible "research or brokerage services" under section 28(e) of the Securities Exchange Act of 1934? | ☐ | ☐ |

H. Do you or any *related person*, directly or indirectly, compensate any *person* for *client* referrals? ☐ ☒

I. Do you or any *related person*, directly or indirectly, receive compensation from any *person* for *client* referrals? ☐ ☒

In responding to Items 8.H and 8.I., consider all cash and non-cash compensation that you or a related person gave to (in answering Item 8.H) or received from (in answering Item 8.I) any person in exchange for client referrals, including any bonus that is based, at least in part, on the number or amount of client referrals.

Item 9 Custody

In this Item, we ask you whether you or a *related person* has *custody* of *client* (other than *clients* that are investment companies registered under the Investment Company Act of 1940) assets and about your custodial practices.

- A. (1) Do you have *custody* of any advisory *clients*': **Yes No**
- (a) cash or bank accounts? ☒ ☐
- (b) securities? ☒ ☐

If you are registering or registered with the SEC, answer "No" to Item 9.A.(1)(a) and (b) if you have custody solely because (i) you deduct your advisory fees directly from your clients' accounts, or (ii) a related person has custody of client assets in connection with advisory services you provide to clients, but you have overcome the presumption that you are not operationally independent (pursuant to Advisers Act rule 206(4)-(2)(d)(5)) from the related person.

- (2) If you checked "yes" to Item 9.A.(1)(a) or (b), what is the approximate amount of *client* funds and securities and total number of *clients* for which you have *custody*:

U.S. Dollar Amount	Total Number of <i>Clients</i>
(a) \$ 450,000,000	(b) 1

If you are registering or registered with the SEC and you have custody solely because you deduct your advisory fees directly from your clients' accounts, do not include the amount of those assets and the number of those clients in your response to Item 9.A.(2). If your related person has custody of client assets in connection with advisory services you provide to clients, do not include the amount of those assets and number of those clients in your response to 9.A.(2). Instead, include that information in your response to Item 9.B.(2).

- B. (1) In connection with advisory services you provide to *clients*, do any of your *related persons* have *custody* of any of your advisory *clients*': **Yes No**
- (a) cash or bank accounts? ☐ ☒
- (b) securities? ☐ ☒

You are required to answer this item regardless of how you answered Item 9.A.(1)(a) or (b).

- (2) If you checked "yes" to Item 9.B.(1)(a) or (b), what is the approximate amount of *client* funds and securities and total number of *clients* for which your *related persons* have *custody*:

U.S. Dollar Amount	Total Number of <i>Clients</i>
(a) \$	(b)

- C. If you or your *related persons* have *custody* of *client* funds or securities in connection with advisory services you provide to *clients*, check all the following that apply:
- (1) A qualified custodian(s) sends account statements at least quarterly to the investors in the pooled investment vehicle(s) you manage. ☐
- (2) An *independent public accountant* audits annually the pooled investment vehicle(s) that you manage and the audited financial statements are distributed to the investors in the pools. ☐
- (3) ☒

An *independent public accountant* conducts an annual surprise examination of *client* funds and securities.

- (4) An *independent public accountant* prepares an internal control report with respect to custodial services when you or your *related persons* are qualified custodians for *client* funds and securities. ☐

If you checked Item 9.C.(2), C.(3) or C.(4), list in Section 9.C. of Schedule D the accountants that are engaged to perform the audit or examination or prepare an internal control report. (If you checked Item 9.C.(2), you do not have to list auditor information in Section 9.C. of Schedule D if you already provided this information with respect to the private funds you advise in Section 7.B.(1) of Schedule D).

- D. Do you or your *related person(s)* act as qualified custodians for your *clients* in connection with advisory services you provide to *clients*? **Yes No**

(1) you act as a qualified custodian ☐ ☒

(2) your *related person(s)* act as qualified custodian(s) ☐ ☒

If you checked "yes" to Item 9.D.(2), all related persons that act as qualified custodians (other than any mutual fund transfer agent pursuant to rule 206(4)-2(b)(1)) must be identified in Section 7.A. of Schedule D, regardless of whether you have determined the related person to be operationally independent under rule 206(4)-2 of the Advisers Act.

- E. If you are filing your *annual updating amendment* and you were subject to a surprise examination by an *independent public accountant* during your last fiscal year, provide the date (MM/YYYY) the examination commenced:
09/2012

- F. If you or your *related persons* have *custody* of *client* funds or securities, how many persons, including, but not limited to, you and your *related persons*, act as qualified custodians for your *clients* in connection with advisory services you provide to *clients*?
0

SECTION 9.C. Independent Public Accountant

You must complete the following information for each *independent public accountant* engaged to perform a surprise examination, perform an audit of a pooled investment vehicle that you manage, or prepare an internal control report. You must complete a separate Schedule D Section 9.C. for each *independent public accountant*.

- (1) Name of the *independent public accountant*:

BREARD & ASSOCIATES, INC.

- (2) The location of the *independent public accountant's* office responsible for the services provided:

Number and Street 1:

9221 CORBIN AVENUE

City:

NORTHRIDGE

State:

California

Number and Street 2:

SUITE 170

Country:

UNITED STATES

ZIP+4/Postal Code:

91324

	Yes	No
(3) Is the <i>independent public accountant</i> registered with the Public Company Accounting Oversight Board?	☒	☐
(4) If yes to (3) above, is the <i>independent public accountant</i> subject to regular inspection by the Public Company Accounting Oversight Board in accordance with its rules?	☒	☐
(5) The <i>independent public accountant</i> is engaged to:		
A. ☐ audit a pooled investment vehicle		
B. ☒ perform a surprise examination of <i>clients'</i> assets		
C. ☐ prepare an internal control report		
(6) Does any report prepared by the <i>independent public accountant</i> that audited the pooled investment vehicle or that examined internal controls contain an unqualified opinion?		
☐ Yes		
☒ No		
☐ Report Not Yet Received		
If you check "Report Not Yet Received", you must promptly file an amendment to your Form ADV to update your response when the accountant's report is available.		

Item 10 Control Persons

In this Item, we ask you to identify every *person* that, directly or indirectly, *controls* you.

If you are submitting an initial application or report, you must complete Schedule A and Schedule B. Schedule A asks for information about your direct owners and executive officers. Schedule B asks for information about your indirect owners. If this is an amendment and you are updating information you reported on either Schedule A or Schedule B (or both) that you filed with your initial application or report, you must complete Schedule C.

Yes No

- A. Does any *person* not named in Item 1.A. or Schedules A, B, or C, directly or indirectly, *control* your management or policies?

☐ ☒

If yes, complete Section 10.A. of Schedule D.

- B. If any *person* named in Schedules A, B, or C or in Section 10.A. of Schedule D is a public reporting company under Sections 12 or 15(d) of the Securities Exchange Act of 1934, please complete Section 10.B. of Schedule D.

SECTION 10.A. Control Persons

No Information Filed

SECTION 10.B. Control Person Public Reporting Companies

No Information Filed

Item 11 Disclosure Information

In this Item, we ask for information about your disciplinary history and the disciplinary history of all your *advisory affiliates*. We use this information to determine whether to grant your application for registration, to decide whether to revoke your registration or to place limitations on your activities as an investment adviser, and to identify potential problem areas to focus on during our on-site examinations. One event may result in "yes" answers to more than one of the questions below.

Your *advisory affiliates* are: (1) all of your current *employees* (other than *employees* performing only clerical, administrative, support or similar functions); (2) all of your officers, partners, or directors (or any *person* performing similar functions); and (3) all *persons* directly or indirectly *controlling* you or *controlled* by you. If you are a "separately identifiable department or division" (SID) of a bank, see the Glossary of Terms to determine who your *advisory affiliates* are.

If you are registered or registering with the SEC or if you are an exempt reporting adviser, you may limit your disclosure of any event listed in Item 11 to ten years following the date of the event. If you are registered or registering with a state, you must respond to the questions as posed; you may, therefore, limit your disclosure to ten years following the date of an event only in responding to Items 11.A.(1), 11.A.(2), 11.B.(1), 11.B.(2), 11.D.(4), and 11.H.(1)(a). For purposes of calculating this ten-year period, the date of an event is the date the final order, judgment, or decree was entered, or the date any rights of appeal from preliminary orders, judgments, or decrees lapsed.

You must complete the appropriate Disclosure Reporting Page ("DRP") for "yes" answers to the questions in this Item 11.

	Yes No
Do any of the events below involve you or any of your <i>supervised persons</i> ?	☐ ☒

For "yes" answers to the following questions, complete a Criminal Action DRP:

A. In the past ten years, have you or any <i>advisory affiliate</i> :	Yes No
(1) been convicted of or pled guilty or nolo contendere ("no contest") in a domestic, foreign, or military court to any <i>felony</i> ?	☐ ☒
(2) been <i>charged</i> with any <i>felony</i> ?	☐ ☒

If you are registered or registering with the SEC, or if you are reporting as an exempt reporting adviser, you may limit your response to Item 11.A.(2) to charges that are currently pending.

B. In the past ten years, have you or any <i>advisory affiliate</i> :	Yes No
(1) been convicted of or pled guilty or nolo contendere ("no contest") in a domestic, foreign, or military court to a <i>misdemeanor</i> involving: investments or an <i>investment-related</i> business, or any fraud, false statements, or omissions, wrongful taking of property, bribery, perjury, forgery, counterfeiting, extortion, or a conspiracy to commit any of these offenses?	☐ ☒
(2) been <i>charged</i> with a <i>misdemeanor</i> listed in Item 11.B.(1)?	☐ ☒

If you are registered or registering with the SEC, or if you are reporting as an exempt reporting adviser, you may limit your response to Item 11.B.(2) to charges that are currently pending.

For "yes" answers to the following questions, complete a Regulatory Action DRP:

C. Has the SEC or the Commodity Futures Trading Commission (CFTC) ever:	Yes No
(1) <i>found</i> you or any <i>advisory affiliate</i> to have made a false statement or omission?	☐ ☒

- (2) *found* you or any *advisory affiliate* to have been *involved* in a violation of SEC or CFTC regulations or statutes? ☐ ☒
- (3) *found* you or any *advisory affiliate* to have been a cause of an *investment-related* business having its authorization to do business denied, suspended, revoked, or restricted? ☐ ☒
- (4) entered an *order* against you or any *advisory affiliate* in connection with *investment-related* activity? ☐ ☒
- (5) imposed a civil money penalty on you or any *advisory affiliate*, or *ordered* you or any *advisory affiliate* to cease and desist from any activity? ☐ ☒
- D. Has any other federal regulatory agency, any state regulatory agency, or any *foreign financial regulatory authority*:
- (1) ever *found* you or any *advisory affiliate* to have made a false statement or omission, or been dishonest, unfair, or unethical? ☐ ☒
- (2) ever *found* you or any *advisory affiliate* to have been *involved* in a violation of *investment-related* regulations or statutes? ☐ ☒
- (3) ever *found* you or any *advisory affiliate* to have been a cause of an *investment-related* business having its authorization to do business denied, suspended, revoked, or restricted? ☐ ☒
- (4) in the past ten years, entered an *order* against you or any *advisory affiliate* in connection with an *investment-related* activity? ☐ ☒
- (5) ever denied, suspended, or revoked your or any *advisory affiliate's* registration or license, or otherwise prevented you or any *advisory affiliate*, by *order*, from associating with an *investment-related* business or restricted your or any *advisory affiliate's* activity? ☐ ☒
- E. Has any *self-regulatory organization* or commodities exchange ever:
- (1) *found* you or any *advisory affiliate* to have made a false statement or omission? ☐ ☒
- (2) *found* you or any *advisory affiliate* to have been *involved* in a violation of its rules (other than a violation designated as a "*minor rule violation*" under a plan approved by the SEC)? ☐ ☒
- (3) *found* you or any *advisory affiliate* to have been the cause of an *investment-related* business having its authorization to do business denied, suspended, revoked, or restricted? ☐ ☒
- (4) disciplined you or any *advisory affiliate* by expelling or suspending you or the *advisory affiliate* from membership, barring or suspending you or the *advisory affiliate* from association with other members, or otherwise restricting your or the *advisory affiliate's* activities? ☐ ☒
- F. Has an authorization to act as an attorney, accountant, or federal contractor granted to you or any *advisory affiliate* ever been revoked or suspended? ☐ ☒
- G. Are you or any *advisory affiliate* now the subject of any regulatory proceeding that could result in a "yes" answer to any part of Item 11.C., 11.D., or 11.E.? ☐ ☒

For "yes" answers to the following questions, complete a Civil Judicial Action DRP:

- H. (1) Has any domestic or foreign court:

Yes No

- (a) in the past ten years, enjoined you or any *advisory affiliate* in connection with any *investment-related* activity? ☐ ☒
- (b) ever *found* that you or any *advisory affiliate* were *involved* in a violation of *investment-related* statutes or regulations? ☐ ☒
- (c) ever dismissed, pursuant to a settlement agreement, an *investment-related* civil action brought against you or any *advisory affiliate* by a state or *foreign financial regulatory authority*? ☐ ☒
- (2) Are you or any *advisory affiliate* now the subject of any civil proceeding that could result in a "yes" answer to any part of Item 11.H.(1)? ☐ ☒

Item 12 Small Businesses

The SEC is required by the Regulatory Flexibility Act to consider the effect of its regulations on small entities. In order to do this, we need to determine whether you meet the definition of "small business" or "small organization" under rule 0-7.

Answer this Item 12 only if you are registered or registering with the SEC **and** you indicated in response to Item 5.F.(2)(c) that you have regulatory assets under management of less than \$25 million. You are not required to answer this Item 12 if you are filing for initial registration as a state adviser, amending a current state registration, or switching from SEC to state registration.

For purposes of this Item 12 only:

- Total Assets refers to the total assets of a firm, rather than the assets managed on behalf of *clients*. In determining your or another *person's* total assets, you may use the total assets shown on a current balance sheet (but use total assets reported on a consolidated balance sheet with subsidiaries included, if that amount is larger).
- *Control* means the power to direct or cause the direction of the management or policies of a *person*, whether through ownership of securities, by contract, or otherwise. Any *person* that directly or indirectly has the right to vote 25 percent or more of the voting securities, or is entitled to 25 percent or more of the profits, of another *person* is presumed to *control* the other *person*.

	Yes	No
A. Did you have total assets of \$5 million or more on the last day of your most recent fiscal year?	☐	☐
<i>If "yes," you do not need to answer Items 12.B. and 12.C.</i>		
B. Do you:		
(1) <i>control</i> another investment adviser that had regulatory assets under management (calculated in response to Item 5.F.(2)(c) of Form ADV) of \$25 million or more on the last day of its most recent fiscal year?	☐	☐
(2) <i>control</i> another <i>person</i> (other than a natural person) that had total assets of \$5 million or more on the last day of its most recent fiscal year?	☐	☐
C. Are you:		
(1) <i>controlled</i> by or under common <i>control</i> with another investment adviser that had regulatory assets under management (calculated in response to Item 5.F.(2)(c) of Form ADV) of \$25 million or more on the last day of its most recent fiscal year?	☐	☐
(2) <i>controlled</i> by or under common <i>control</i> with another <i>person</i> (other than a natural person) that had total assets of \$5 million or more on the last day of its most recent fiscal year?	☐	☐

Schedule A**Direct Owners and Executive Officers**

1. Complete Schedule A only if you are submitting an initial application or report. Schedule A asks for information about your direct owners and executive officers. Use Schedule C to amend this information.
2. Direct Owners and Executive Officers. List below the names of:
 - (a) each Chief Executive Officer, Chief Financial Officer, Chief Operations Officer, Chief Legal Officer, Chief Compliance Officer (Chief Compliance Officer is required if you are registered or applying for registration and cannot be more than one individual), director, and any other individuals with similar status or functions;
 - (b) if you are organized as a corporation, each shareholder that is a direct owner of 5% or more of a class of your voting securities, unless you are a public reporting company (a company subject to Section 12 or 15(d) of the Exchange Act);
Direct owners include any *person* that owns, beneficially owns, has the right to vote, or has the power to sell or direct the sale of, 5% or more of a class of your voting securities. For purposes of this Schedule, a *person* beneficially owns any securities: (i) owned by his/her child, stepchild, grandchild, parent, stepparent, grandparent, spouse, sibling, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, sharing the same residence; or (ii) that he/she has the right to acquire, within 60 days, through the exercise of any option, warrant, or right to purchase the security.
 - (c) if you are organized as a partnership, all general partners and those limited and special partners that have the right to receive upon dissolution, or have contributed, 5% or more of your capital;
 - (d) in the case of a trust that directly owns 5% or more of a class of your voting securities, or that has the right to receive upon dissolution, or has contributed, 5% or more of your capital, the trust and each trustee; and
 - (e) if you are organized as a limited liability company ("LLC"), (i) those members that have the right to receive upon dissolution, or have contributed, 5% or more of your capital, and (ii) if managed by elected managers, all elected managers.
3. Do you have any indirect owners to be reported on Schedule B? ☒ Yes ☐ No
4. In the DE/FE/I column below, enter "DE" if the owner is a domestic entity, "FE" if the owner is an entity incorporated or domiciled in a foreign country, or "I" if the owner or executive officer is an individual.
5. Complete the Title or Status column by entering board/management titles; status as partner, trustee, sole proprietor, elected manager, shareholder, or member; and for shareholders or members, the class of securities owned (if more than one is issued).
6. Ownership codes are:

NA - less than 5%	B - 10% but less than 25%	D - 50% but less than 75%
A - 5% but less than 10%	C - 25% but less than 50%	E - 75% or more
7. (a) In the *Control Person* column, enter "Yes" if the *person* has *control* as defined in the Glossary of Terms to Form ADV, and enter "No" if the *person* does not have *control*. Note that under this definition, most executive officers and all 25% owners, general partners, elected managers, and trustees are *control persons*.
 (b) In the PR column, enter "PR" if the owner is a public reporting company under Sections 12 or 15 (d) of the Exchange Act.
 (c) Complete each column.

FULL LEGAL NAME (Individuals:	DE/FE/I	Status	Date Status	Ownership Code	Control Person	PR	CRD No. If None: S.S. No.
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Last Name, First Name, Middle Name)			Acquired MM/YYYY				and Date of Birth, IRS Tax No. or Employer ID No.
WURTS, WILLIAM, WHITNEY	I	CHAIRMAN/SHAREHOLDER OF WURTS & ASSOCIATES	08/2001	A	Y	N	473541
MACLEAN, JEFFREY, JAMES	I	CHIEF EXECUTIVE OFFICER/SHAREHOLDER OF WURTS & ASSOCIATES INC.	08/2001	D	Y	N	1899100
SWENSEN, ANGELA, JOY	I	CCO/SHAREHOLDER OF WURTS & ASSOCIATES & CCO OF KEI INVESTMENTS, LLC (RELYING ADVISOR)	12/2005	NA	Y	N	5079658
HEIER, SHELLY, JEAN	I	PRESIDENT/SENIOR CONSULTANT/SHAREHOLDER OF WURTS & ASSOCIATES	01/2007	A	Y	N	4795455
WHALEN, SCOTT, JEROME	I	EVP/SENIOR CONSULTANT/SHAREHOLDER OF WURTS & ASSOCIATES	01/2007	A	Y	N	4570046
SCOTT, JEFFREY, CARL	I	CHIEF INVESTMENT OFFICER OF WURTS & ASSOCIATES INC. & MANAGER OF KEI INVESTMENTS, LLC (RELYING ADVISOR)	09/2011	NA	Y	N	5084217
WURTS, LLC	DE	MEMBER OF KEI INVESTMENTS, LLC (RELYING ADVISOR)	04/2012	D	Y	N	80- 0819413
JCS ADVISORS, LLC	DE	MEMBER OF KEI INVESTMENTS, LLC (RELYING ADVISOR)	04/2012	D	Y	N	20- 8860037

Schedule B**Indirect Owners**

1. Complete Schedule B only if you are submitting an initial application. Schedule B asks for information about your indirect owners; you must first complete Schedule A, which asks for information about your direct owners. Use Schedule C to amend this information.

2. Indirect Owners. With respect to each owner listed on Schedule A (except individual owners), list below:

(a) in the case of an owner that is a corporation, each of its shareholders that beneficially owns, has the right to vote, or has the power to sell or direct the sale of, 25% or more of a class of a voting security of that corporation;

For purposes of this Schedule, a *person* beneficially owns any securities: (i) owned by his/her child, stepchild, grandchild, parent, stepparent, grandparent, spouse, sibling, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, sharing the same residence; or (ii) that he/she has the right to acquire, within 60 days, through the exercise of any option, warrant, or right to purchase the security.

(b) in the case of an owner that is a partnership, all general partners and those limited and special partners that have the right to receive upon dissolution, or have contributed, 25% or more of the partnership's capital;

(c) in the case of an owner that is a trust, the trust and each trustee; and

(d) in the case of an owner that is a limited liability company ("LLC"), (i) those members that have the right to receive upon dissolution, or have contributed, 25% or more of the LLC's capital, and (ii) if managed by elected managers, all elected managers.

3. Continue up the chain of ownership listing all 25% owners at each level. Once a public reporting company (a company subject to Sections 12 or 15(d) of the Exchange Act) is reached, no further ownership information need be given.

4. In the DE/FE/I column below, enter "DE" if the owner is a domestic entity, "FE" if the owner is an entity incorporated or domiciled in a foreign country, or "I" if the owner is an individual.

5. Complete the Status column by entering the owner's status as partner, trustee, elected manager, shareholder, or member; and for shareholders or members, the class of securities owned (if more than one is issued).

6. Ownership codes C - 25% but less than E - 75% or more
are: 50%
 D - 50% but less than F - Other (general partner, trustee, or elected
 75% manager)

7. (a) In the *Control Person* column, enter "Yes" if the *person* has *control* as defined in the Glossary of Terms to Form ADV, and enter "No" if the *person* does not have *control*. Note that under this definition, most executive officers and all 25% owners, general partners, elected managers, and trustees are *control persons*.

(b) In the PR column, enter "PR" if the owner is a public reporting company under Sections 12 or 15 (d) of the Exchange Act.

(c) Complete each column.

FULL LEGAL NAME (Individuals: Last Name, First Name, Middle Name)	DE/FE/I	Entity in Which Interest is Owned	Status	Date Status Acquired MM/YYYY	Ownership Code	Control Person	PR	CRD No. If None: S.S. No. and Date of Birth, IRS Tax No. or
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								Employer ID No.
SCOTT, JEFFREY, CARL	I	JCS ADVISORS, LLC, A MEMBER OF KEI INVESTMENTS, LLC (RELYING ADVISOR)	MEMBER AND MANAGER	04/2012	D	Y	N	5084217
MACLEAN, JEFFREY, JAMES	I	WURTS, LLC, A MEMBER OF KEI INVESTMENTS, LLC (RELYING ADVISOR)	MEMBER AND MANAGER	04/2012	C	Y	N	1899100

Schedule D - Miscellaneous

You may use the space below to explain a response to an Item or to provide any other information.

DRP Pages**CRIMINAL DISCLOSURE REPORTING PAGE (ADV)**

No Information Filed

REGULATORY ACTION DISCLOSURE REPORTING PAGE (ADV)

No Information Filed

CIVIL JUDICIAL ACTION DISCLOSURE REPORTING PAGE (ADV)

No Information Filed

Part 2**Exemption from brochure delivery requirements for SEC-registered advisers**

SEC rules exempt SEC-registered advisers from delivering a firm brochure to some kinds of clients. If these exemptions excuse you from delivering a brochure to *all* of your advisory clients, you do not have to prepare a brochure.

Yes No

Are you exempt from delivering a brochure to all of your clients under these rules?



If no, complete the ADV Part 2 filing below.

Amend, retire or file new brochures:

Brochure ID	Brochure Name	Brochure Type(s)
81881	2012-06-13	High net worth individuals, Pension plans/profit sharing plans, Pension consulting, Foundations/charities, Other institutional, Selection of Other Advisers/Solicitors
88416	2012-30-11	High net worth individuals, Pension plans/profit sharing plans, Pension consulting, Foundations/charities, Government/municipal, Other institutional
93846	2013-03-19	High net worth individuals, Pension plans/profit sharing plans, Pension consulting, Foundations/charities, Other institutional

Execution Pages**DOMESTIC INVESTMENT ADVISER EXECUTION PAGE**

You must complete the following Execution Page to Form ADV. This execution page must be signed and attached to your initial submission of Form ADV to the SEC and all amendments.

Appointment of Agent for Service of Process

By signing this Form ADV Execution Page, you, the undersigned adviser, irrevocably appoint the Secretary of State or other legally designated officer, of the state in which you maintain your *principal office and place of business* and any other state in which you are submitting a *notice filing*, as your agents to receive service, and agree that such *persons* may accept service on your behalf, of any notice, subpoena, summons, *order* instituting *proceedings*, demand for arbitration, or other process or papers, and you further agree that such service may be made by registered or certified mail, in any federal or state action, administrative *proceeding* or arbitration brought against you in any place subject to the jurisdiction of the United States, if the action, *proceeding*, or arbitration (a) arises out of any activity in connection with your investment advisory business that is subject to the jurisdiction of the United States, and (b) is *founded*, directly or indirectly, upon the provisions of: (i) the Securities Act of 1933, the Securities Exchange Act of 1934, the Trust Indenture Act of 1939, the Investment Company Act of 1940, or the Investment Advisers Act of 1940, or any rule or regulation under any of these acts, or (ii) the laws of the state in which you maintain your *principal office and place of business* or of any state in which you are submitting a *notice filing*.

Signature

I, the undersigned, sign this Form ADV on behalf of, and with the authority of, the investment adviser. The investment adviser and I both certify, under penalty of perjury under the laws of the United States of America, that the information and statements made in this ADV, including exhibits and any other information submitted, are true and correct, and that I am signing this Form ADV Execution Page as a free and voluntary act.

I certify that the adviser's books and records will be preserved and available for inspection as required by law. Finally, I authorize any *person* having *custody* or possession of these books and records to make them available to federal and state regulatory representatives.

Signature:	Date: MM/DD/YYYY
ANGELA SWENSEN	03/19/2013
Printed Name:	Title:
ANGELA SWENSEN	CCO
Adviser CRD Number:	
110565	

NON-RESIDENT INVESTMENT ADVISER EXECUTION PAGE

You must complete the following Execution Page to Form ADV. This execution page must be signed and attached to your initial submission of Form ADV to the SEC and all amendments.

1. Appointment of Agent for Service of Process

By signing this Form ADV Execution Page, you, the undersigned adviser, irrevocably appoint each of the Secretary of the SEC, and the Secretary of State or other legally designated officer, of any other state in which you are submitting a *notice filing*, as your agents to receive service, and agree that such persons may accept service on your behalf, of any notice, subpoena, summons, *order instituting proceedings*, demand for arbitration, or other process or papers, and you further agree that such service may be made by registered or certified mail, in any federal or state action, administrative *proceeding* or arbitration brought against you in any place subject to the jurisdiction of the United States, if the action, *proceeding* or arbitration (a) arises out of any activity in connection with your investment advisory business that is subject to the jurisdiction of the United States, and (b) is *founded*, directly or indirectly, upon the provisions of: (i) the Securities Act of 1933, the Securities Exchange Act of 1934, the Trust Indenture Act of 1939, the Investment Company Act of 1940, or the Investment Advisers Act of 1940, or any rule or regulation under any of these acts, or (ii) the laws of any state in which you are submitting a *notice filing*.

2. Appointment and Consent: Effect on Partnerships

If you are organized as a partnership, this irrevocable power of attorney and consent to service of process will continue in effect if any partner withdraws from or is admitted to the partnership, provided that the admission or withdrawal does not create a new partnership. If the partnership dissolves, this irrevocable power of attorney and consent shall be in effect for any action brought against you or any of your former partners.

3. *Non-Resident* Investment Adviser Undertaking Regarding Books and Records

By signing this Form ADV, you also agree to provide, at your own expense, to the U.S. Securities and Exchange Commission at its principal office in Washington D.C., at any Regional or District Office of the Commission, or at any one of its offices in the United States, as specified by the Commission, correct, current, and complete copies of any or all records that you are required to maintain under Rule 204-2 under the Investment Advisers Act of 1940. This undertaking shall be binding upon you, your heirs, successors and assigns, and any *person* subject to your written irrevocable consents or powers of attorney or any of your general partners and *managing agents*.

Signature

I, the undersigned, sign this Form ADV on behalf of, and with the authority of, the *non-resident* investment adviser. The investment adviser and I both certify, under penalty of perjury under the laws of the United States of America, that the information and statements made in this ADV, including exhibits and any other information submitted, are true and correct, and that I am signing this Form ADV Execution Page as a free and voluntary act.

I certify that the adviser's books and records will be preserved and available for inspection as required by law. Finally, I authorize any *person* having *custody* or possession of these books and records to make them available to federal and state regulatory representatives.

Signature:

Date: MM/DD/YYYY

Printed Name:

Title:

Adviser CRD Number:

110565

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Part 2A of Form ADV

Firm Brochure

April 10, 2013

This brochure provides information about the qualifications and business practices of Wurts & Associates, Inc. and KEI Investments, LLC. If you have any questions about the contents of this brochure, please contact us at 206.622.3700. The information in this brochure has not been approved or verified by the United States Securities and Exchange Commission or by any state securities authority.

Additional information about Wurts & Associates, Inc. and KEI Investments, LLC is also available on the SEC's website at www.advisornfo.sec.gov.



SEATTLE | 999 THIRD AVENUE, SUITE 4200 | SEATTLE, WASHINGTON 98104 | 206.622.3700

LOS ANGELES | 2321 ROSECRANS AVENUE, SUITE 2250 | EL SEGUNDO, CALIFORNIA 90245 | 310.297.1777

www.wurts.com

MATERIAL CHANGES

The material changes incorporated since our last posting of this document on March 28, 2012 on the public disclosure website of the United States Securities and Exchange Commission (the “SEC”) are as follows:

- Further defined our discretionary investment services in the Services and Investment Discretion sections.

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ADVISOR BUSINESS

William Wurts founded Wurts & Associates in Seattle in 1986 as a provider of independent, institutional consulting services. Four years later, we opened a second office in Los Angeles to better serve our growing client base in the southwestern United States.

2011 marked the 25th anniversary of our founding and signaled an important milestone in our history. We continue to grow and now advise on more than \$44 billion in assets, including over \$1.4 billion in discretionary assets under management as of March 2013. We remain dedicated to bringing a thoughtful and independent approach to investment consulting.

In 2006, William Wurts transitioned majority ownership to our current CEO, Jeffrey MacLean. Mr. Wurts remains a minority owner along with five other key professionals within the firm. Employee ownership is an important differentiator of ours, as it directly aligns the interests of our employees and our firm with those of our clients. This ensures that the firm you know today remains stable in philosophy, personnel, and process for many years to come.

In 2012, Wurts & Associates formed KEI Investments, LLC, a new related entity. KEI was formed to provide discretionary investment management. KEI offers solutions to organizations that desire a full implementation of their customized plan in an open-architecture framework. KEI Investments (as a “Relying Advisor”) and Wurts & Associates (as a “Filing Advisor”) are operationally integrated, collectively conduct a single advisory business, and are together filing a single Form ADV on reliance and guidance from the SEC and under the United States Investment Advisers Act of 1940, as amended (the “Advisers Act”). Relying Advisors are considered to be a registered investment adviser with the Securities Exchange Commission and, as such, are required to comply with all the provisions of the Advisers Act and the rules thereunder that apply to registered advisers. Registration does not imply a certain level of skill or training.

SERVICES

Investment Research

We use a forward looking, top down approach to developing ten year macroeconomic and capital markets outlooks, alongside holistic integration of managers, to achieve institutional portfolio goals. We encourage you to visit our website at <http://www.wurts.com/knowledge> to peruse our recent Quarterly Research Reports, Topics of Interest papers, as well as listen into our Quarterly Research Conference Calls in order to gain a greater understanding of how integral research is to our philosophy and investment consulting process. Our Semi-Annual Active Management Environment offers a thoughtful and rational intellectual framework for decisions.

Risk Management

Wurts & Associates' approach to risk management focuses on understanding and managing risks holistically, as opposed to solely using independent metrics to determine the riskiness of assets. We have worked to create a "risk culture," where the collective values and actions of employees are combined to shape all investment decisions with the careful consideration of all current and future risks. A comprehensive approach to implementing risk management for our clients involves adhering to governance best practices, aligning risk appetites and objectives, defining boundaries, increasing the flow of communication, enhancing risk response decisions, taking advantage of opportunities, and improving the deployment of capital.

Developing a comprehensive risk framework, and more importantly developing a risk culture, is no small endeavor. The knowledge and skill required to build a risk factor based investment framework is significant. Institutions that purchase "risk systems" may also end up with a false sense of security due to their inherent lack of experience. In the banking crisis witnessed in 2008, the media claimed that a big component of the problem was the failure of risk models. We argue that it wasn't so much the models that failed these institutions, as it was the failure of the practitioners to understand the limitations associated with such an overreliance on a small set of models to appropriately determine risk. As portrayed in the graphic below, there exists a world of risk around us that should be monitored via multiple lenses.



Investment Management Research and Selection

Evaluating managers is far more complicated than looking at an arbitrary benchmark and is more about each manager's role in overall portfolio design. Our research considers macroeconomic factors to make educated estimations regarding future performance for active managers. Our investment manager due diligence effort includes an extensive evaluation of both quantitative and qualitative attributes. The objective of this entire process is to provide relevant, in-depth due diligence on a broad cross section of highly regarded investment managers which can help you select a firm that most appropriately suits your particular requirements. We provide a fee analysis of prospective managers and can also assist with the fee negotiations when appropriate.

Trustee / Investment Committee Education

As consultants, we are dedicated to educating you on the various investments, strategies, economic developments, and financial trends that are pertinent to your financial situation and objectives. It is our goal to allow clients to leverage our knowledge to make sound decisions for the plans they serve. We will provide education on various investment related topics including strategic asset allocation, alternative investments, fiduciary best practices, and operational efficiencies. We also provide a Quarterly Research Report, mid-cycle memos, topics of interest papers, asset class outlooks, and conduct conference calls to keep you updated on significant events that may affect your plan, including any pertinent changes to the investments within the plan.

Investment Policy Review and Development

An investment policy should enhance investment performance by providing a clearly defined strategic direction for all plan assets. We understand the relationship between risk and return, and the ability to translate risk tolerances into meaningful investment guidelines. We create an investment policy designed to:

- Establish meaningful risk / return objectives for the plan and each manager
- Clearly specify decision-making responsibilities
- Achieve investment manager accountability by providing clearly defined performance objectives and investment guidelines
- Protect the plan sponsor from inappropriate investments
- Satisfy applicable fiduciary requirements

Asset Allocation Modeling

We provide asset allocation modeling services to help our clients determine a proper mix of assets. We model a number of potential asset class mixes and evaluate them against a variety of scenarios that incorporate macroeconomic research, market conditions, asset class correlations, and investment risks. We have enhanced our asset allocation methodology by utilizing our proprietary Macroeconomic Scenario Modeling. The conventional approach to asset allocation relies almost exclusively on Mean Variance Optimization which uses historic data, historic risk premiums, historic correlations, and past returns as the drivers of inputs. We know future returns are not driven by past returns and risk premiums fluctuate over time. To get around the limitation of GDP growth, inflation, and potential valuations that could occur during various economic scenarios.

Asset-Liability Modeling

Through our many years of experience performing asset-liability studies, we have developed a well-defined and structured approach in conducting these studies. It begins with the development of the study objectives. The next step in the process is an evaluation of the most recent actuarial valuation. We work specifically with the demographics of the fund's participants and our professionals start by interviewing the actuary to determine if there are any special issues that should be considered that are not readily apparent in their actuarial valuation. The third step is to begin modeling liabilities and assets. Based on liability files, we check the projections with the actuary employed by the client to make sure

that our results are consistent with their projections. The fourth step is to load our capital market assumptions into the model. These assumptions are developed annually and are used for all of our studies in any given year. Your consultant then applies your strategic objectives determined earlier. Different asset mixes are modeled using our proprietary Scenario Analysis and liability hedges are evaluated.

Quarterly Performance Measurement and Analysis

We utilize a proprietary performance measurement system to calculate client portfolio performance and provide the most relevant performance reports to our clients. Our system calculates and measures investment performance using a number of metrics including rate of return, peer group universe rankings, performance attribution, style analysis, as well as many other risk-based and comparative analytics.

Service Provider Search and Analysis

We have a highly evolved and well-defined process in place for selecting custodians and third party providers. At the same time, we have developed a methodology that is successful at analyzing third-party pricing and evaluating it against industry norms and comparable plans.

Customized Target Date Funds

We can design and implement target-date models for participant-directed plans to help participants with the decision making process, improve flexibility, and improve costs for plan participants. We use the existing mutual fund line-up in your plan to create funds aligned with expected retirement dates. Funds are rebalanced quarterly to reflect changing risk tolerances as participants near retirement. Participants simply elect the model closest to their target retirement date, contribute periodically, and we take care of critical decisions such as asset allocation modeling, investment option selection, rebalancing, and long-term investment strategy.

Discretionary and Non-discretionary Trading Assistance

This service removes administrative burden and ensures quick implementation. We can adapt the level of decision making and permissions to your comfort level. We manage funds in accordance with the investment policy statement, rebalancing on a discretionary or nondiscretionary basis. We advise on over \$44 billion in assets. As of March 2013, we manage over \$1.4 billion in discretionary and over \$728 million in non-discretionary assets.

Discretionary Service Offerings

As portfolios have become more complex and client governance challenges have become more apparent, the industry is looking for personnel that can credibly take over discretion, improve client governance practices, and serve as an outsourced investment team. Wurts & Associates saw this void and co-created KEI Investments, LLC in 2012 in order to meet this growing demand. KEI offers clients holistic investment solutions to manage all or a segment of their assets within agreed upon investment guidelines. Our services are complete custom solutions that appeal to a broad range of clients; from fiduciaries looking for full outsourcing as well as well-staffed investment teams looking to improve their governance and perspectives on risk.

CUSTOMIZATION

We tailor our services to fit our client's needs. You receive customized research projects, educational presentations, mid-cycle memos, topics of interest papers, asset class outlooks, and conference calls to keep you updated on significant events that may affect your plan. We develop customized tools to assist with implementing investment strategies in light of your unique risk framework.

It is important to evaluate risk on a variety of economic scenarios in addition to evaluating on a normal distribution of returns (as mean-variance optimization may dictate). This type of analysis provides more meaningful downside risk scenarios and educates staff and board members on reasonable expectations for an investment portfolio. Our consultants leverage our asset allocation and scenario modeling capabilities to develop a strategic cash management strategy that fits your objectives and priorities, including screening for socially responsible investing and environmentally friendly investing.

Our internally developed, proprietary performance measurement system can provide fully customizable reports to meet your demands. We do not charge additional fees to customize reports and we are not dependent on any outside supplier for this capability.

FEES & COMPENSATION

100% of our revenue comes directly from our plan sponsor clientele. Neither the Firm, nor any of its employees, receives compensation from any other source. We do not accept soft dollars, directed brokerage commissions, or engage in revenue sharing arrangements.

We negotiate fees prior to the inception of our service and take into consideration the complexity of the client's manager structure, the servicing requirements, and consultant time and travel expenses. Due to these variables, fee size may vary between clients who receive the same services. Clients may pay us by project, by service or on a full service retainer basis. Lower fees for comparable services may be available from other sources.

Non-discretionary clients pay a flat annual retainer fee, a percentage of assets, a fee per fund, hourly fees, or a combination of these. Discretionary clients pay a percentage of assets. All transaction, brokerage, and custodian fees are paid by the client directly to the custodian, broker, investment fund or investment manager. Please see the section labeled brokerage practices for further information. Projects outside of the scope of the retainer contract may be billed as a flat fee or an hourly fee.

We bill monthly or quarterly in arrears. We do not collect prepayment of fees from clients. Clients or Wurts may terminate services with 30 days written notice and terminate services, without penalty, within five business days of the date of the initial execution of a contract. Client fees can be paid by check, EFT, or direct debit.

PERFORMANCE-BASED FEES AND SIDE-BY-SIDE MANAGEMENT

We do not accept performance-based fees and do not have conflicts of interest related to side-by-side management.

TYPES OF CLIENTS

We serve a broad array of institutional investors including: endowments and foundations; public pension plan sponsors; corporate plan sponsors; non-profits; Taft-Hartley trusts; and select substantial net worth families.

METHODS OF ANALYSIS, INVESTMENT STRATEGIES, AND RISK OF LOSS

Non-discretionary Business

Assess

Thoroughly understanding the existing condition of your investment program is essential to a productive consulting relationship. This involves a continuous appraisal of the existing manager structure as well as an understanding of the rationale behind previous investment decisions. We try to understand the funding requirements of your assets, risk tolerances, and how the investment program fits into your strategic mission for the institution and the plan.

We look at each component of the investment portfolio, quantitatively assessing investment manager skill and evaluating their organizations from a qualitative perspective. The final component of the assessment of our consulting process is determining if the overall objectives of the client are in line with the existing manager structure.

Design

We introduce appropriate strategic solutions consistent with your objectives to improve upon the existing investment program. The practical application of our extensive macroeconomic and capital markets research comes into play here. We continually evaluate the appropriateness of the existing investment policy with special consideration given to the risk management language contained within the document. Another important issue considered is the application of passive management and index funds versus active management. While index funds lack the potential for excess returns, they do offer cost savings through reduced investment management fees.

We consider all possible fund options when designing the investment structure of the plan and recommend funds that provide the best opportunity for returns given the investment management fees and risk tolerance.

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We present expense management techniques to you during this phase of the consulting process. We also assess record keeping, transactional, custodial, and revenue sharing fee arrangements for potential cost savings.

Implement

We work with you to implement the decisions made during the Design Phase of the consulting process. Our manager research team identifies investment managers that fit your requirements. We use our experience to identify other appropriate vendors such as corporate co-trustees, commission recapture brokers, and transition managers.

Successful implementation does not end with the selection of an investment manager. Our professionals are experts at utilizing our buying power within the market to negotiate favorable fee arrangements and appropriate contract language. We work with new managers and the custodian to minimize transition costs associated with a change in investment managers.

Finally, we amend the investment guidelines to reflect the revised nature of the portfolio.

Evaluate

This is an ongoing process where we review the market environment, analyze the portfolio, and assess the various risks within the fund. You have access to our research and educational resources in a continuing effort to increase awareness of current fund management issues and increase your ability to effectively meet your fiduciary responsibility. We utilize our proprietary portfolio evaluation system that is linked to a reconciliation platform with leading custodial banks to provide the most timely and accurate information possible.

This final step leads back to the Assessment Phase of the consulting process. Successful fund sponsors continually seek improvement against the backdrop of changing circumstances. It is important that we are prepared to revisit previous investment decisions and proactively introduce new strategies and insights. Clients should be aware that even with in-depth portfolio analysis, implementation, and design, market factors are outside of anyone's control. These market factors affect the portfolio and the assets could lose value.

We take a long term approach to asset allocation, generally looking at decisions from a ten year perspective. We obtain capital market information such as index returns and characteristics from BNY Mellon. For comparative information versus similar portfolios, we subscribe to the BNY Mellon Trust Universe and the eVestment Alliance Style Universe. The BNY Mellon Trust Universe is made up of BNY Mellon, Northern Trust, and consulting firms from around the United States that pool performance data from their clients' custodial data. BNY Mellon maintains this pooled information.

We obtain information regarding the global macro-economic and market environment including issuer specific securities, market indices, mutual funds, and derivatives utilizing Bloomberg and eVestment

Alliance. We use the database of information in Bloomberg to monitor the economic and market environment; review and evaluate investment alternatives; and research characteristics of market indices and mutual funds. In addition to the research performed in Bloomberg, we use the eVestment Alliance database for screening purposes when identifying potential investment strategies. We also employ the eVestment Alliance database to monitor firm and strategy asset levels, investment team turnover, firm ownership and overall portfolio characteristics. We also gather data from Morningstar and Ibbotsen for various analyses. We use ex-ante covariance matrices and market data from BarraOne from MSCI to assist us in managing risk.

We work with you to determine the appropriate overall asset allocation model for your portfolio. This may involve investments in mutual funds, ETFs, index funds, and separately managed accounts that contain domestic and international equities, warrants, corporate debt securities, commercial paper, certificates of deposit, municipal securities, government securities, real estate, and alternative investments including hedge funds, single strategy limited partnerships, and private equity. We use an optimization model to determine what, in our opinion, is the best combination of these asset classes for you at a risk level that you are comfortable with. Using this data, we perform investment manager searches to select the most appropriate managers for each asset class.

Even with portfolio diversification, asset allocation, and a long term approach, investing involves risk of loss that you should be prepared to bear. The use of this optimization model does not guarantee future results, performance or a particular outcome.

Discretionary Business

Design

The first step in KEI's portfolio construction begins by designing a risk factor based diversified portfolio in consideration of the institution's liabilities, objectives, and risk tolerances. The primary market risk factor building blocks are interest rates, credit spreads, equity, inflation, and currencies. Step two encompasses our economic sensitivity analysis where the objective is to construct a portfolio for alternative economic environments: growth & prosperity, deflation, stagflation, and inflation. The third step protects against home country bias through geographical diversification. The last step in the diversification process is an assessment of the ex-ante return contribution where the objective is to reduce the portfolio's return reliance on price appreciation.

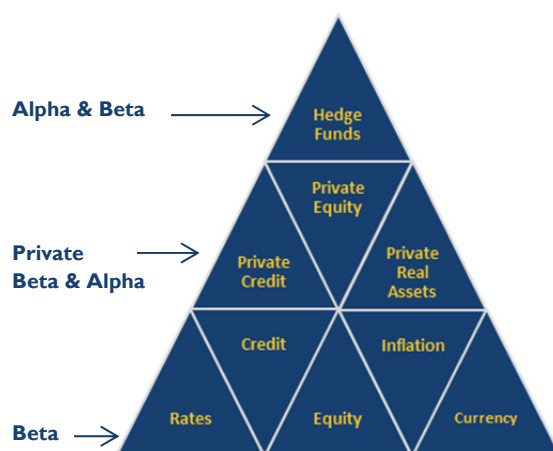
The final output is the Risk Benchmark, against which we will monitor and manage the actual portfolio. The Risk Benchmark is similar in concept to a policy's Strategic Asset Allocation; however, we are acutely aware that assets exhibit multiple risks and there is really no passive access to many private assets or investment strategies. Hence, it is virtually impossible to manage against a Strategic Asset Allocation benchmark that includes illiquid assets and strategies.

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With the Risk Benchmark as the compass, we then construct a model portfolio to incorporate valuation tilts. The model portfolio is then run through a series of risk tests to ascertain the extent of tail-risk, i.e. drawdown exposure. There may be instances where tail-risk hedging is appropriate given certain scenarios. Additionally, we will size the active risk budget to embody alpha producing and capital preservation strategies.

Implementation

Implementation is often overlooked and underappreciated. Our approach begins by assembling a foundation of passive and quasi-passive smart beta components. Why spend precious capital on the elusive search for long-only alpha, especially when the alpha is relatively small and fleeting? Instead we judiciously allocate fees to private assets and hedge strategies where historically there are greater alpha opportunities. Our goal is investing with managers with a risk-based investment philosophy, capital preservation track record and high level of personal integrity.



Risk of Loss

Portfolios designed to earn a higher return than short-term government treasury securities have the potential for loss. A 60% stock and 40% bond portfolios have exhibited losses greater than 30% from peak to trough. Our strategy reduces drawdown risk by building diversified portfolios, utilizing active risk budgeting and employing opportunistic tail risk hedging.

DISCIPLINARY INFORMATION

Wurts & Associates and its management have not been involved in any investment related legal or disciplinary events material to a client or prospective client including criminal or civil action, administrative proceeding before any regulatory agency, or self-regulatory organization proceeding.

OTHER FINANCIAL INDUSTRY ACTIVITIES OR AFFILIATIONS

Wurts does not receive compensation derived directly or indirectly from broker dealers, third party administrators or other outside financial service providers. Wurts does have a relying advisor called KEI Investments, LLC. All persons acting on the behalf of KEI are employees of Wurts. KEI is under joint management, operation, and registration as Wurts and maintains its investment advisory business in the same office location. The distinct company was formed to help differentiate the service product of the Strategic Partnership Program and create a retention strategy and ownership stake for key employees linked to the success of that entity. Wurts selects managers for its clients and KEI will manage client portfolios. This may create a conflict of interest. Wurts has responded to this potential conflict by creating policies and procedures to ensure that KEI services is not actively marketed to existing clients and all existing clients that select KEI as their investment advisor or money manager will be required to acknowledge in writing that the engagement was a result of a reverse inquiry on their part.

CODE OF ETHICS, PARTICIPATION OR INTEREST IN CLIENT TRANSACTIONS AND PERSONAL TRADING

As a matter of policy and practice, and consistent with industry best practices and SEC requirements, we follow a written Code of Ethics covering all supervised persons. Our Code of Ethics requires high standards of business conduct, compliance with federal securities laws, reporting and recordkeeping of personal securities transactions and holdings, reviews, and sanctions. It allows employees to maintain personal securities accounts provided any personal investing by an employee in any accounts in which the employee has a beneficial interest, including any accounts for any immediate family or household members, is consistent with our duty to our clients and consistent with regulatory requirements. Each advisory employee must identify any personal investment accounts and report all reportable transactions and investment activity on at least a quarterly basis to the firm's Compliance Officer.

As this is only a summary of our policy, we would be happy to furnish a complete copy of our Code of Ethics to any client or prospective client upon request.

We do not have material interest in funds that we recommend, buy or sell. We do not invest in securities, other than government related securities, that we recommend to clients. Personal securities transactions for our employees may be similar or inconsistent with the investment advice given to clients.

BROKERAGE PRACTICES

While the majority of our clients select their brokers or custodians, we will recommend a custodian or broker dealer based on your need for such services. We select broker dealers and custodians for our discretionary clients. We do not accept any direct or indirect compensation in connection with client transactions. Instead, we recommend specific custodian and broker dealers based on your need for such services. In choosing the custodians and brokers, we consider general reputation, size, activity within

the brokerage commission rebate business, and rebate rate. The broker-dealer and money manager retain the duty to ensure that the transaction costs (including price and commission per share) are competitive with those available to them through their brokerage channels. We cannot guarantee that execution costs charged by broker dealers recommended by us are lower than those which could be obtained in the marketplace by other broker dealers. Lower fees for comparable services may be available from other sources.

We review trade execution and fees periodically for trades we execute. We document the review. We do not receive commissions, soft dollars or other direct or indirect compensation for recommending a specific broker or custodian. We do not receive any portion of the trading fees.

Clients asset are managed in separate accounts with no aggregation with other client accounts.

REVIEW OF ACCOUNTS

Maintaining a continuous review of your investment policies is part of our holistic consulting process. Each part of the process functions with another in order to achieve your investment objectives and requirements. During the “Design” phase of our process, we review the policies in place, how those policies were developed, and we evaluate how it affects the implementation of your investment strategy. Taking a step back, our entire methodology enables us to properly understand your unique issues, design an intelligent strategy that matches your specific requirements, prudently implement investment decisions, and evaluate the investment program’s effectiveness on an ongoing basis.

Our process begins with the assessment phase where our professionals seek to understand past investment decisions as well as the soundness of your plan. In the design phase, we evaluate the current investment strategy against alternatives to find the most efficient means to achieve your plan’s overall objectives. We then implement the strategic allocation through the application of our due diligence and contract negotiation resources. Lastly, we evaluate the portfolio to make sure that all of the components of the portfolio are properly fulfilling their role. This Consulting Process is circular as our advice will change as the capital markets evolve and the circumstances confronting your plan change.

Consultants typically meet with clients to review their investment programs on a quarterly or semi-annual basis. More frequent meetings are called when specific issues or needs arise. These may include qualitative developments with a client's investment manager, or other issues pertinent to portfolios.

Our investment performance evaluation services assist you with satisfying your fiduciary responsibility of monitoring your portfolio's performance. The written analysis report presented contains general market data about the recent developments within the various capital markets. It also includes relevant plan structure information designed to monitor the adherence to investment guidelines and strategy.

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Our system evaluates the total fund and each individual component against the most appropriate passive benchmarks and peer group universes. The report contains risk measurements using standard deviation, performance in up versus down markets, beta, alpha and R2. Other analysis includes portfolio characteristics for each manager and attribution system that explains the sources of portfolio performance. Reports may be presented on a quarterly or semi-annual basis. Clients also receive monthly statements of activity and portfolio positions from their bank or broker/dealer custodian.

CLIENT REFERRALS AND OTHER COMPENSATION

We do not pay any third party for client referrals. We occasionally receive referrals from our investment management associates. Although these relationships do not affect our inclusion of money managers in client searches, they do represent a possible conflict of interest. However, we reject compensation from any source other than our clients.

CUSTODY

We may be deemed to have custody of client assets when we accept discretionary authority over client accounts and when we debit fees directly from client accounts. This service insulates our clients from the administrative burden of wiring funds to approved outside entities and processing payment of our fees. We do not directly take possession of account assets. Qualified custodians hold all client funds and provide account statements. We encourage you to review your custodian statements and compare them to the performance reporting we provide.

INVESTMENT DISCRETION

KEI's discretionary service offerings provide fiduciaries an integrated complete custom solution for managing all or a segment of their assets within agreed upon investment guidelines. Our services appeal to fiduciaries looking for full outsourcing as well as well-staffed investment teams looking to improve their governance and perspectives on risk.

First, we will design a portfolio through our proprietary risk factor methodology. Second, we will contrive a robust set of governance and investment policies for your organization. These policies are based on extensive research and experience from some of the world's leading experts.

Portfolios have become significantly more complex over the last 10-15 years, yet current practices regarding oversight have not adequately kept pace. Third, we will create a custom risk dashboard: Conventional wisdom still equates standard deviation to risk, which grossly underestimates the world of risks to monitor and manage. Our team includes global leaders in risk monitoring and risk management.

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The foundation of KEI's investment philosophy is built on three principles: risk, diversification and valuation. Our goal is to monitor and manage risks, as we believe it is unrealistic to manage returns. We also have found that there is no single-best measure of risk to focus on; investments need to be examined from various risk lenses.

Without a crystal ball to see the future, portfolios must be designed with "true" diversification. Most institutional portfolios exhibit little in the way of diversification; equity risk premium contributes 90% of the portfolio's overall risk, home country bias loads the portfolio with domestic assets, and the return opportunity is dominated by a growth and prosperity economic environment, i.e., low inflation and rising growth. This concept of "true" diversification will be critical throughout our client engagements.

Ultimately, the price you pay for an asset will have an impact on your return. Hence, we believe valuations matter and incorporate valuation tilts, opportunistic tail-risk hedging and active risk budgeting.

We assist some clients with the implementation of their investment policy and/or rebalancing of accounts on a non-discretionary or a discretionary basis. Discretionary clients sign a discretionary investment management agreement, designate us as the investment advisor with the broker-dealer, managers and custodian. This allows us to decide the funds to buy or sell, the amount of each fund bought or sold, the timing of the purchase, and the target allocation of the account in relation to the investment policy for the account. Discretionary authority also allows us to select the custodian or broker-dealer to be used and the authority to retain or terminate managers. Trades executed for discretionary clients can be done without discussion or authorization from the client.

For non-discretionary clients, we execute trades on behalf of clients with accounts on the Schwab institutional platform as a limited power financial advisor. Trades executed for non-discretionary clients are done as a limited power financial advisor and will only be placed upon receipt of a written authorization. This written authorization may be via email, fax, or letter. Trade orders are invalid if received via telephone or voice message. Upon receipt of written authorization, we implement trades as soon as reasonably possible but do not guarantee same-day execution. The timing of the trade is triggered by the written authorization of the client and market fluctuations may result in losses or increased price.

Discretionary and non-discretionary management are entirely voluntary and we will accommodate any reasonable authority or limitation you request.

ERISA clients that designate us as their advisor must add us as an additional insured on their ERISA bond and send a certificate of insurance to our Chief Compliance Officer. We only place trades in a few accounts on an infrequent basis. Therefore, we cannot typically aggregate or allocate trades. We will not assist clients with the purchase of securities issued in an initial public offering. We will not be liable to

clients for any loss resulting from an inaccurate or erroneous trade unless the loss is due to the gross negligence or intentional misconduct of Wurts or our employees.

VOTING CLIENT SECURITIES

We may accept voting responsibility for discretionary clients. As a matter of policy and as a fiduciary to our clients we vote proxies consistent with the best economic interests of our clients. We maintain written policies and procedures as to the handling, research, voting and reporting of proxy voting. Our policy and practice includes the responsibility to monitor corporate actions, receive and vote client proxies, disclose any potential conflicts of interest and maintain all relevant and required records.

In the absence of specific voting guidelines from the client, we vote all proxies from an issuer the same way for each client. Clients can place reasonable restrictions on our voting authority. We generally vote in favor of routine corporate housekeeping proposals such as the election of directors and selection of auditors. In reviewing proposals, we consider the opinion of management, the effect on management, the effect on shareholder value, and the issuer's business practices. We identify any conflicts of interest by reviewing our relationship with the issuer of each security to determine if any financial, business, or personal relationship exists. If a material conflict of interest exists, we will determine whether it is appropriate to disclose the conflict to the affected clients, to give the clients an opportunity to vote the proxies themselves, or to address the voting issue through other objective means such as voting in a manner consistent with a predetermined voting policy.

Specific information about our policies and procedures and the voting of proxies for your portfolio is available upon request to your consultant.

We will not vote proxies for non-discretionary clients. Clients will receive their proxies and other solicitations directly from their custodian or a transfer agent. We may provide opinions on how clients should vote their proxies but acknowledge that we may be unaware of all of the facts and circumstances that should be considered by a non-discretionary client.

FINANCIAL INFORMATION

After over a quarter of a century in business we are financially stable with measured growth throughout our history. We do not require or solicit prepayment of fees. We have not been the subject of a bankruptcy petition at any time and are not aware of any financial condition that is reasonably likely to impair our ability to meet contractual commitments to clients.

Part 2B of Form ADV
Brochure Supplement
April 10, 2013

This brochure supplement provides information about Wurts & Associates' supervised persons: William Wurts, Jeffrey MacLean, Shelly Heier, Jeffrey Scott, Scott Whalen, Max Giolitti, Omer Tareen, Scott Day, Anne Westreich, Annie Taylor, Brent Nelson, Jason Taylor, P. Bradley Ness, Victor Lee, Lorelei Chao, Edward Hoffman, Bryant Pierce, Michael Kamell, and Vincent Francom. You should have received a copy of that brochure. Please contact Angela Swensen, Chief Compliance Officer, if you did not receive Wurts & Associates' brochure or if you have any questions about the contents of this supplement.

Additional information about Wurts & Associates' supervised persons is available on the SEC's website at www.advisorinfo.sec.gov.



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BUSINESS EXPERIENCE

Our staff of 16 supervised persons includes six MBAs (Masters of Business Administration), one MFE (Master of Financial Engineering), one MS (Master of Science), 11 CFAs (Chartered Financial Analyst), two CAIAs (Chartered Alternative Investment Analyst), and one CPA (Certified Public Accountant)*. The average years with our firm is 8.5 years, while the average years of industry experience is 18.

William W. Wurts Chairman Yale University b. 1937 50 years experience	Jeffrey MacLean Chief Executive Officer BA, University of Washington MBA, University of Virginia b. 1965 25 years experience	Shelly Heier, CFA, CAIA President, Chief Operating Officer BA, University of Puget Sound b. 1976 15 years experience	Jeffrey Scott, CFA Chief Investment Officer BA, University of Idaho MBA, Central Michigan University b. 1965 21 years experience
Scott Whalen, CFA Executive Vice President BA, Wake Forest University MBA, University of So. California b. 1963 11 years experience	Massimiliano Giolitti Director of Risk Allocation BA, University of California MS, University of Washington b. 1967 15 years experience	Omer Tareen, CFA Director of Risk Management MFE, University of California MBA, Lahore University b. 1973 14 years experience	Scott Day, CFA Director of Fixed Income BS, George Mason University b. 1972 19 years experience
Anne Westreich, CFA Senior Consultant BS, California State University b. 1963 22 years experience	Annie Taylor, CFA Senior Consultant BS, Central Washington University b. 1981 10 years experience	Brent Nelson Senior Consultant BS, University of Montana b. 1972 12 years experience	Edward Hoffman, CFA Senior Consultant BS, Carnegie Mellon University MBA, Harvard Business School b. 1971 18 years experience
Jason Taylor Senior Consultant BA, Kingston University, UK b. 1970 15 years experience	P. Bradley Ness Senior Consultant BA, Washington State University b. 1958 30 years experience	Victor Lee Senior Consultant BA, Seattle University b. 1962 23 years experience	Lorelei Chao, CFA Consultant BA, Loyola University MBA, DePaul University b. 1970 16 years experience
Michael Kamell, CFA, CPA Senior Consulting Associate BA, UC Santa Barbara b. 1986 5 years experience	Vincent Francom, CFA, CAIA Senior Consulting Associate BA, University of Washington b. 1966 19 years experience	Bryant Pierce Consulting Associate BA, University of Washington b. 1979 8 years experience	

*Explanation of minimum qualifications for designation

Chartered Financial Analyst (CFA):

- Passing all three levels of CFA exam
- Pledge to adhere to the CFA Institute Code of Ethics and Standards of Professional Conduct
- Become member of local CFA Institute
- 4 years of qualified investment work experience

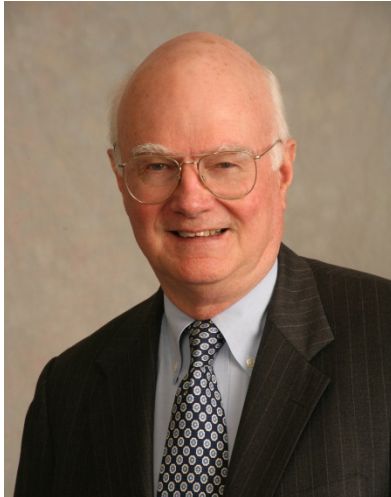
Chartered Alternative Investment Analyst (CAIA):

- Passing Level I and II of CAIA exam
- 1 year of professional experience and U.S. bachelor's degree or 4 years of professional experience.

Certified Public Accountant (CPA):

- Bachelor's degree and 150 semester hours
- Pass CPA exam
- 1-2 years in accounting under a CPA

BIOGRAPHIES



MR. WILLIAM W. WURTS

Chairman

Mr. Wurts, *Chairman*, Founder of Wurts & Associates, has been in the investment consulting business for over 50 years. Prior to establishing Wurts & Associates he worked for 23 years as a vice president in the institutional division of Merrill Lynch. In this capacity, Mr. Wurts and his team had the responsibility of providing ongoing consulting to over 50 major clients in the Pacific Northwest. He established Wurts & Associates in Seattle in January 1986 and the Los Angeles office in 1990.

Mr. Wurts has been a featured speaker at numerous meetings of the Western Pension Conference and the International Foundation of Health, Welfare & Pension Plans on subjects relating to institutional investing. Over the years he has also taught a number of investment courses through the Seattle Community College system. Mr. Wurts has served as a past president and a member of the Board of Directors of the Western Pension Conference. He is presently on the Board of Directors for the Seattle Chamber of Commerce and is also a member of the International Foundation of Employee Benefit Plans, the Rotary Club of Seattle, and the Rainier Club. Mr. Wurts received his BA from Yale University.



MR. JEFFREY MACLEAN

Chief Executive Officer

Mr. MacLean, *Chief Executive Officer*, joined Wurts & Associates in 1992. Mr. MacLean is primarily responsible for managing the firm and providing investment advice to several clients. With over 23 years of investment experience, he has longstanding consulting experience with all asset classes working with corporate defined benefit plans and defined contribution plans, public institutions, multi-employer trusts, endowments, and foundations.

Mr. MacLean chairs the firm's Management Committee and serves on Wurts & Associates' Research Advisory Committee which provides strategic guidance to the firm's research staff on the important issues affecting clients and vetting the research department's initiatives. Mr. MacLean often speaks at various investment forums regarding the macro-economic environment, asset allocation, risk management, alternatives, and industry trends. Prior to joining Wurts & Associates, Mr. MacLean was Vice President of Shurgard Realty Group, a real estate advisory firm. He also worked as a consultant for Arthur Andersen & Company.

Mr. MacLean currently volunteers for Children's Hospital of Los Angeles. As a former Trustee of the Providence Little Company of Mary Foundation, he served as chairman of the Finance Committee and Vice Chairman of the Board. He is currently a member of the Young Presidents Organization and Past Chair of the Golden West Chapter.

Mr. MacLean holds a Masters Degree in Business Administration (MBA) from the Darden School of Business and a Bachelors Degree in Business Administration (BBA) from the University of Washington. He served as student body president his senior year at the University of Washington.

**MS. SHELLY HEIER, CFA, CAIA****President, Chief Operating Officer**

Ms. Heier, *President & COO, Senior Consultant*, is primarily responsible for providing leading investment consulting services to a variety of clients, including charitable organizations, corporate retirement plans, and healthcare organizations. A shareholder of the firm since 2007, Ms. Heier is also an integral part of the firm's leadership, serving on the Wurts & Associates Management Committee and overseeing the firm's operations and Seattle-based consulting staff. Ms. Heier is a frequent speaker at industry conferences, where she has presented on a broad range of topics including capturing alpha from quantitative strategies and portfolio operational efficiencies.

Ms. Heier is a member of Wurts & Associates' Research Advisory Committee, providing strategic guidance to the firm's research staff on the important issues affecting clients and vetting the research department's initiatives. Ms. Heier joined Wurts & Associates in 2000 as a member of the Manager Research Group, and was responsible for investment manager and market research. She served as Director of Manager Research from 2002 to 2005. Prior to joining our firm, she worked as an analyst for a financial planning firm specializing in high net worth individuals.

Ms. Heier is active in numerous civic and industry groups, including the CFA Institute, CFA Society of Seattle, CAIA Association, Western Pension & Benefit Conference, and the Fred Hutchinson Cancer Research Center's Innovators Network. In 2012, the Puget Sound Business Journal recognized Ms. Heier's accomplishments by selecting her as a "40 Under 40" honoree.

Ms. Heier graduated from the University of Puget Sound with a Bachelor of Arts degree in Business and Public Administration with an emphasis in Finance and a minor in Economics. She received the Chartered Financial Analyst (CFA) designation in 2001 and the Chartered Alternative Investment Analyst (CAIA) designation in 2011. She is a member of CFA Institute, CFA Society of Seattle, and the Western Pension & Benefit Conference.



MR. JEFFREY SCOTT, CFA
Chief Investment Officer

Jeffrey Scott, *Chief Investment Officer*, joined Wurts & Associates in 2011. Mr. Scott is head of the firm's discretionary asset management division and oversees manager research. Wurts & Associates provides research-driven investment solutions that enable institutional investors to prudently discharge their fiduciary responsibility.

Prior to Wurts Mr. Scott held the position of Chief Investment Officer for the Alaska Permanent Fund's \$40 billion investment portfolio. During his tenure he led the Fund in adopting a risk-factor approach to asset allocation, along with the development of risk-based investment policy. Alaska was awarded the aiCIO Industry Innovation Award for 2010 and Institutional Investor Magazine awarded Jeff the 2011 Outstanding Industry Contribution Award for the Hedge Fund Industry.

As Assistant Treasurer at Microsoft Corporation he managed the capital market activities and a group of 30 professionals. Jeff's management responsibilities included \$80 billion global investment portfolio, \$10 billion foreign exchange hedging program, and \$60 billion capital distribution plan. His team developed an extensive array of asset allocation and risk management models to set the strategic and tactical investment and hedging strategies, which produced \$7 billion in value-add.

Mr. Scott holds a Masters Degree in Business Administration from Central Michigan University and a Bachelors Degree in Finance from the University of Idaho. He is a Chartered Financial Analyst, a member of the Long Term Investor Council of the World Economic Forum and was a 2011-2012 Visiting Scholar for Stanford University's Collaboratory for Research on Global Projects.



MR. SCOTT WHALEN, CFA

Executive Vice President, Senior Consultant

Mr. Whalen, *Executive Vice President and Senior Consultant*, serves primarily to provide high quality strategic investment advice and ensure his clients meet their long-term investment objectives. In addition, Mr. Whalen is a Wurts & Associates shareholder, as well as a key member of the Wurts & Associates leadership team; he sits on the Management Committee and oversees the Los Angeles consulting staff. Prior to joining Wurts & Associates, Mr. Whalen built a distinguished career in management consulting with McKinsey & Company and Ernst & Young, where he led corporate and public sector institutions to increase efficiency and improve operational performance. Through his vast experience working with multiple stakeholders across industries, Mr. Whalen has honed his ability to drive effective decision-making, often in challenging environments.

Mr. Whalen is a recognized speaker at industry conferences, where he has presented on a broad range of investment topics including asset allocation, alternative investing, investment manager oversight, attaining operational efficiencies in investment programs, the challenges and potential benefits of dynamic asset allocation, and the importance of maintaining a long-term perspective.

Mr. Whalen received a Bachelor of Arts degree in Economics from Wake Forest University and a Masters in Business Administration from the University of Southern California. He has received the Chartered Financial Analyst (CFA) designation and is a member of the CFA Institute and the CFA Society of Los Angeles.



MR. MASSIMILIANO GIOLITTI

Director of Risk Allocation

Mr. Giolitti, *Director of Risk Allocation*, joined Wurts & Associates in 2011 and has more than 15 years' experience in the financial industry. Prior to joining the firm, Mr. Giolitti was Director of Asset Allocation and Risk at the Alaska Permanent Fund Corporation and was also responsible for the External CIO program, the Absolute Return Portfolio and the Multi Asset Allocation Managers. Before Alaska Permanent, Mr. Giolitti worked in several roles in the Financial and Technology industries, including Chief Risk Officer of Tahoma Capital, Director of Quantitative Analysis and Group Risk Manager at Microsoft Corporation, Head of Research at Money Management Group, and Head of Product Management at GL Trade/FNX.

Mr. Giolitti is a frequent speaker at industry conferences, where he has presented on a broad range of topics from risk management to asset allocation.

Mr. Giolitti graduated from the University of California at Berkeley with a Bachelor of Arts with a double major of Physics and Mathematics. He also has a Master of Science in Applied Mathematics from the University of Washington.



MR. OMER TAREEN, CFA
Director of Risk Management

Mr. Tareen, *Director of Risk Management*, joined Wurts & Associates in 2012 and has more than 14 years of investment management experience. Prior to joining the firm, Mr. Tareen was Chief Investment Officer of Samba Capital, a bank headquartered in Riyadh Saudi Arabia where he was responsible for the team that managed \$9 billion in client assets across global equities, fixed income and real estate. Under his leadership, the bank restructured the asset management team, rationalized their investment solutions, upgraded risk management, and substantially improved performance.

Prior to working at Samba Capital, Mr. Tareen was a Group Portfolio Manager and Market Risk Manager at Microsoft. He was a member of the team responsible for the implementation of cross asset class overlay and tail risk hedging strategies on \$40-70 billion investment portfolio with exposures to global fixed income, global equities, currencies and commodities. He led the technological initiative to design and implement a risk and portfolio monitoring system which captured factor risk as well as risk originating from non-linear derivative instruments. Microsoft awarded Mr. Tareen the distinguished Microsoft Gold Award for the successful implementation of these initiatives. Prior to Microsoft Corporation, he spent 3 years with Engro Chemical (formerly Exxon) and British American Tobacco.

Mr. Tareen graduated from University of California at Berkeley with a Master of Financial Engineering. He also holds a Master of Business Administration in Finance from Lahore University of Management Sciences in Pakistan and a Bachelor of Engineering degree from the National University of Sciences and Technology in Pakistan. He also has the Chartered Financial Analyst (CFA) designation.



MR. SCOTT DAY, CFA

Director of Fixed Income

Mr. Day, *Director of Fixed Income*, joined Wurts & Associates in 2011. He has over 19 years of investment experience, most recently serving as Director of Fixed Income for Employees' Retirement System of Texas (ERST) managing the \$8 billion global fixed income portfolio. During his leadership at ERST, the fixed income portfolio consistently outperformed the benchmark over 1, 2, and 3 year timeframes. Prior to ERST, Mr. Day was on the fixed income investment team at Janus Capital and was the Director of Fixed Income for Tahoma Capital.

The foundation of Mr. Day's fixed income portfolio management experience was cultivated at the Microsoft Corporation (MSFT). While at Microsoft, he led the global fixed income team in the management of \$20 billion fixed income portfolio. Mr. Day designed the fundamental and economic research efforts and spear-headed the implementation of multiple front office risk related systems and processes and was a recipient of the Microsoft Gold Star Award, as recognition from senior management for his outstanding accomplishments. Prior to Microsoft, he spent four years in mortgage and asset-backed securities with Price Waterhouse and KPMG.

Mr. Day graduated from George Mason University with a Bachelor of Science in Accounting in and received the Chartered Financial Analyst (CFA) designation in 2001.



MS. ANNE WESTREICH, CFA

Senior Consultant

Ms. Westreich, *Senior Consultant*, provides a broad range of investment consulting services to clients to assist them in reaching their long-term investment goals. Prior to joining Wurts & Associates in 2006, Ms. Westreich was a Portfolio Manager/Analyst at Provident Investment Counsel and an Analyst at Hughes Investment Management Company. Ms. Westreich's 20 years of institutional investment management experience, analytical skill, and deep knowledge of financial markets help our clients meet the difficult challenges of developing and implementing an effective investment policy. Ms. Westreich's background within a plan sponsor provides a level of understanding into our clients' needs, while her portfolio management experience provides a unique perspective when analyzing investment managers. In addition to Ms. Westreich's consulting responsibilities, she also contributes to our research effort as a member of the Research Advisory Committee. Ms. Westreich is a shareholder of the firm.

Ms. Westreich received her Bachelor of Science degree in Finance from California State University Fullerton. She earned the Chartered Financial Analyst designation in 1995.



MS. ANNIE TAYLOR, CFA
Senior Consultant

Ms. Taylor, *Senior Consultant*, joined Wurts & Associates in 2003 as a Performance Analyst in the Seattle office. She transitioned to the Los Angeles office in 2005, where she now provides a broad range of consulting services to Wurts & Associates' clientele. Her areas of specialization include asset allocation, investment policy development, and transition management. A shareholder of the firm since 2009, Ms. Taylor contributes to the continued development of Wurts & Associates as a member of the firm's 401k Committee, as well as assisting in new business development efforts.

Ms. Taylor is a frequent speaker at industry conferences, including the International Foundation, Made in America, and the National Benefits Forum, where she has presented on a broad range of investment topics.

Ms. Taylor graduated Cum Laude from Central Washington University with a Bachelor of Science degree in Finance and a minor in Economics. She received the Chartered Financial Analyst (CFA) designation in 2007 and is a member of the CFA Institute and the CFA Society of Los Angeles.



MR. BRENT NELSON

Senior Consultant

For over 10 years Mr. Nelson, *Senior Consultant*, has worked with both ERISA and Non-ERSIA plan Fiduciaries providing proactive guidance with respect to risk management, asset allocation, manager analysis, and investment policy design. In addition to working with Taft-Hartley and Nonprofit clients Brent serves on the Wurts' 401(k) and Research Advisory Committees. As a member of the Firm's Research Advisory Committee Brent provides strategic direction to the Firm's research staff on important investment issues affecting client portfolios. Brent also serves as Wurts' consultant practice lead on custodial, transition management and alternative strategies such as commodities and hedge funds.

Mr. Nelson's work with institutional clients on Fiduciary constructs has provided him with the opportunity to speak at a wide array of industry conferences, where he has presented on a broad range of investment topics including asset allocation, alternative investing, active vs. passive investing, and the challenges and potential benefits of opportunistic investing.

Mr. Nelson holds a Bachelor of Science in Business Administration from the University of Montana. He is a member of the International Foundation, the Seattle Alternative Investment Association and the Western Benefits Pension & Benefits Conference.



MR. EDWARD HOFFMAN, CFA
Senior Consultant

Mr. Hoffman, *Senior Consultant*, has more than 18 years of experience providing a broad range of high quality services to institutional investors. Prior to joining Wurts & Associates, Mr. Hoffman served institutional clients at Causeway Capital Management and Legg Mason, Inc. In addition to his client service responsibilities at Legg Mason, Ed also served on the operating and valuation committees, led a variety of corporate development initiatives, and managed several mutual fund closures and launches. Ed's strong analytical skills and thoughtful approach to investing have allowed him to develop a robust understanding of the investment industry, which in turn helps our clients develop and execute effective investment policy. His background in retirement plan recordkeeping and administration provides an additional and valuable perspective on the needs of our Defined Contribution clients.

Mr. Hoffman earned a Bachelor of Science degree in Industrial Management with honors from Carnegie Mellon University and an MBA from the Harvard Business School. He is a CFA charter holder and member of the CFA Society of Los Angeles.



MR. JASON TAYLOR

Senior Consultant

Mr. Taylor, *Senior Consultant*, joined Wurts & Associates in 2010. He provides institutional clients with well-developed investment solutions and strategic advice built on his particular expertise in the areas of asset allocation and alternative investments. Prior to joining us, Mr. Taylor held positions as Chief Investment Officer and Managing Director for the Threshold Group in Gig Harbor, WA and New York, NY and as Managing Director and Client Advisor for Ashbridge Investment Management in Philadelphia, PA. As an investment professional and lead client advisor for the last 12 years, Jason has experience working with many foreign, public and philanthropic organizations, as well as private clients.

Mr. Taylor has significant experience working with foundations to integrate their mission into all areas of their investment portfolios. Mr. Taylor is the firm's subject matter expert on program-related investments (PRIs) and social responsible /ESG investing, having built a network of valuable contacts in this space, and having authored white papers and client educational sessions on these subjects. In his previous engagement with Threshold Group, Mr. Taylor worked closely with the Russell Family Foundation and a number of like-minded foundations in the region to collaborate on a new initiative to allocate a meaningful portion of their assets to PRIs. Mr. Taylor also has been a member of the Social Investment Forum since 2000.

Mr. Taylor attended Kingston University in London, England, graduating with honors in 1993. He earned a Bachelor of Arts in Economics and German and also studied a year in Konstanz, Germany while completing his degree.



MR. P. BRADLEY NESS

Senior Consultant

Mr. Ness, *Senior Consultant*, joined the firm in 2009. In addition to providing strategic advice to clients, Mr. Ness has responsibility for business development efforts of Wurts & Associates. Prior to joining the firm, Mr. Ness had a distinguished 26 year career with Columbia Management where he held various positions with responsibilities focused on marketing and client service, including Senior Vice President, Institutional Client Service. His experience includes advising corporations, foundations, municipalities and Taft-Hartley accounts on asset allocation, benchmark selection, guideline enhancements and product selection.

Mr. Ness earned a Bachelor of Arts degree in Business Administration with an emphasis in Finance from Washington State University.



MR. VICTOR LEE

Senior Consultant

Mr. Lee, *Senior Consultant*, serves his clients from Wurts & Associates' corporate headquarters located in Seattle, Washington. He joined Wurts & Associates in 1990 and has nearly twenty years of experience in the investment consulting industry. He currently works with a broad array of institutional clients, including corporate defined benefit and defined contribution plans, endowments and foundations, public funds, and Taft-Hartley funds. Mr. Lee is actively involved with his clients in the development of their strategic planning, including asset allocation and investment policy development, investment manager evaluation and selection, performance evaluation, continuing education, and the coordination of special projects.

Previously Mr. Lee was Wurts & Associates' Director of Manager Research. He was responsible for overseeing the evaluation and research of investment managers and coordinating the preparation of investment manager searches and the production of research reports. He originally joined the firm as an Analyst, but was promoted to Senior Analyst soon thereafter to manage the performance measurement group and the client reporting operations. Prior to joining Wurts & Associates, Mr. Lee was an associate supervisor in the operations group of the northwest subsidiary of Bank of America.

Mr. Lee is a graduate of Seattle University where he earned a Bachelor of Arts degree in Business Administration with an emphasis in Finance. He is a longstanding member of the Seattle Chapter of the Western Pension & Benefits Conference and is currently serving as a member of the Board of Directors.



MS. LORELEI CHAO, CFA

Consultant

Ms. Chao, *Consultant*, provides investment consulting services to a variety of clients, including corporate defined benefit and defined contribution plans, foundations, public funds and Taft-Hartley funds. Prior to joining Wurts & Associates in 2009, Ms. Chao was the Investment Officer at the Orange County Employees Retirement System, a \$6.5 billion public pension plan, where she had the opportunity to administer both the private and public markets portfolios during her five-year tenure. She started her career at William M. Mercer Investment Consulting, Inc. in Chicago as an Analyst and worked as an Investment Consultant with The Northern Trust Company prior to moving to Southern California. Ms. Chao's 14 years of experience in various aspects of institutional portfolio management provides a well-rounded perspective in understanding our clients' needs.

Ms. Chao graduated from Loyola University Chicago with a Bachelor of Business Administration and received a Master in Business Administration from DePaul University. She holds the Chartered Financial Analyst (CFA) designation and is a member of the CFA Institute and the CFA Society of Los Angeles.



MR. MICHAEL KAMELL, CFA, CPA
Senior Consulting Associate

Mr. Kamell, *Senior Consulting Associate*, joined the firm in 2010 to support the Los Angeles based consulting staff. Mr. Kamell incorporates Wurts' proprietary research in delivering exceptional service to our clients operating in the corporate, non-profit, and public spaces. Prior to joining Wurts & Associates, Mr. Kamell began his career in assurance services at PriceWaterhouseCoopers in San Francisco. As a Senior Associate at PwC, Mr. Kamell provided assurance over financial reporting for a wide variety of investment management clients ranging from mutual funds and fixed income managers to hedge and private equity funds. Additionally, Mr. Kamell has extensive experience with performance reporting in accordance with Global Investment Performance Standards (GIPS®).

Mr. Kamell graduated from the University of California at Santa Barbara with a Bachelor of Arts in Business Economics with an emphasis in Accounting. He holds the Certified Public Accountant (CPA) license and the Chartered Financial Analyst (CFA) designation, and is a member of the CFA Institute and the CFA Society of Los Angeles.



MR. VINCENT FRANCOM, CFA, CAIA
Senior Consulting Associate

Mr. Francom, *Senior Consulting Associate*, joined Wurts & Associates in 2011. He is responsible for providing in-depth research, analysis, and consulting support to the Seattle-based consulting team. He works with defined benefit plans, defined contribution plans, endowments and foundations, providing asset allocation studies, spending policy analysis and specialized research projects.

Mr. Francom has over 15 years of institutional investment management experience in various roles as both an equity analyst and a portfolio manager. Prior to joining Wurts & Associates, Mr. Francom was a Senior Equity Analyst & Co-Portfolio Manager with Safeco Insurance and most recently held a similar role with a startup investment management boutique. He began his investment career at First Interstate Bank (now Wells Fargo) as an equity research analyst.

Mr. Francom graduated from the University of Washington with a Bachelors of Arts degree in Business Administration with an emphasis in Finance. He holds the Chartered Financial Analyst (CFA) designation and the Chartered Alternative Investment Analyst (CAIA) designation, and is a member of the CFA Institute and the CFA Society of Seattle.



MR. BRYANT PIERCE

Consulting Associate

Mr. Pierce, *Consulting Associate*, joined Wurts & Associates in 2005 as an Analyst and now serves as a Consulting Associate supporting the Seattle based consulting team. In his current role, Mr. Pierce provides in-depth research and quantitative analysis including: asset allocation studies, transition management, custom glide path analysis, manager fee analysis, investment policy development, securities lending, and custodial searches. He currently works with a broad array of institutional clients, including corporate defined benefit and defined contribution plans, endowment & foundations, public funds and Taft-Hartley funds.

Mr. Pierce graduated from the University of Washington with a Bachelor of Arts degree in Economics. He is currently a Level I candidate in the Chartered Financial Analyst (CFA) Program.

DISCIPLINARY INFORMATION

Wurts & Associates and its supervised persons have not been involved in any legal or disciplinary events material to a client or prospective client including criminal or civil action, administrative proceeding before any regulatory agency, or self-regulatory organization proceeding.

ADDITIONAL COMPENSATION

We do not accept any revenue or compensation from any party other than our clients. Consulting staff compensation consists of a base salary plus two forms of incentive compensation. The first is based on client retention and development. The second is based on individuals' embodiment of the firm's values. Finally, we offer an ownership stake to key professionals that display exceptional contributions to our business success.

SUPERVISION

We value collaboration amongst our consultants to ensure that each client is receiving the most appropriate investment solutions. Supervision is shared by our two Executive Vice Presidents within each office so every consultant benefits from upfront and in-person coaching. Shelly Heier supervises our Seattle and Portland based consultants. Scott Whalen supervises our Los Angeles consultants. Part of their supervision includes quarterly meetings with consultants from their office to discuss current challenges and ensure harmonious approaches. Shelly and Scott are supervised by Jeffrey MacLean, our CEO.

While, these three professionals monitor the advice of each consultant, they rely on the standards and judgment of two other decision-making bodies within our firm. The Research Advisory Committee provides thought leadership and ensures consistency in all of our investment solutions while the Management Committee provides business leadership and directs strategic objectives.

Shelly may be reached at 206.622.3700. Scott and Jeff may be reached at 310.297.1777.

ACORD™

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

5/01/2013

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

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	PHONE (A/C, No, Ext): 410 771-3838	FAX (A/C, No): 410-527-7274
	E-MAIL ADDRESS: noby.powell@willis.com	
INSURED Wurts & Associates, Inc. 999 Third Avenue, Suite 4200 Seattle, WA 98104	INSURER(S) AFFORDING COVERAGE	
	INSURER A : HCC Global Financial Products L	
	INSURER B : Hartford Insurance Co	
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	
	NAIC #	
	B7860	
	914	

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	GENERAL LIABILITY						EACH OCCURRENCE \$
	☐ COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence) \$
	☐ CLAIMS-MADE ☐ OCCUR						MED EXP (Any one person) \$
							PERSONAL & ADV INJURY \$
							GENERAL AGGREGATE \$
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG \$
	☐ POLICY ☐ PRO-JECT ☐ LOC						\$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident) \$
	☐ ANY AUTO						BODILY INJURY (Per person) \$
	☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident) \$
	☐ HIRED AUTOS ☐ NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident) \$
							\$
	UMBRELLA LIAB						EACH OCCURRENCE \$
	EXCESS LIAB						AGGREGATE \$
	☐ OCCUR ☐ CLAIMS-MADE						\$
	DED ☐ RETENTION \$						\$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						WC STATUTORY LIMITS ☐ OTH-ER ☐
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ Y ☐ N						E.L. EACH ACCIDENT \$
	(Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE \$
							E.L. DISEASE - POLICY LIMIT \$
A	E&O Liability			24MG13A11514	05/01/2013	05/01/2014	\$10M Limit/\$200K Ret.
A	D&O Liability			24MG13A11514	05/01/2013	05/01/2014	\$7M Limit/\$200K Ret.
A	EPL Liability			24MG13A11514	05/01/2013	05/01/2014	\$7M Limit/\$50K Ret.

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Insurer A; Fiduciary Liability; Policy Number:24MG13A11514; Policy Term:05/01/2013 to 05/01/2014; Limits:\$2,000,000/\$10,000 Retention;

Insurer B; ERISA Bond; Policy Number:FI026936613; Policy Term:04/22/2013 to 04/22/2014; Limits:Per Plan Limit; Plan limit is equal to 10% of plan assets; or \$500,000(\$1,000,000 if the insured ERISA plan holds employer securities as defined in ERISA Section 407(d)(1). There is no deductible on an ERISA Bond.

CERTIFICATE HOLDER

CANCELLATION

For Information Purposes Only

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

P. Hall

Code of Ethics and Standards of Professional Conduct



SEATTLE | 206.622.3700

LOS ANGELES | 310.297.1777

www.wurts.com

CODE OF ETHICS AND STANDARDS OF PROFESSIONAL CONDUCT

Partners and employees of Wurts & Associates professionals must:

- Act with integrity, competence, dignity, respect, and in an ethical manner with the public, clients, prospective clients, employers, employees, colleagues in the investment profession, and other participants in the global capital markets.
- Practice the integrity of the investment profession and the interests of clients above their own personal interest.
- Use reasonable care and exercise independent professional judgment when conducting investment analysis, making investment recommendations, taking investment actions, and engaging in other professional activities.
- Practice and encourage others to practice in a professional and ethical manner that will reflect credit on themselves and the profession.
- Promote the integrity of, and uphold the rules governing, capital markets.
- Maintain and improve their professional competence and strive to maintain and improve the competence of other investment professionals.

I. Professionalism

- A. Knowledge of the Law. Employees must understand and comply with all applicable laws, rules, and regulations (including the CFA Institute Code of Ethics and Standards of Professional Conduct) of any government, regulatory organization, licensing agency, or professional association governing their professional activities. In the event of conflict, Employees Candidates must comply with the more strict law, rule, or regulation. Employees must not knowingly participate or assist in and must dissociate from any violation of such laws, rules, or regulations.
- B. Independence and Objectivity. Employees must use reasonable care and judgment to achieve and maintain independence and objectivity in their professional activities.

CODE OF ETHICS AND STANDARDS OF PROFESSIONAL CONDUCT

- Employees must not offer, solicit, or accept any gift, benefit, compensation, or consideration that reasonably could be expected to compromise their own or another's independence and objectivity.
- C. Misrepresentation. Employees must not knowingly make any misrepresentations relating to investment analysis, recommendations, actions, or other professional activities.
 - D. Misconduct. Employees must not engage in any professional conduct involving dishonesty, fraud, or deceit or commit any act that reflects adversely on their professional reputation, integrity, or competence.

2. Integrity of Capital Markets

- A. Material Nonpublic Information. Employees who possess material nonpublic information that could affect the value of an investment must not act or cause others to act on the information.
- B. Market Manipulation. Employees must not engage in practices that distort prices or artificially inflate trading volume with the intent to mislead market participants.

3. Duties to Clients

- A. Loyalty, Prudence, and Care. Employees have a duty of loyalty to their clients and must act with reasonable care and exercise prudent judgment. Members and Candidates must act for the benefit of their clients and place their clients' interests before their employer's or their own interests. In relationships with clients, Employees must determine applicable fiduciary duty and must comply with such duty to persons and interests to whom it is owed.
- B. Fair Dealing. Employees must deal fairly and objectively with all clients when providing investment analysis, making investment recommendations, taking investment action, or engaging in other professional activities.
- C. Suitability.

CODE OF ETHICS AND STANDARDS OF PROFESSIONAL CONDUCT

1. When Employees are in an advisory relationship with a client, they must:
 - a) Make a reasonable inquiry into a client's or prospective clients' investment experience, risk and return objectives, and financial constraints prior to making any investment recommendation or taking investment action and must reassess and update this information regularly.
 - b) Determine that an investment is suitable to the client's financial situation and consistent with the client's written objectives, mandates, and constraints before making an investment recommendation or taking investment action.
 - c) Judge the suitability of investments in the context of the client's total portfolio.
 2. When Employees are responsible for managing a portfolio to a specific mandate, strategy, or style, they must only make investment recommendations or take investment actions that are consistent with the stated objectives and constraints of the portfolio.
- D. Performance Presentation. When communicating investment performance information, Employees must make reasonable efforts to ensure that it is fair, accurate, and complete.
- E. Preservation of Confidentiality. Employees must keep information about current, former, and prospective clients confidential unless:
1. The information concerns illegal activities on the part of the client or prospective client.
 2. Disclosure is required by law.
 3. The client or prospective client permits disclosure of the information.

4. Duties to Employers

- A. Loyalty. In matters related to their employment, Employees must act for the benefit of their employer and not deprive their employer of the advantage of their skills and abilities, divulge confidential information, or otherwise cause harm to their employer.
- B. Additional Compensation Arrangements. Employees must not accept gifts, benefits, compensation, or consideration that competes with, or might reasonably be

CODE OF ETHICS AND STANDARDS OF PROFESSIONAL CONDUCT

expected to create a conflict of interest with, their employer's interest unless they obtain written consent from all parties involved.

- C. Responsibilities of Supervisors. Employees must make reasonable efforts to detect and prevent violations of applicable laws, rules, regulations, and the Code and Standards by anyone subject to their supervision or authority.

5. Investment Analysis, Recommendations, and Action

- A. Diligence and Reasonable Basis. Employees must:
 - 1. Exercise diligence, independence, and thoroughness in analyzing investments, making investment recommendations, and taking investment actions.
 - 2. Have a reasonable and adequate basis, supported by appropriate research and investigation, for any investment analysis, recommendation, or action.
- B. Communication with Clients and Prospective Clients.

Employees must:

- 1. Disclose to clients and prospective clients the basic format and general principles of the investment processes used to analyze investments, select securities, and construct portfolios and must promptly disclose any changes that might materially affect those processes.
 - 2. Use reasonable judgment in identifying which factors are important to their investment analyses, recommendations, or actions and include those factors in communications with clients and prospective clients.
 - 3. Distinguish between fact and opinion in the presentation of investment analysis and recommendations.
- C. Record Retention. Employees must develop and maintain appropriate records to support their investment analysis, recommendations, actions, and other investment-related communications with clients and prospective clients.

6. Conflicts of Interest

- A. Disclosure of Conflicts. Employees must make full and fair disclosure of all matters that could reasonably be expected to impair their independence and objectivity or interfere with respective duties to their clients, prospective clients, and employer. Members and Candidates must ensure that such disclosures are prominent, are delivered in plain language, and communicate the relevant information effectively.
- B. Priority of Transactions. Investment transactions for clients and employers must have priority over investment transactions in which an Employee is the beneficial owner.
- C. Referral Fees. Employees must disclose to their employer, clients, and prospective clients, as appropriate, any compensation, consideration, or benefit received from, or paid to, others for the recommendation of products or services.

7. Prohibition Against Use of Material Nonpublic Information and Insider Transactions

Wurts & Associates Inc., a registered investment advisor, hereafter referred to as the "Firm" has adopted the following policy and procedures for prevention of misuse and material, non-public information.

The Insider Trading and Securities Fraud Enforcement Act of 1988 requires every registered broker-dealer and also the Investment Advisors Act Section 204A requires every registered investment advisor to establish, maintain, and enforce written policies and procedures reasonably designed to prevent the misuse of material, non-public information by the Firm or any person associated with the Firm. In addition, the Act allows the imposition of penalties on "control persons" for violations of the Act by the Firm or persons associated with the Firm, if the Firm (i) knowingly or recklessly failed to supervise properly its employees and prevent insider trading; or (ii) failed to establish, maintain and enforce written policies reasonably designed to prevent illegal insider trading by the Firm and its employees and associated persons. The maximum amount of the penalty is the greater of \$1,000,000 or three times the amount of profit (or loss

CODE OF ETHICS AND STANDARDS OF PROFESSIONAL CONDUCT

avoided) on any illegal trade. Of course, even more serious is the embarrassment and damage to the Firm's reputation from being associated with an insider trading scandal.

Insider trading is generally defined as trading while in the possession of material non-public information regarding the security traded. Information is considered to be material if it is the type of information that a reasonable investor would consider important in deciding whether to buy or sell a particular security. Information is considered to be non-public if it has not been disseminated in a manner reasonably intended to reach the general investing public. Illegal insider trading also includes giving a "tip" to another person regarding material non-public information if it can be reasonably expected that the "tipper" might make improper use of such information. For advisors, this can also include confidential client information about securities positions, trading strategies, or investment trades, among other things.

It is the Firm's strict policy that no consultant or manager search team member shall trade on the basis of any material non-public information regarding any security, nor shall any consultant or manager search team member recommend to any client or person outside the Firm that they should do so. Because the Firm occasionally has knowledge of information of a sensitive or confidential nature, it is also the Firm's strict policy that no consultant or manager search team member shall disclose to any person outside the Firm any confidential information regarding the Firm or its clients.

Any consultant or manager search team member coming into possession of material non-public information shall immediately report such information to the Chief Compliance Officer (CCO). DO NOT DISCLOSE THE INFORMATION TO OTHER EMPLOYEES OR TO PERSONS OUTSIDE THE FIRM EXCEPT ON A NEED TO KNOW BASIS. The CCO shall monitor all trade tickets in the subject security for unusual activity, giving particular attention to trades in the accounts of consultants and manager search team members. If any activity is detected that may indicate improper use of material non-public information, the CCO of the Firm shall conduct such additional investigation and take such further action as shall be appropriate under the circumstances. In addition, the CCO shall maintain a file of all investigations of activity that may involve insider trading.

CODE OF ETHICS AND STANDARDS OF PROFESSIONAL CONDUCT

It is often difficult to ascertain whether a rumor or tip involves material non-public information. For this reason, it is also the Firm's policy that no consultant or manager search team member shall trade or recommend a trade on the basis of any unsubstantiated rumor or tip. Because of the severity of the sanctions associated with insider trading, all questions should be referred directly to the CCO. To do otherwise may subject the Firm and consultant or manager search team member to unnecessary risk.

In addition to insider trading based on information that may originate within the Firm (e.g., news of impending merger activity) the Firm must also take steps to detect improper trading based on information from outside sources (e.g., a hot tip about an impending takeover). For this reason, all consultant and manager search team member trades shall be reviewed quarterly by the CCO (or his designee). Reviewers should be alert to any past activity that involves securities that subsequently have issued major news releases. If necessary, Broadcort Capital, Pershing, or a successor can prepare computer runs detailing all trades in a subject security.

To insure that compliance personnel can effectively monitor trading consultants and manager search team members, all consultants and manager search team members and their immediate family members shall maintain their securities accounts with outside independent brokerage firms approved by the CCO (or his designee). All trades involving consultants and manager search team members shall be reviewed by the CCO (or his designee). In addition, monthly or quarterly statements of accounts of consultants and manager search team members shall be reviewed by the CCO (or his designee) on a periodic basis for indications of unusual activity or profits that may indicate insider trading.

Wurts & Associates may permit employees to purchase client stock but employees must first discuss the purchase with the CCO (or his designee). The employee must provide the CCO (or his designee) with a memo declaring that they have not received any insider information regarding the client. Only after the CCO (or his designee) has determined that the employee is not acting on insider information or creating a conflict of interests will an employee be allowed to purchase client stock.

CODE OF ETHICS AND STANDARDS OF PROFESSIONAL CONDUCT

It is impossible to determine in advance the manner in which the Firm will act with respect to any material non-public information that may come into its possession. The goal will be, in all circumstances, to limit the dissemination of such information except on a "need to know" basis. For this reason, it is imperative that the CCO be informed immediately of any information of a confidential or sensitive nature, so that a proper course of action can be formulated.

It is equally impossible to catalog every example of when the Firm may come into possession of material non-public information. The following examples are not all-inclusive:

- a) An impending merger or acquisition involving a publicly held corporation.
- b) A contemplated public offering involving a publicly held corporation, prior to the filing of a registration statement (preliminary prospectus).
- c) Unpublished earnings data obtained through our special relationship with the client (e.g., pension client).
- d) Advisory Client investment activities.

8. IPO or Private Placement Investments

Any investments in an IPO or private placements by an access person must be pre-approved by the CCO. This is designed to prohibit an access person from misappropriating an investment opportunity from a client for one's personal benefit.

9. Reporting of Violations

Any violation of the Code of Ethics should be immediately reported to the CCO.

CODE OF ETHICS AND STANDARDS OF PROFESSIONAL CONDUCT

ANY VIOLATION OF THE ABOVE POLICY WILL BE GROUNDS FOR DISCIPLINARY ACTION UP TO AND INCLUDING DISMISSAL AND MAY BE REFERRED TO THE S.E.C. OR THE N.A.S.D. FOR APPROPRIATE CIVIL OR CRIMINAL ACTION.

10. Review

This policy will be reviewed annually by the CCO.

Note: Wurts & Associates' Code of Ethics has been drawn from the Code of Ethics and Standards of Professional Conduct published by the CFA Institute.

PENSION FUND MISSION & RISK

November XX, 2012



SEATTLE | 206.622.3700
LOS ANGELES | 310.297.1777
www.wurts.com

INTRODUCTION

UNDERSTANDING THE IMPACT OF DRAWDOWNS

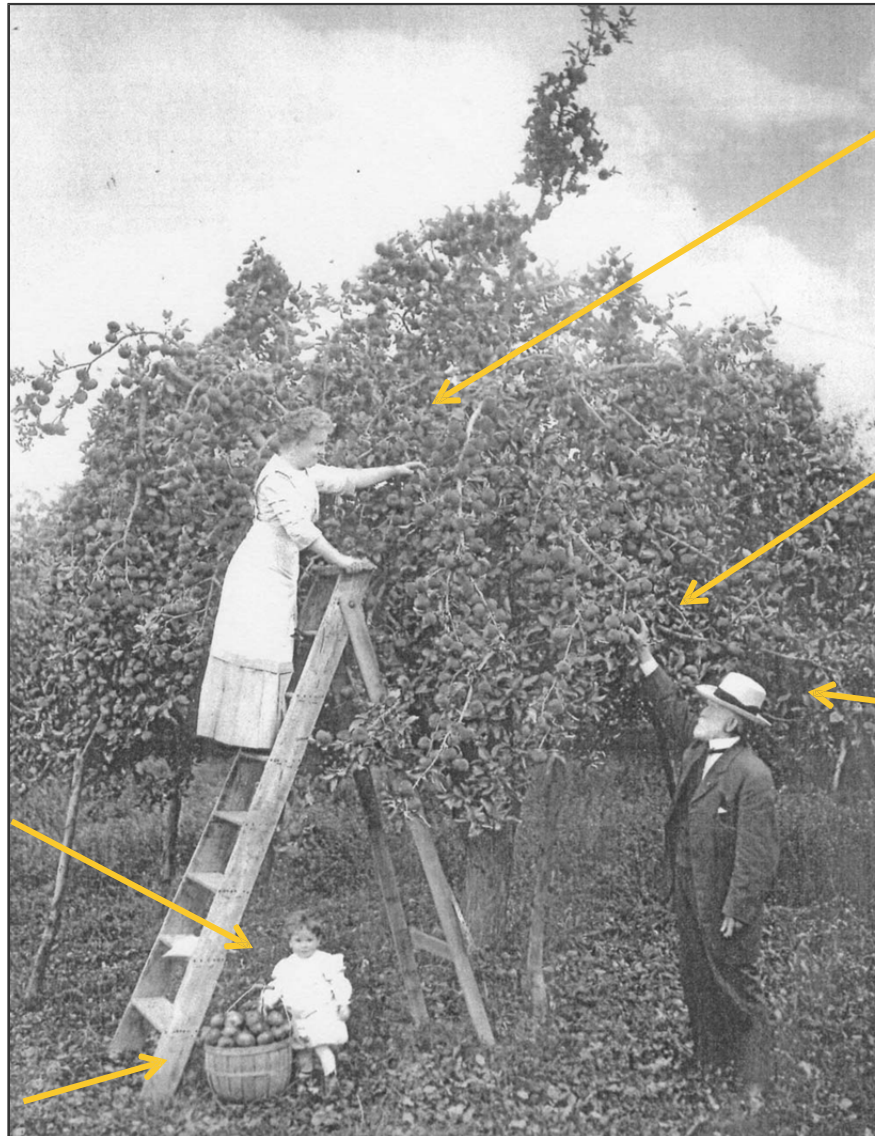
RISK DASHBOARD

DRAWDOWNS AND PLAN MATURITY

INTRODUCTION

**Risk
Management?**

Diversification?



Reaching for alpha
(alpha – higher returns
than market returns)

**Everyone's focused
on the search for
alpha**

**Beta – the low
hanging fruit**
(beta – market returns)

Source: Penrose, Colorado Chamber of Commerce. <http://www.penrosechamber.com/localinformation/history.aspx>

UNDERSTANDING THE IMPACT OF DRAWDOWNS

PROBLEM: LARGE DRAWDOWNS

Compound Return

- 10 Years at 10% return produces an annualized return of **10%**

What would be the annualized return if on the 10th year the portfolio experiences a -30% return?

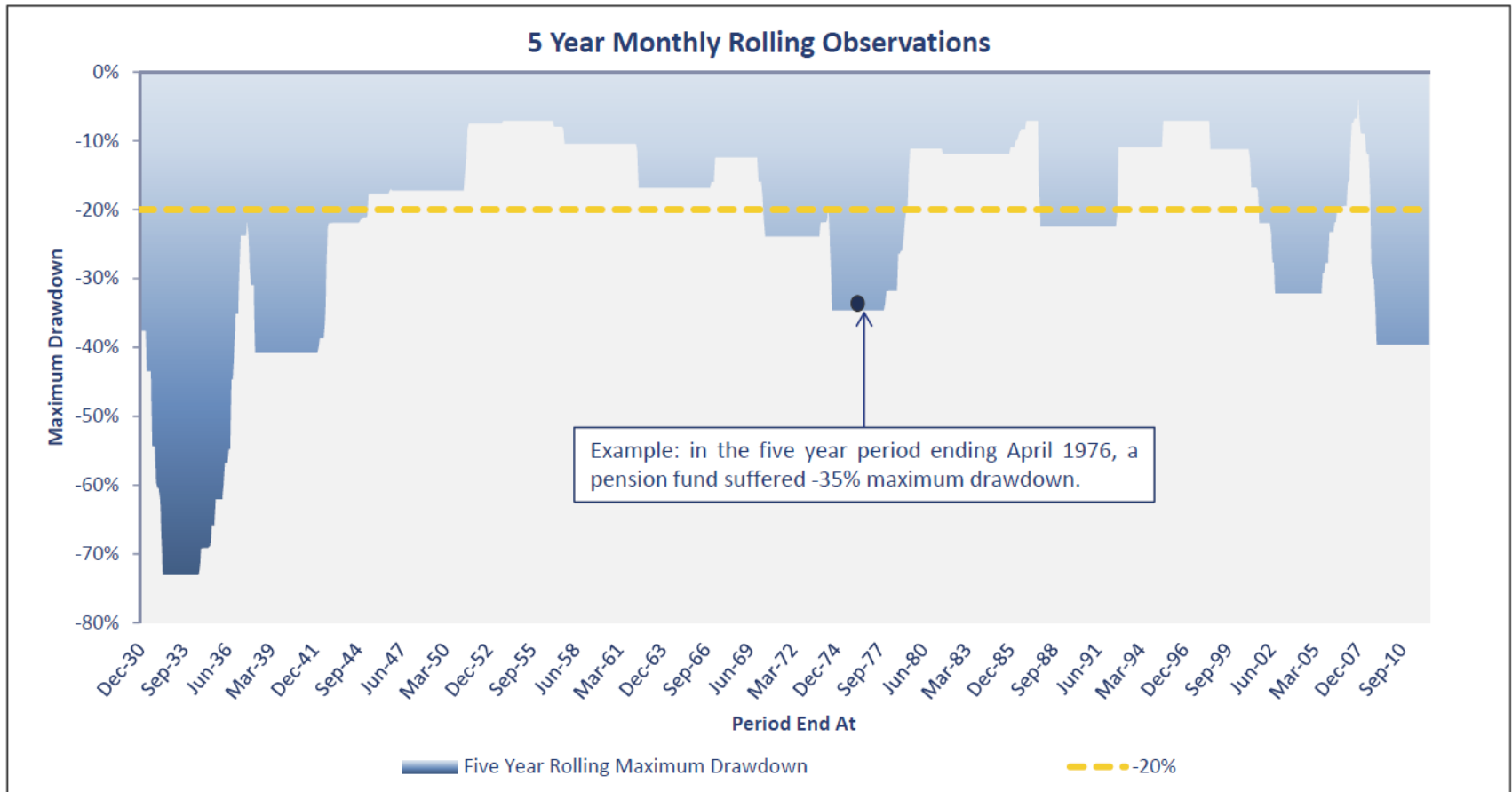
The Importance of Limiting Drawdowns

- 9 years at 10% return plus a one year return of -30% produces an annualized return of **5.14%**
- We constructed an hypothetical pension fund portfolio with a similar ex-ante market risk profile as the typical pension fund: ~14% annualized volatility

- The risk equivalent asset allocation for the typical pension fund is :
 - IA SBBI S&P 500: 78%
 - IA SBBI US Long Term Government: 11%
 - IA SBBI US Intermediate Term Government: 11%
- The time frame for this analysis is January 1926 - June 2012
- Maximum Drawdown was calculated on a rolling ten and five years basis:
 - Total 10 year monthly observations: 919
 - Total 5 year monthly observations: 979
- We also calculated the Maximum Drawdown for distinct (non-overlapping) five and ten years periods, starting January 1926
 - Total 10 year periods: 8
 - Total 5 year periods: 17

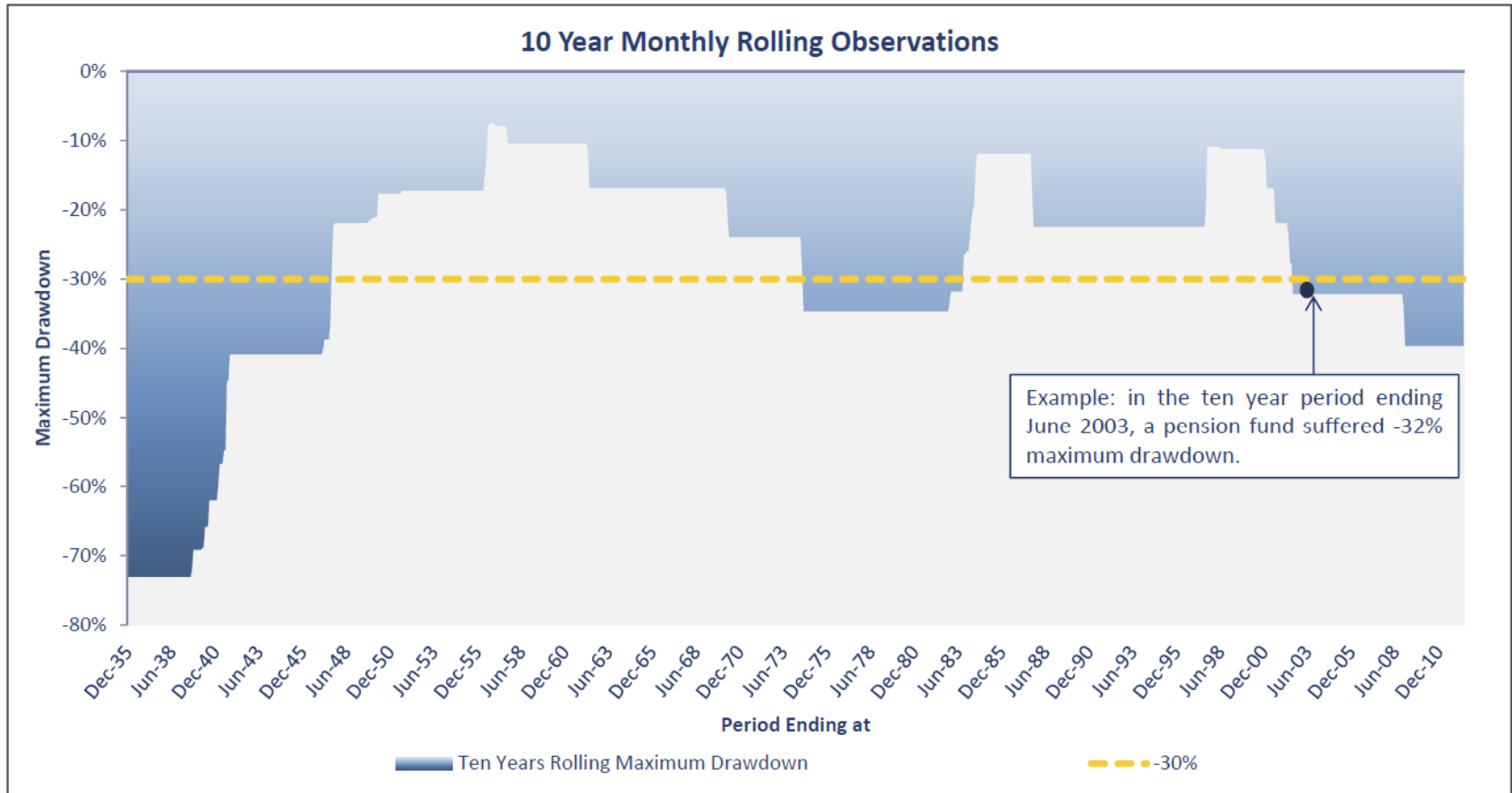
* Source for Asset Allocation- NACUBO (National Association of College and University Business Officers), Towers Watson, Compustat/FactSet, J.P. Morgan Asset Management. Allocation as of 12/31/2010

MONTHLY ROLLING FIVE YEARS MAXIMUM DRAWDOWN



Average Max Drawdown in a Five Year Period	-28%
Probability of Suffering a Drawdown of 20% in Any Five Year Period	40%

MONTHLY ROLLING TEN YEARS MAXIMUM DRAWDOWN



Average Max Drawdown in a Ten Year Period	-23%
Probability of Suffering a Drawdown of 30% in Any Ten Year Period	45%

CONSECUTIVE FIVE AND TEN YEAR PERIODS

5 Year Calendar Period (1928 - 2012)

Maximum Drawdown of	-5% or Lower	-10% or Lower	-15% or Lower	-20% or Lower	-25% or Lower	-30% or Lower
Number of Occurrences	16	14	10	8	5	5
Percentage of Total Time Periods	94%	82%	59%	47%	29%	29%
Average Time Period Between Occurrences	5	6	9	11	17	17

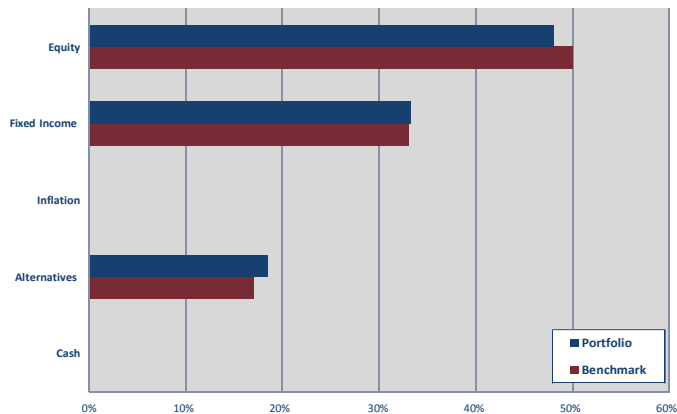
10 Year Calendar Period (1933 - 2012)

Maximum Drawdown of	-5% or Lower	-10% or Lower	-15% or Lower	-20% or Lower	-25% or Lower	-30% or Lower
Number of Occurrences*	8	8	8	6	4	4
Percentage of Total Time Periods	100%	100%	100%	75%	50%	50%
Average Time Period Between Occurrences	5	5	5	7	10	10

*Within distinct, non overlapping time periods

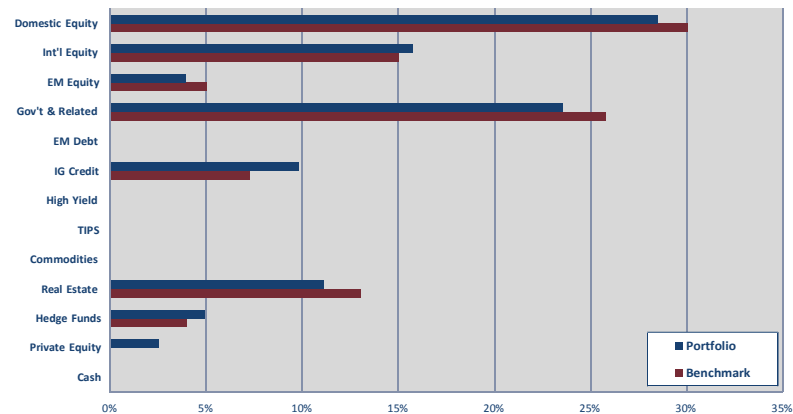
RISK DASHBOARD

Dollar Allocation



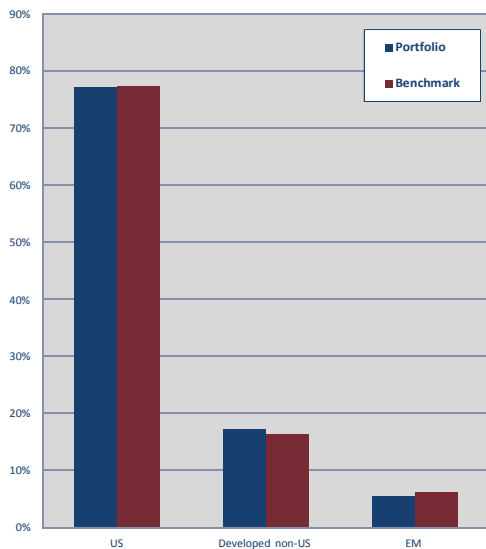
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Dollar Allocation Details



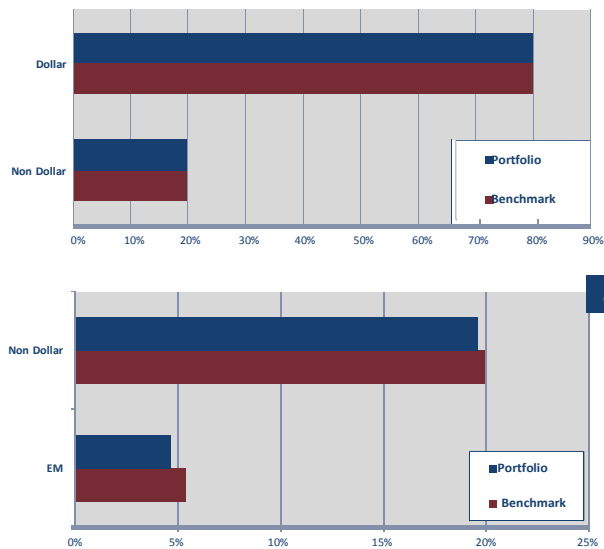
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Geographic Allocation



3

Currency Risk



4

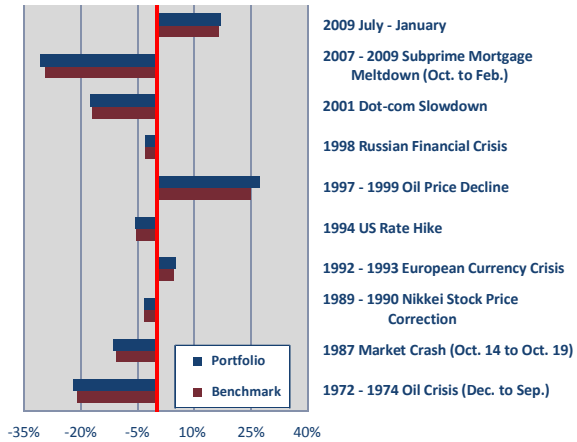
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Portfolio Benchmark

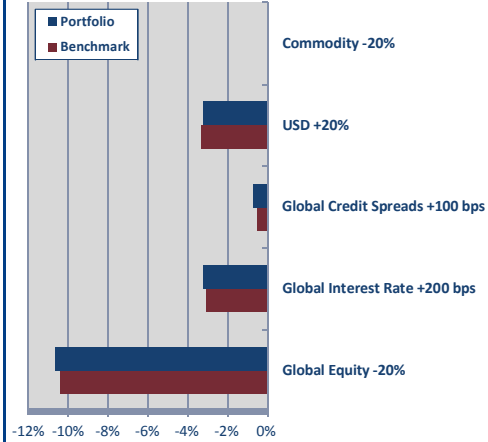
	Portfolio	Benchmark
Rate Duration	1.8	1.7
Spread Sensitivity	0.6	0.5
Portfolio Beta	1.0	N/A
Equity Beta	0.5	0.5
Annual Tracking Error	36bps	N/A
Monthly Tracking Error	10bps	N/A

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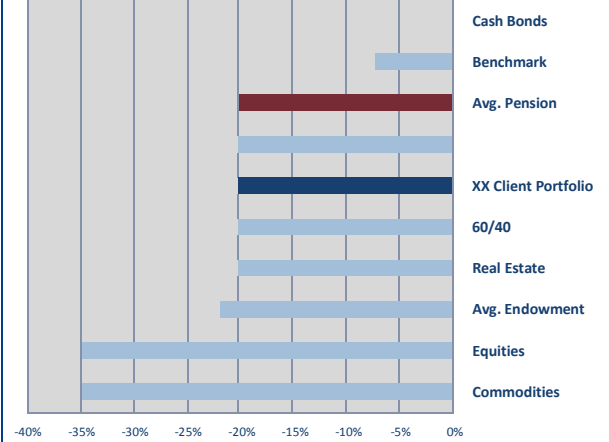
Tail Risk - Scenario Analysis



Tail Risk - Stress Testing



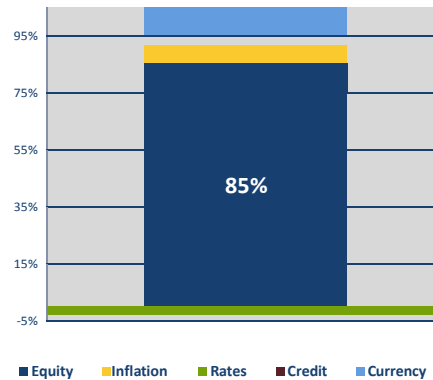
Relative Risk



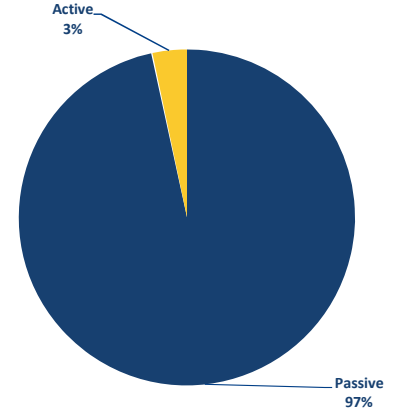
Portfolio Relative VaR



Risk Decomposition



Active Risk



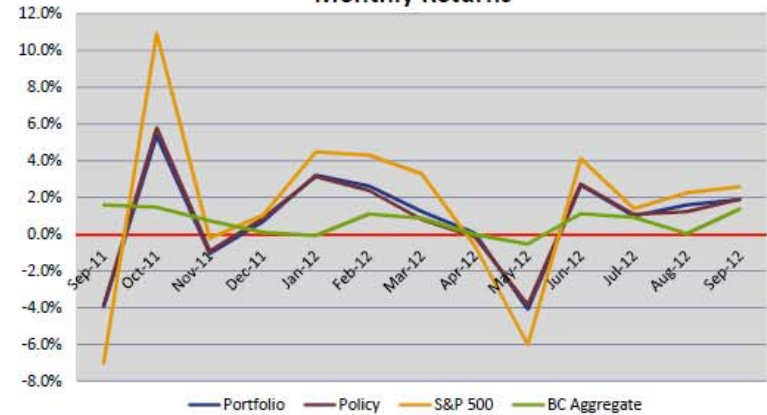
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Asset Allocation & Market Return Summary

		Asset Allocation			Market Returns				
		Portfolio	Benchmark	Difference	Current MTD	Prior 1 Month	Quarter to Date	Year to Date	1 Year
Equity	Domestic Equity	28.4%	30.0%	-1.6%	2.63%	2.50%	6.23%	16.13%	30.20%
	Int'l Equity	15.7%	15.0%	0.7%	2.99%	2.70%	6.98%	10.59%	14.33%
	EM Equity	3.9%	5.0%	-1.1%	6.05%	-0.29%	7.89%	12.33%	17.33%
Rates	Gov't & Related	23.5%	25.7%	-2.2%	0.14%	0.07%	1.58%	3.99%	5.16%
	EM Debt	0.0%	0.0%	0.0%	1.47%	1.16%	6.76%	14.71%	20.59%
Credit	IG Credit	9.8%	7.3%	2.5%	0.60%	0.21%	3.54%	8.25%	10.09%
	High Yield	0.0%	0.0%	0.0%	1.39%	1.17%	4.53%	12.13%	19.37%
Inflation	TIPS	0.0%	0.0%	0.0%	0.51%	-0.29%	2.12%	6.25%	9.10%
Alternatives	Commodities	0.0%	0.0%	0.0%	1.71%	1.30%	9.69%	5.63%	5.99%
	Real Estate	11.1%	13.0%	-1.9%	0.89%	0.89%	2.70%	5.47%	12.43%
	Hedge Funds	4.9%	4.0%	0.9%	0.82%	0.76%	2.37%	3.38%	2.89%
	Private Equity	2.5%	0.0%	2.5%	2.83%	2.71%	6.85%	18.18%	32.70%
	Cash	0.0%	0.0%	0.0%	0.01%	0.01%	0.04%	0.08%	0.09%

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Monthly Returns



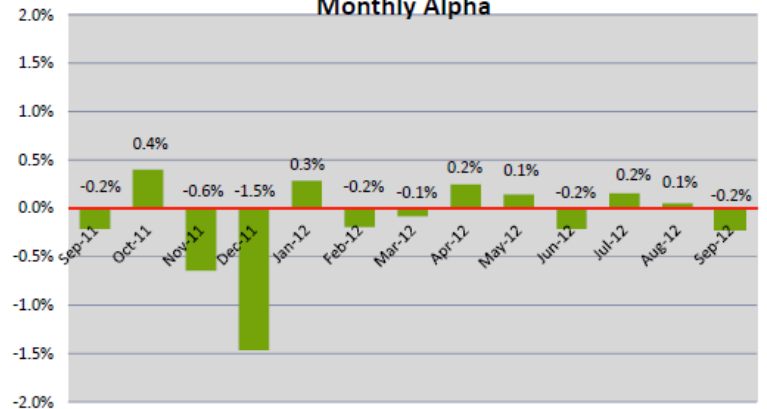
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Attribution Summary

		Current MTD	Prior 1 Month	Quarter to Date	Year to Date	1 Year
Equity	Domestic Equity	-0.04%	-0.04%	-0.10%	-0.25%	-0.47%
	Int'l Equity	0.02%	0.02%	0.05%	0.07%	0.10%
	EM Equity	-0.07%	0.00%	-0.09%	-0.14%	-0.19%
Rates	Gov't & Related	0.00%	0.00%	-0.04%	-0.09%	-0.12%
	EM Debt	0.00%	0.00%	0.00%	0.00%	0.00%
Credit	IG Credit	0.02%	0.01%	0.09%	0.21%	0.26%
	High Yield	0.00%	0.00%	0.00%	0.00%	0.00%
Inflation	TIPS	0.00%	0.00%	0.00%	0.00%	0.00%
Alternatives	Commodities	0.00%	0.00%	0.00%	0.00%	0.00%
	Real Estate	-0.02%	-0.02%	-0.05%	-0.10%	-0.24%
	Hedge Funds	0.01%	0.01%	0.02%	0.03%	0.03%
	Private Equity	0.07%	0.07%	0.17%	0.45%	0.82%
Returns	Portfolio	1.75%	1.36%	4.48%	9.70%	16.06%
	Policy	1.77%	1.32%	4.42%	9.52%	15.87%
	Fund Alpha	-0.01%	0.04%	0.06%	0.19%	0.19%

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Monthly Alpha



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Definitions

1. Portfolio and benchmark dollar allocation among major asset classes.

2. Portfolio and benchmark dollar allocation among asset sub-classes.

3. Portfolio and benchmark geographic allocation among major regions.

4. Portfolio and benchmark currency exposure between dollar and non-dollar.

5. Portfolio and benchmark currency exposure between non-dollar and emerging markets currencies.

6. Major portfolio and benchmark characteristics:

Rate Duration is the sensitivity of the portfolio to a 100 basis point change in the interest rates.

Spread Sensitivity is the sensitivity of the portfolio to one-standard deviation change in the spreads.

Portfolio Beta is the relative volatility of returns earned from holding the portfolio compared to the benchmark.

Equity Beta is the relative volatility of returns earned from holding the portfolio compared to the broad equity market.

Tracking error is a measure of how closely a portfolio follows its benchmark. It is usually the standard deviation of the difference between the portfolio and benchmark returns. Tracking error is annualized. An index fund would have a tracking error close to zero.

Monthly tracking error is calculated by dividing annual tracking error by the square root of 12.

7. Performance of portfolio and benchmark under various historical scenarios. For each historical scenario, portfolio is subject to the corresponding changes of multiple market factors observed over the given time horizon. Total portfolio market value is recalculated to determine total portfolio return over the given scenario time horizon. Extreme events could not be defined or modeled by statistical models.

8. Performance of portfolio and benchmark under various one-risk-factor stress tests. Directly affected asset classes are revalued at the factor levels. Total portfolio return is calculated for each hypothetical stress test. Extreme events could not be defined or modeled by statistical models.

9. Relative riskiness of various portfolios on a total portfolio level under normal market conditions. The chart shows portfolio drawdown if returns move more than two standard deviations from the mean (5% probability if normal distribution is assumed, 2.5% probability of negative event).

10. Portfolio historical relative VaR versus benchmark. Value at Risk (VaR) is a measure of the risk of loss for a given portfolio, probability and time horizon. A portfolio with higher relative VaR will exhibit a larger drawdown over the same time horizon. Positive portfolio relative VaR means that portfolio is riskier than benchmark. VaR marks a boundary between normal market conditions and extreme events.

11. Current volatility contribution by risk factor for the total portfolio. Volatility is a measure for variation of price of a portfolio or financial instrument over time.

12. Allocation of risk between active and passive. Active risk is the risk attributed to the deviation of the portfolio from the benchmark. Passive risk is the risk associated with the volatility of the benchmark.

13. Portfolio and benchmark asset allocation by asset classes as of 9-30-2012 and market returns represented by major indices. All returns are as of 9-30-2012. Green color indicates the highest relative return over corresponding time period. Red color indicates the lowest relative return over corresponding time period.

14. Portfolio, policy and S&P 500 actual monthly returns.

15. Attribution summary (allocation of fund alpha) by asset class. Calculations are based on portfolio and benchmark market values as of 9-30-2012 and market returns represented by major indices. Green color indicates the highest relative return over corresponding time period. Red color indicates the lowest relative return over corresponding time period.

16. Monthly alpha (difference between portfolio and policy performance). All monthly returns are actual.

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Figure 1. Cash flow pattern for the young (left) and old fund (right)

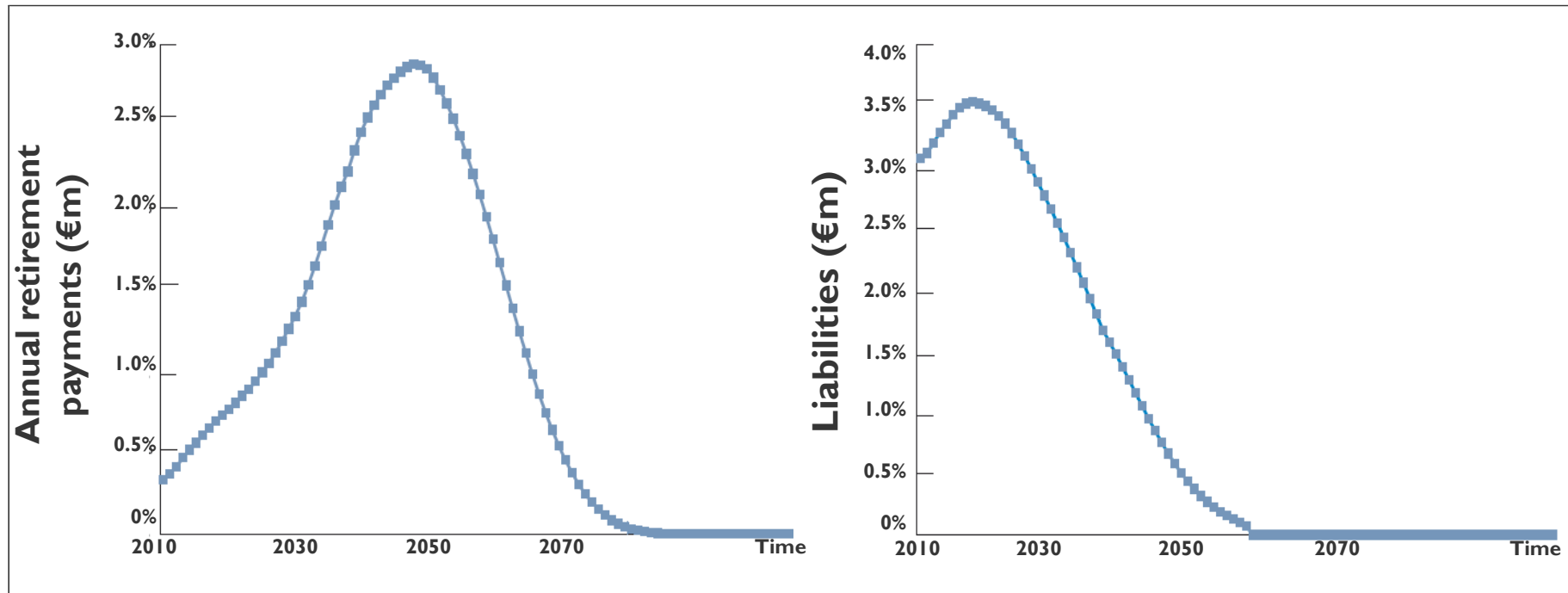


Figure 2. Development of young fund's funding ratio (one-off shock in 2020; 'ideal' recovery with a risk premium of 3%)

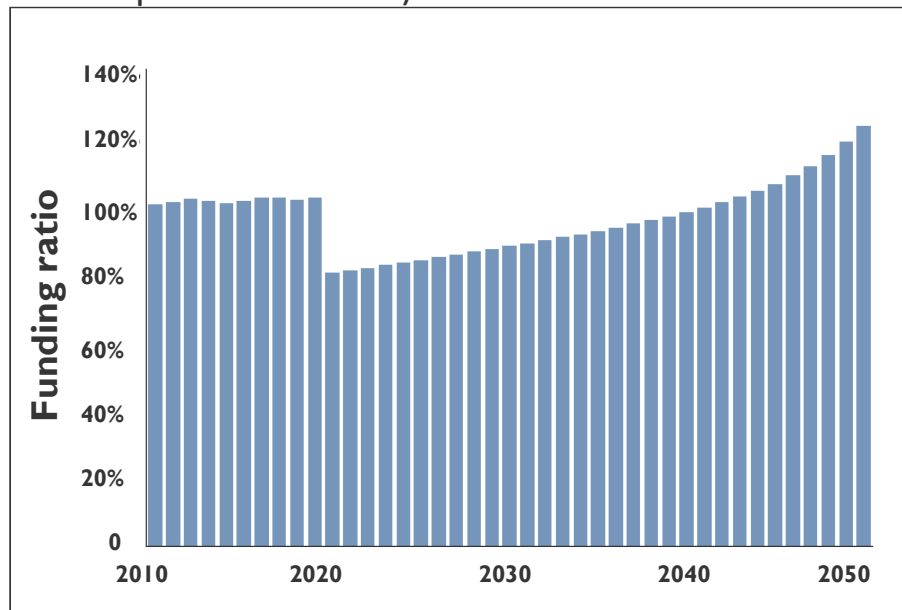


Figure 3. Development of old fund's funding ratio (one-off shock in 2020; 'ideal' recovery with a risk premium of 3%)

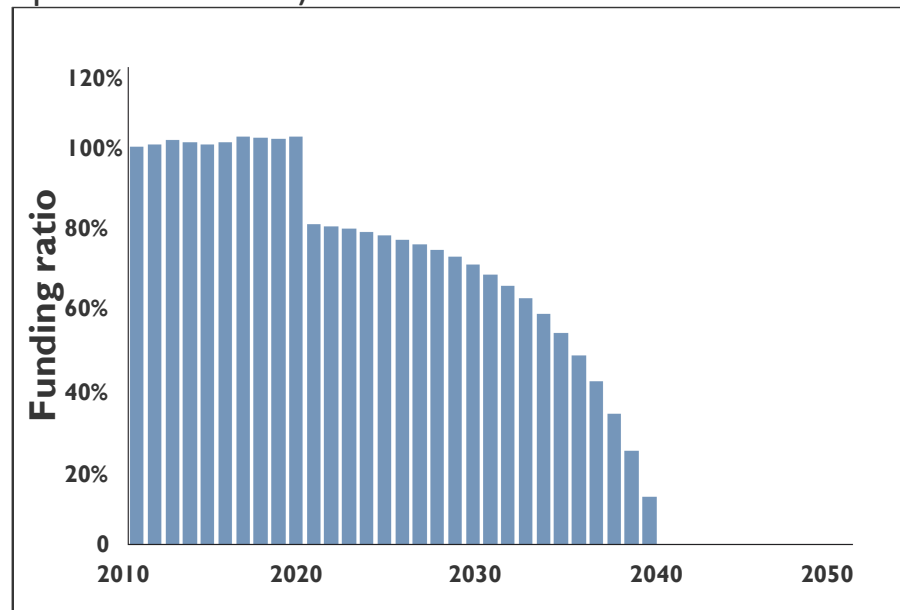
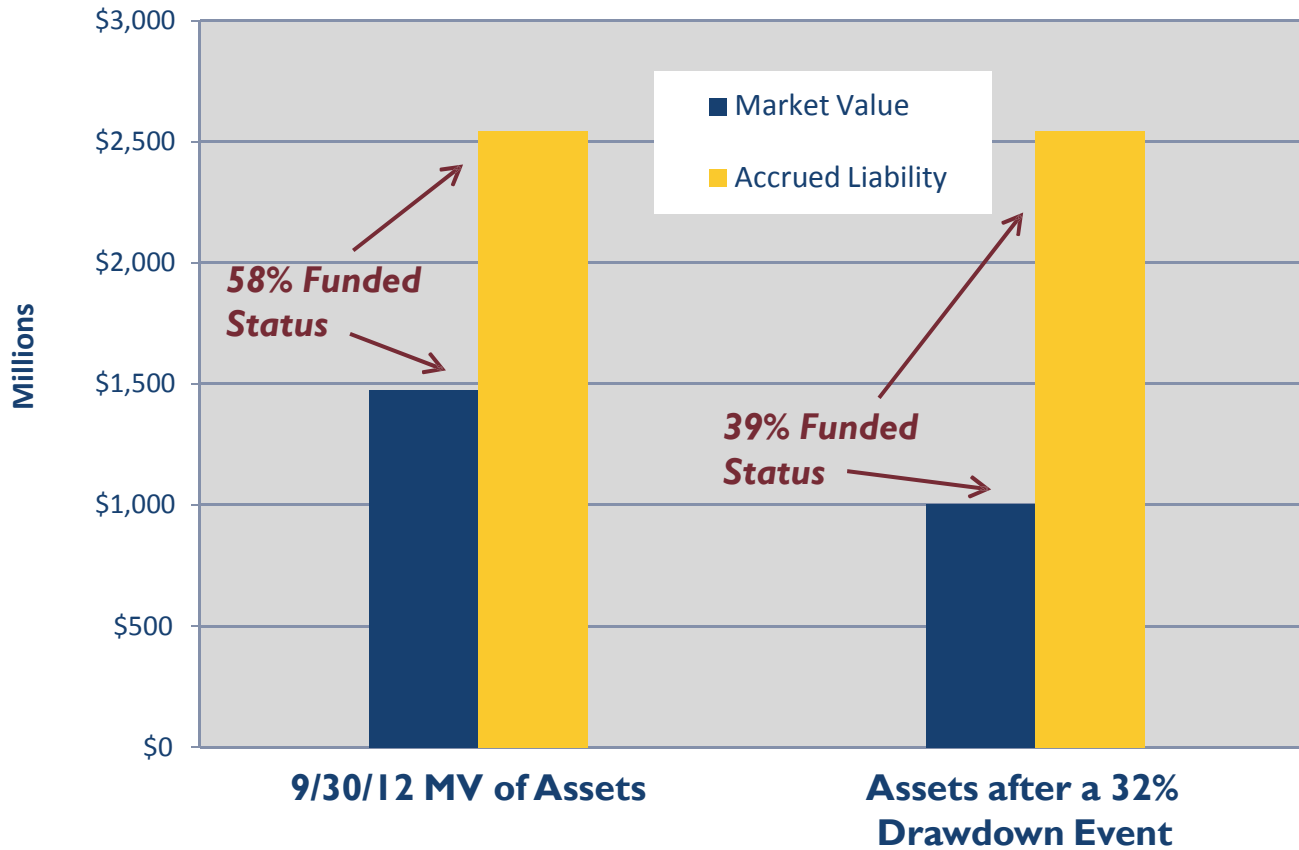


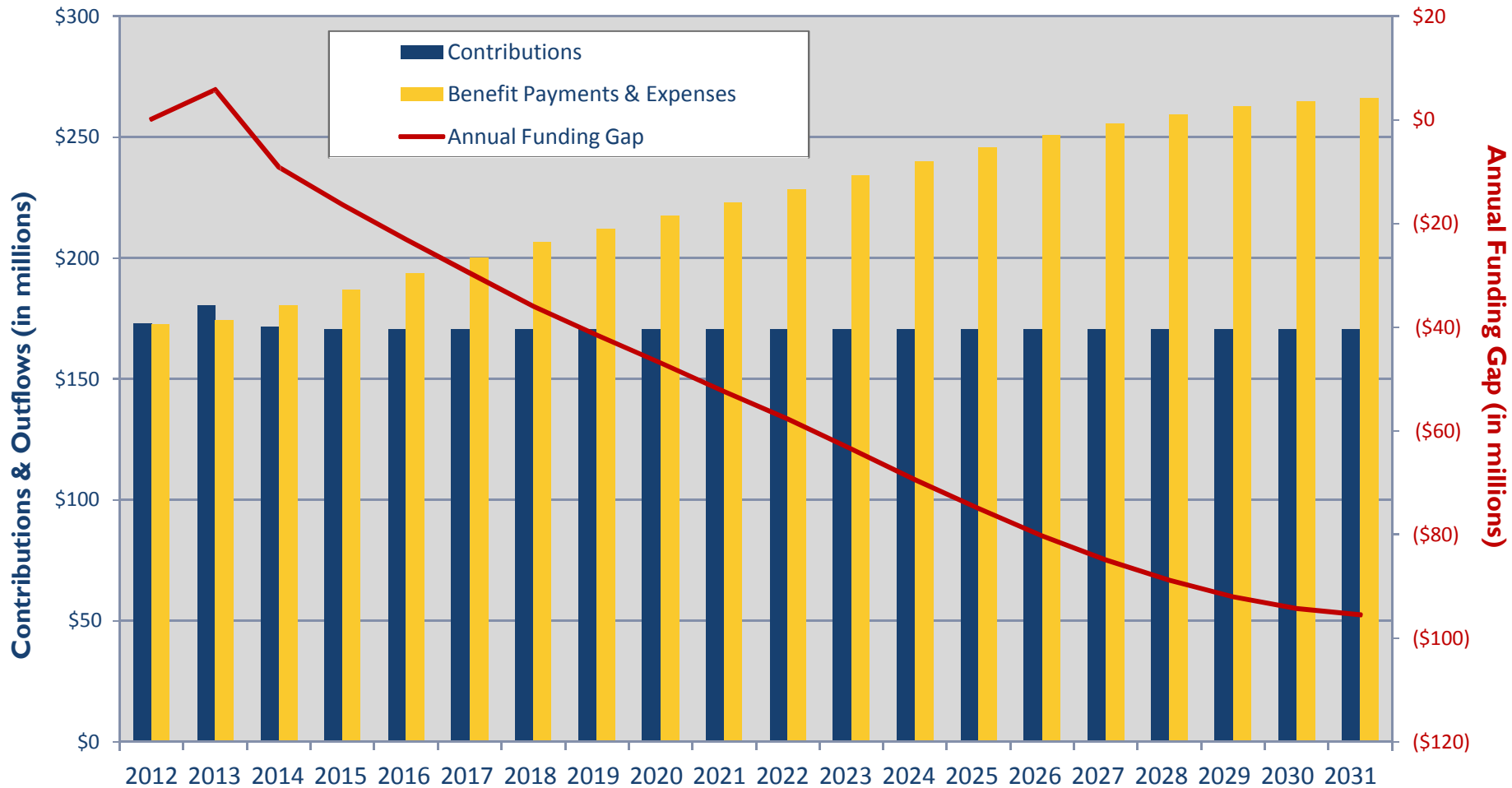
Table 1. Decline in funding ratio of old fund due to a one-off shock in 2020

		After how many years will the funding ratio sink to:		
		50%	25%	0%
If the funding ratio in 2020 sinks to:	80%	15 years	18 years	20 years
	70%	8 years	12 years	14 years

Impact of Large Drawdown



Contributions vs. Outflows: Next 20 Years



Forecasts provided by Segal using actuarial status certification as of June 1, 2012. Assumes contribution rate of \$8.39/hour from July 1 2012 through July 1, 2014, and \$7.94 thereafter. Assumes 21 million hours in 2012-2013 and 21.5 million thereafter.