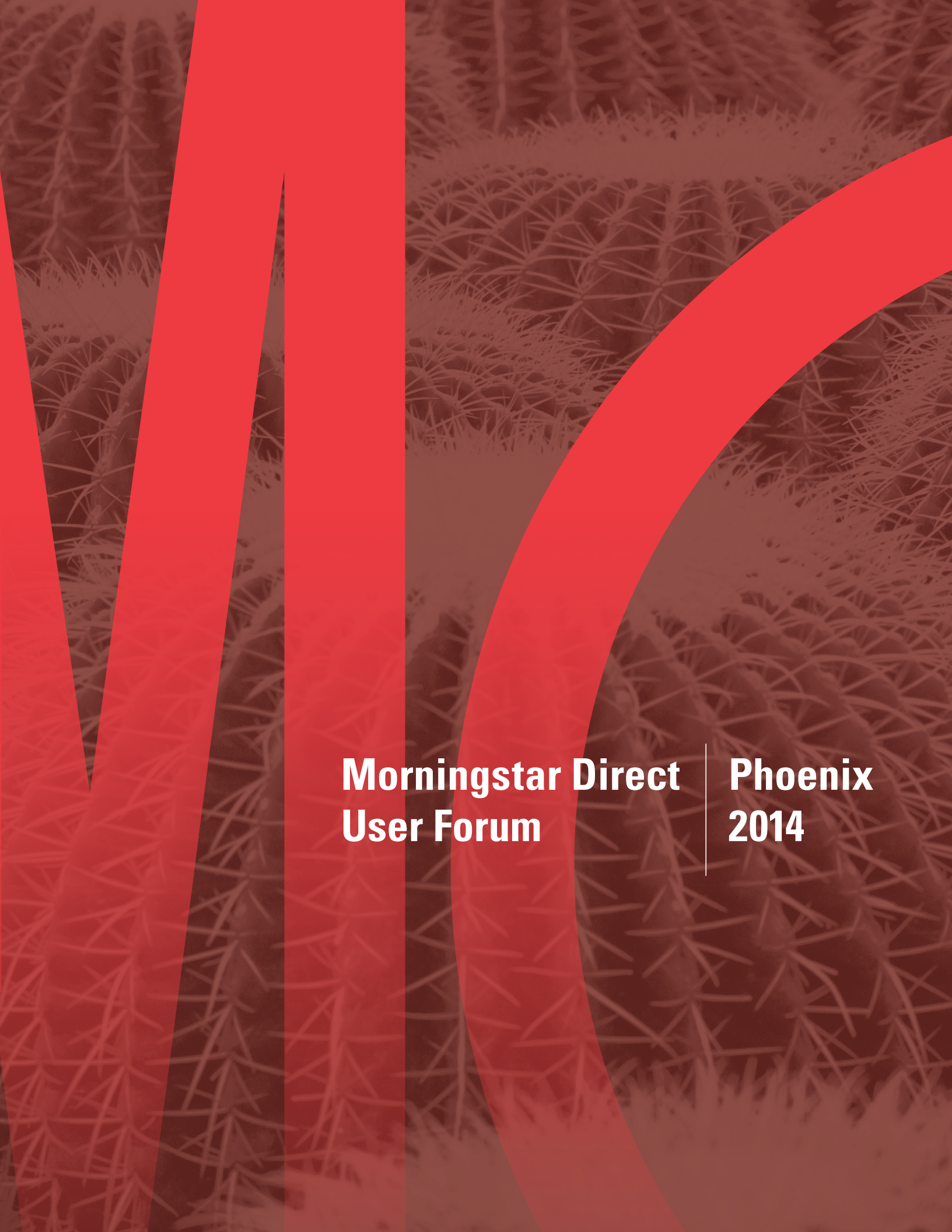
Morningstar Direct
User Forum
Phoenix
2014

Morningstar Direct℠ User Forum
Phoenix, AZ
Wednesday, February 19, 2014

Agenda

8:30am **Registration & Continental Breakfast**

9:00am–9:10am **Welcome Address**
Sharon Murphy, Head of Global Product Management

9:10am–10:00am **What's New in Morningstar Direct**
Xiaohua Xia, Ph.D., CFA, SVP Institutional Software

	Asset Management Track **Product Management & Sales Support**	Advisor Track **Multi-Asset Class Portfolio Management**
10:05am–10:55am	**Create Custom Portfolios With Private or Morningstar® Data** *Rob Beukema, Global Client Solutions Consultant Practice Leader* The portfolio management workspace in Morningstar Direct allows you to import private data and create custom portfolios and benchmarks. We will look at the different types of data that can be imported, automation features offered, and how to apply the data to various product areas of Morningstar Direct for further analysis.	**Develop Sound Capital Market Assumptions** *Qin Zheng, Product Specialist* The first step to asset allocation modeling is to develop capital market assumptions. To help you jump-start the process, Morningstar Direct provides access to 60,000 market indexes, and we will explain how to use them as proxies for the asset class behavior you are trying to model. In this session, you will also learn how to select from a variety of distribution models and returns methodologies, add your own data, and use resampling to develop your inputs.
11:00am–11:50am	**Understand Product Performance With Various Morningstar Direct Tools** *David Johnson, Product Manager* Morningstar Direct has the capabilities to help you dig deep into performance results and support findings used for various roles from the investment department to the sales force. Learn how to take advantage of returns-based and holdings-based style analysis, attribution analysis, factor exposure, and more—all to explain the product's performance.	**Discover Asset-Allocation Solutions and Evaluate the Impact** *Qin Zheng, Product Specialist* During our session, Develop Sound Capital Market Assumptions, you learned how to create capital market assumptions. We will now walk through optimization and forecasting to apply these inputs. We will also show you how to use risk decomposition to adjust your allocation and to help develop your strategic policy. You will learn how to execute returns-based style analysis to create a portfolio, and how to use total portfolio attribution to examine portfolio returns.

	Asset Management Track **Product Management & Sales Support**	Advisor Track **Multi-Asset Class Portfolio Management**
12:00pm–1:15pm	**Networking Lunch** **Back to Markowitz: How volatility-based weighting is taking us back to what Markowitz told us to do in the first place** *Paul D. Kaplan, Ph.D., CFA, Director of Research, Morningstar Canada* The principles of Markowitz's portfolio construction model, while requires explicit risk and expected return assumptions, are widely accepted. Yet the most widely used portfolio construction technique, market-cap weighting, and its main rival, fundamental weighting, make no explicit assumptions about these parameters. With the advent of volatility-based weighting schemes, risk assumptions are now being explicitly stated, while silence remains on expected returns. This presentation will show how each volatility-based weighting scheme implies a set of expected returns and calls for us to take the final step back to Markowitz by making our assumptions about expected returns explicit.	
1:20pm–2:10pm	**Monitor and Evaluate Ongoing Product Performance** *Lale Akman, Training Manager* Morningstar Direct provides tools to streamline ongoing performance monitoring of your investment products for internal reporting and competitive analysis against peer groups. Discover the many custom features to assist you in analyzing results effectively. We will discuss the various report examples for senior management, mutual fund board, portfolio managers, and more.	**Conduct Manager Due Diligence With Morningstar or Custom Data** *Jonathan O'Keefe, Senior Product Consultant* Morningstar Direct provides ways to simplify your due diligence and reporting processes for investments across multiple asset classes and custom groups. Monitor your results and apply point-weighted methodologies to grade how well the investment strategies meet their objectives. Learn how to take advantage of returns-based style analysis to identify the true style of a portfolio.

	Asset Management Track **Product Management & Sales Support**	Advisor Track **Multi-Asset Class Portfolio Management**
2:15pm–3:05pm	**Communicate Information With Powerful Reporting Solutions** *Jim Ofria, Product Manager* Morningstar Direct's Presentation Studio and Report Portal can help product marketing and sales support teams effectively communicate company and product information. Discover the many templates to create your fact sheets, pitch books, and more. Learn how to run reports on demand and browse pre-approved templates using Report Portal.	**Monitor Lineups With Equity Portfolio Analytics** *David Johnson, Product Manager* Morningstar Direct includes tools to monitor equity portfolios in real time and to identify the impact of investment decisions with equity attribution analysis. Learn about the new enhancements in Portfolio Analysis, including flexible worksheet displays, heat maps to better track trends, and access to Morningstar templates.

3:10pm–4:00pm **Closing Guest Presentation**
In Search of Skill: A Consultant's Point of View on Manager Selection
Jon Hale, Ph.D., CFA, Managing Consultant and Portfolio Manager

The Morningstar Investment Management approach to investment manager research and selection includes our qualitative research—people, process, parent, performance, and price—analytical data, and tools. In this session, we will discuss past challenges and findings to help pass on best practices in manager search and evaluation, manager selection and portfolio construction, and monitoring and due diligence.

6:00pm–8:00pm **Cocktails and Hors d'oeuvres**
Please join the Morningstar Direct team for an evening of conversation, cocktails, and hors d'oeuvres.

Presentations

What's New in Morningstar Direct℠

What's New in Morningstar Direct℠

Morningstar Direct User Forum
Xiaohua Xia, Ph.D., CFA, Global Head of Branded Platforms

MORNINGSTAR®

Overview

Access to Morningstar Data and Thought Leadership

- Morningstar Direct brings our research and award-winning analysts directly to you

Feature Innovation

- We listen to you and continue to innovate

What's Next …

- Brief introduction to some of our exciting developments

MORNINGSTAR®

Thought Leadership
2014 Sample Topics

- Where to be Active
- How Bright Is Smart Beta?
- Retirement Risk Strategies
- A Fresh Look at Commodities
- Talking Volatility
- The Asia Issue

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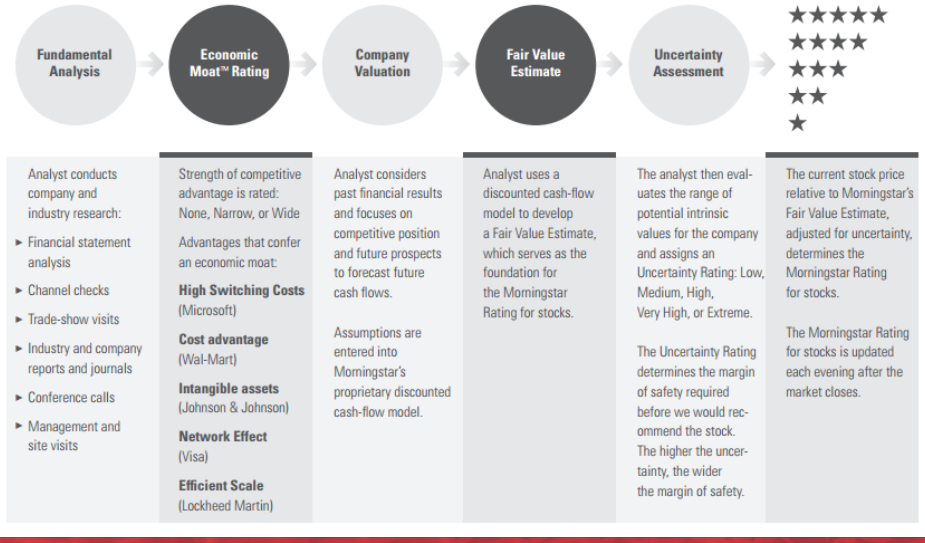
What's New in Morningstar Direct℠

Thought Leadership
Morningstar Equity and Credit Research Methodology



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Thought Leadership
Morningstar Equity Research Performance Is Strong

- Our Wide Moat Focus Index has outgained the S&P 500 by more than 600 basis points
  - on an annualized basis since 2002 and outperformed in seven of the last 10 years.
- Our Wide-Moat, 5-star stocks have generated a 19.3% annualized return since 2002.
- The Morningstar Conviction Long Portfolio (composed of our 20 most undervalued and highest-conviction stocks) has returned more than 17% annually since inception.
  - Our ratings have generated exceptional performance over the long term.
- Morningstar's analyst team placed first, with 13 winners, in the 2013 Wall Street Journal "Best on the Street" stock-picking survey.

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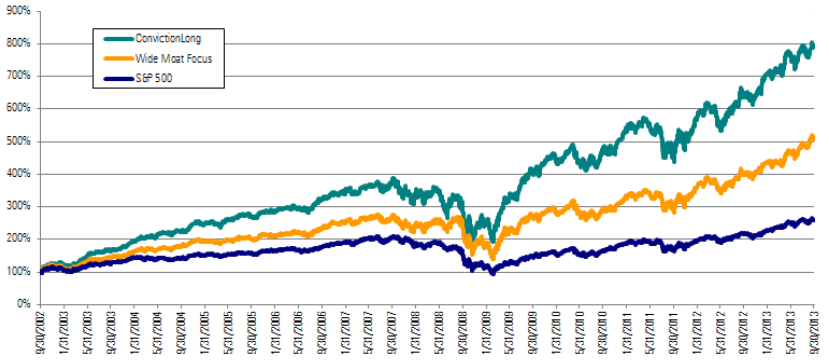
Though Leadership

Morningstar Equity Research Performance is Strong



	Trailing 1-Year	Trailing 3-Year*	Trailing 5-Year*	Since Inception* (9/30/2002)
Morningstar Wide Moat Focus Index (Ticker: WMW)	31.48%	20.39%	22.72%	16.25%
Morningstar Conviction Long Strategy	24.46%	17.87%	27.31%	20.65%
S&P 500 Index (cap-weighted)	32.41%	16.18%	17.94%	9.61%

Time-weighted returns through 12/31/2013. *annualized returns

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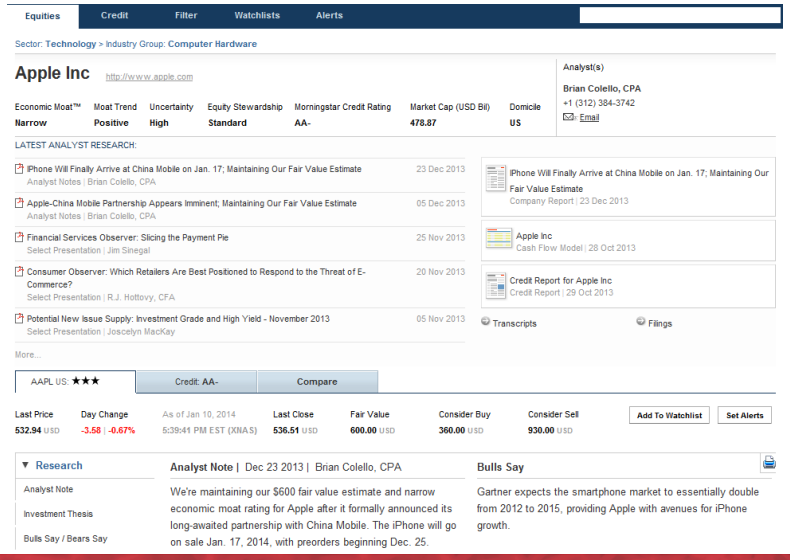
What's New in Morningstar Direct℠

Feature Innovation

Take Action on Morningstar Equity/Credit Research, Web-Based



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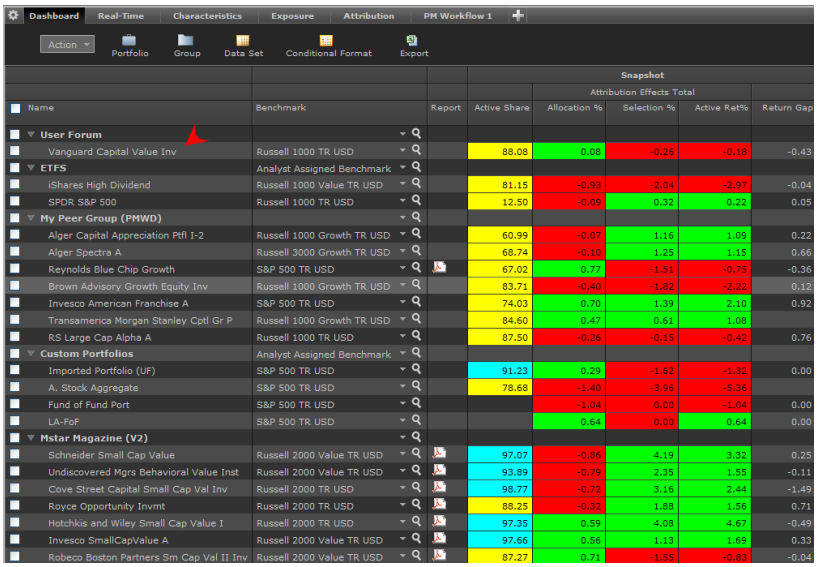
Feature Innovation

View Multiple Portfolio Analysis, Active Share & Attribution



Name	Benchmark	Report	Active Share	Allocation %	Selection %	Active Ret%	Return Gap
User Forum							
Vanguard Capital Value Inv	Russell 1000 TR USD		88.08	0.08	-0.26	-0.18	-0.43
ETFS	Analyst Assigned Benchmark						
iShares High Dividend	Russell 1000 Value TR USD		81.15	-0.93	-2.04	-2.97	-0.04
SPDR S&P 500	Russell 1000 TR USD		12.50	-0.09	0.32	0.22	0.05
My Peer Group (PMWD)							
Alger Capital Appreciation Ptfl I-2	Russell 1000 Growth TR USD		60.99	-0.07	1.16	1.09	0.22
Alger Spectra A	Russell 3000 Growth TR USD		68.74	-0.10	1.25	1.15	0.66
Reynolds Blue Chip Growth	S&P 500 TR USD		67.02	0.77	-1.51	-0.75	-0.36
Brown Advisory Growth Equity Inv	Russell 1000 Growth TR USD		83.71	-0.40	-1.82	-2.22	0.12
Invesco American Franchise A	S&P 500 TR USD		74.03	0.70	1.39	2.10	0.92
Transamerica Morgan Stanley Cptl Gr P	Russell 1000 Growth TR USD		84.60	0.47	0.61	1.08	
RS Large Cap Alpha A	Russell 1000 TR USD		87.50	-0.26	-0.15	-0.42	0.76
Custom Portfolios	Analyst Assigned Benchmark						
Imported Portfolio (UF)	S&P 500 TR USD		91.23	0.29	-1.62	-1.32	0.00
A. Stock Aggregate	S&P 500 TR USD		78.68	-1.40	-3.96	-5.36	
Fund of Fund Port	S&P 500 TR USD			-1.04	0.00	-1.04	0.00
LA-FoF	S&P 500 TR USD			0.64	0.00	0.64	0.00
Mstar Magazine (V2)							
Schneider Small Cap Value	Russell 2000 Value TR USD		97.07	-0.86	4.19	3.32	0.25
Undiscovered Mgrs Behavioral Value Inst	Russell 2000 Value TR USD		93.89	-0.79	2.35	1.55	-0.11
Cove Street Capital Small Cap Val Inv	Russell 2000 TR USD		98.77	-0.72	3.16	2.44	-1.49
Royce Opportunity Invmt	Russell 2000 TR USD		88.25	-0.32	1.88	1.56	0.71
Hotchkis and Wiley Small Cap Value I	Russell 2000 TR USD		97.35	0.59	4.08	4.67	-0.49
Invesco SmallCapValue A	Russell 2000 Value TR USD		97.66	0.56	1.13	1.69	0.33
Robeco Boston Partners Sm Cap Val II Inv	Russell 2000 Value TR USD		87.27	0.71	-1.55	-0.83	-0.04

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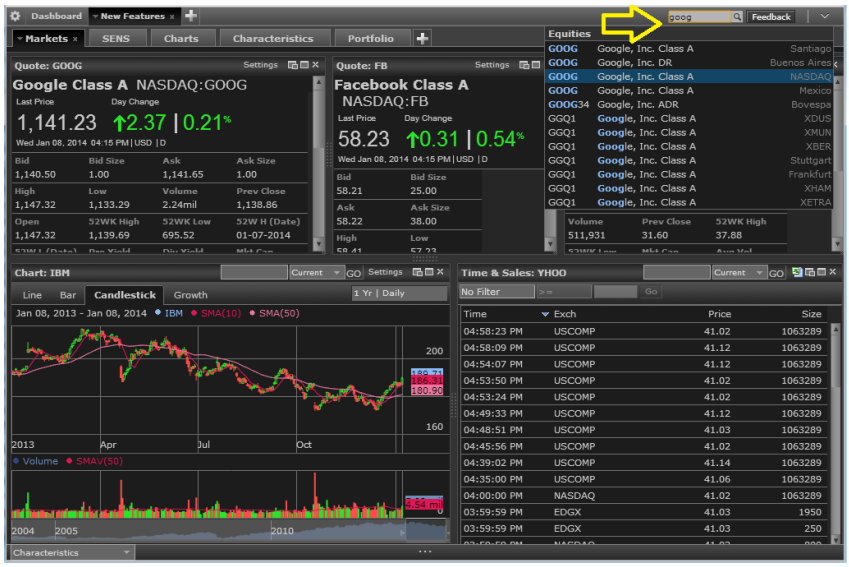
Feature Innovation

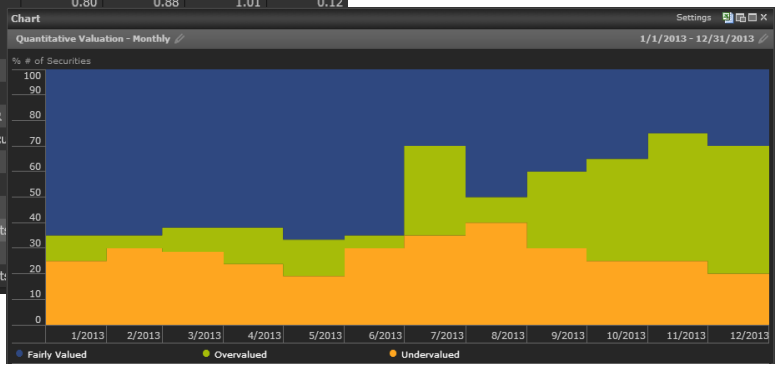
Get Access to Real-Time Quotes and Time & Sales



What's New in Morningstar Direct℠

Feature Innovation
Integrate Morningstar Equity Quant Metrics

Name	Morningstar Quantitative Score: Financial Health	Moat	Valuation	Valuation Uncertainty
Separate Accounts				
Longleaf Partners Small-Cap	0.65	0.71	0.92	0.15
Touchstone Sands Capital Inst	0.79	0.97	0.87	0.13
Accounts				
Transaction account 1	0.80	0.88	1.01	0.12
PA Test list-china stock 1				
PA Test list-LSE stock				
US focus tech stocks				
Indices				
Morningstar Large Core TR				
Morningstar Wide Moat Focu				
Mutual Funds				
Fidelity				
Dodge & Cox Stock				
Invesco Developing Markets				
Oakmark Select I				
Aberdeen Emerging Markets				



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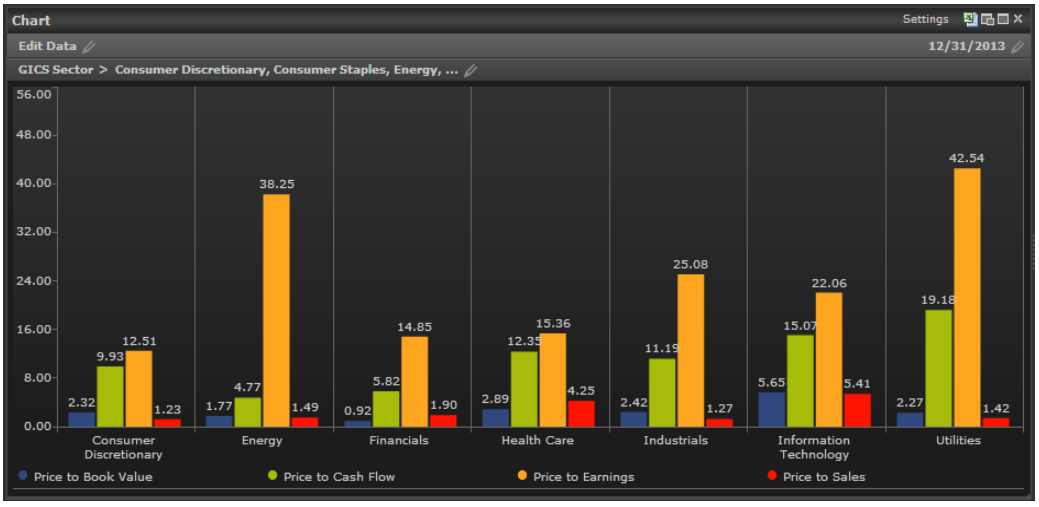
Feature Innovation
Analyze Characteristic Results by Industry



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Feature Innovation

Screen Specific Results With Scorecard

	Ticker	Name Report Currency: Base Currency	YTD 1/1/2013 - 12/31/2013 Time Period Score (10%)	1 Year 1/1/2013 - 12/31/2013 Time Period Score (20%)	3 Years 1/1/2011 - 12/31/2013 Time Period Score (20%)	5 Years 1/1/2009 - 12/31/2013 Time Period Score (50%)	Total Score
1		**US OE Large Blend**					
2	WFSPX	BlackRock S&P 500 Stock K	3.00	3.00	4.00	3.00	Keep
3	CFIMX	Clipper	3.00	3.00	3.00	4.00	Keep
4	SMGIX	Columbia Contrarian Core Z	4.00	4.00	4.00	4.00	Keep
5	AQEAX	Columbia Large Core Quantitative A	3.00	3.00	4.00	3.00	Keep
6	UMBIX	Columbia Value and Restructuring Z	4.00	4.00	1.00	4.00	Keep
7	NYVTX	Davis NY Venture A	4.00	4.00	1.00	2.00	Keep
8	DFUSX	DFA US Large Company I	3.00	3.00	4.00	3.00	Keep
9	DSEFX	Domini Social Equity Inv	3.00	3.00	2.00	3.00	Keep
10	FGIRX	Fidelity Advisor Growth & Income A	3.00	3.00	4.00	3.00	Keep
11	FALHX	Fidelity Advisor Large Cap B	4.00	4.00	4.00	4.00	Keep
12	FDESX	Fidelity Advisor® Diversified Stock O	3.00	3.00	4.00	4.00	Keep
13	FGRIX	Fidelity Growth & Income	3.00	3.00	4.00	3.00	Keep
14	FLCSX	Fidelity Large Cap Stock	4.00	4.00	4.00	4.00	Keep
15	FUSEX	Fidelity Spartan 500 Index Inv	3.00	3.00	4.00	3.00	Keep
16	FSTMX	Fidelity Spartan Total Market Index Inv	3.00	3.00	4.00	4.00	Keep
17	ITHAX	Hartford Capital Appreciation A	4.00	4.00	1.00	4.00	Keep
18	JACNX	Janus Contrarian D	4.00	4.00	1.00	3.00	Keep
19	JNGIX	Janus Growth & Income D	3.00	3.00	3.00	3.00	Keep
20	PIXAX	PIMCO Fundamental IndexPLUS AR A	4.00	4.00	4.00	4.00	Keep

What's New in Morningstar Direct℠

Feature Innovation
Determine Style Exposure With Custom Indexes

Ticker	Name Report Currency: Base Currency	5 Years 1/1/2009 - 12/31/2013											
		Return	Style Drift (RBSA)	Russell Top 200 Growth TR USD	Russell Top 200 Value TR USD	Russell Mid Cap Growth TR USD	Russell Mid Cap Value TR USD	Russell 2000 Growth TR USD	Russell 2000 Value TR USD	MSCI EAFE NR USD	FTSE NAREIT All Equity REITs TR	Morningstar US Govt/Corp TR	R-Squared
	US OE Large Blend												
PIXAX	PIMCO Fundamental IndexPLUS...	29.35	17.27	0.00	45.37	0.00	20.22	0.00	2.44	17.48	14.48	0.00	95.53
VCVLX	Vanguard Capital Value Inv	26.99	18.00	0.00	0.00	31.63	0.00	14.94	21.32	28.12	4.00	0.00	92.08
FLCSX	Fidelity Large Cap Stock	24.08	30.00	4.28	23.22	25.81	28.06	0.00	6.79	11.85	0.00	0.00	95.70
OAKLX	Oakmark Select I	24.00	22.17	8.24	29.93	28.06	13.29	0.00	6.79	13.68	0.00	0.00	92.30
FDESX	Fidelity Advisor® Diversified St...	23.41	23.98	0.00	33.15	36.70	7.27	0.00	5.87	16.31	0.72	0.00	96.29
FALHX	Fidelity Advisor Large Cap B	22.90	30.65	4.95	22.38	25.56	28.56	0.00	6.52	12.03	0.00	0.00	95.61
OAKMX	Oakmark I	22.39	27.44	26.90	15.49	2.97	42.75	0.00	5.14	4.46	2.29	0.00	95.79
PSTKX	PIMCO StocksPLUS Instl	22.39	15.08	25.16	34.37	19.27	0.00	0.00	0.00	14.31	6.88	0.00	97.27
YAFFX	Yacktman Focused Svc	22.39	25.70	0.00	19.48	12.92	21.43	0.00	0.00	9.61	18.77	17.80	79.44
YACKX	Yacktman Svc	22.35	25.89	0.00	24.90	11.46	21.07	0.00	0.00	7.98	19.19	15.41	84.51
LLPFX	Longleaf Partners	22.05	33.96	0.00	0.00	52.26	27.06	6.68	0.00	7.81	4.79	1.39	87.68
WPVLX	Weitz Partners Value	21.43	27.16	0.00	0.00	17.75	27.04	11.14	23.98	0.00	0.00	20.09	91.14
FADAX	Fidelity Advisor® Dividend Gro...	21.34	12.08	0.00	0.00	46.95	0.00	3.67	23.07	22.60	3.71	0.00	97.23
FDGFX	Fidelity Dividend Growth	21.20	11.81	0.00	0.00	48.49	0.00	0.15	25.40	23.22	2.74	0.00	97.48
SMGIX	Columbia Contrarian Core Z	20.54	14.64	27.73	33.95	29.01	0.00	0.00	0.00	9.31	0.00	0.00	97.37
CFIMX	Clipper	19.48	19.04	2.98	45.63	0.00	43.40	0.00	0.00	0.00	0.00	7.99	92.34
UMBIX	Columbia Value and Restructuri...	19.48	21.93	0.00	7.47	56.60	0.00	4.15	7.25	23.86	0.67	0.00	93.20
WVALX	Weitz Value	19.35	30.23	17.01	0.00	0.00	57.63	4.71	2.81	0.00	0.00	17.85	93.07
POSKX	PRIMECAP Odyssey Stock	19.16	16.26	36.05	9.16	20.98	23.22	0.00	0.00	0.00	0.00	10.58	96.73
JMUEX	JPMorgan US Equity Instl	19.12	8.54	38.42	33.12	19.06	0.00	4.66	0.00	4.74	0.00	0.00	99.09
AGOCX	Prudential Jennison Equity Inco...	19.11	24.19	17.73	12.61	33.01	0.00	0.00	0.00	17.79	0.00	18.86	91.50
MPGFX	Mairs & Power Growth Inv	19.10	21.19	12.14	15.59	9.50	33.63	0.00	21.17	0.00	0.00	7.97	94.14
VTCIX	Vanguard Tax-Managed Capital ...	18.81	5.28	34.61	36.22	19.61	5.64	2.60	0.70	0.62	0.00	0.00	99.95

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Feature Innovation
Multi-Asset Investment Management Solution

Capital Market Assumptions.	Asset Allocation	Manager Selection	Portfolio Construction	Portfolio Monitoring	Reporting
Historical Return Analysis	Mean-Variance Optimizer	Global strategy database	Create/Edit Portfolios	Multi-Asset Port Attribution	Presentation Studio for DIY
Scenario-based Modeling	CVAR-based Optimizer	Fund Holdings Database	Import Ports from Custodians	True Exposure & Concentration	Scheduled Batch Runs
Ibbotson CMAs	Wealth Forecast	Ranking, Scoring & Screening	Trigger/Alert Setup	Client-specific Data Integration	Report Archive for Auditing
	Surplus Optimization	Fund/Strategy Report	Risk Model based Optimizer	Daily Valuation	
	Risk Decomposition			User-defined Alerts	
	Resampling			Risk Analysis	

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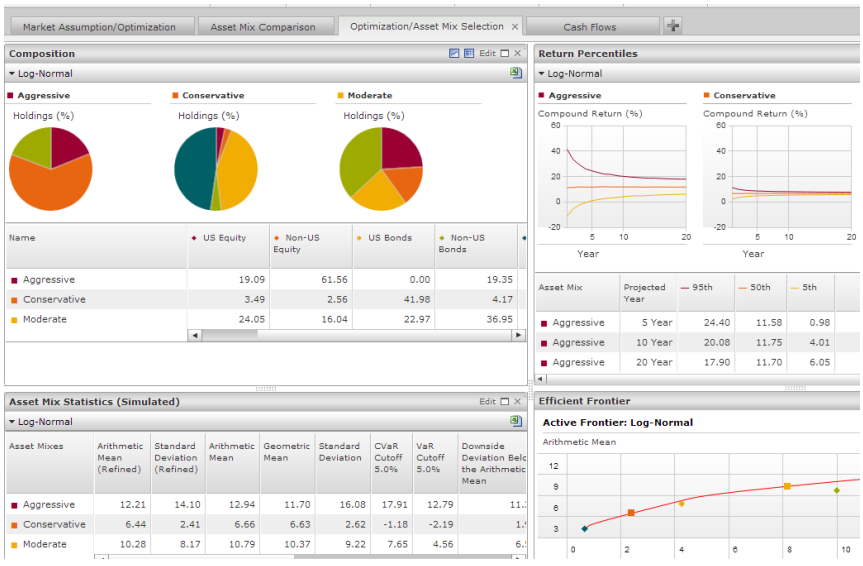
Feature Innovation

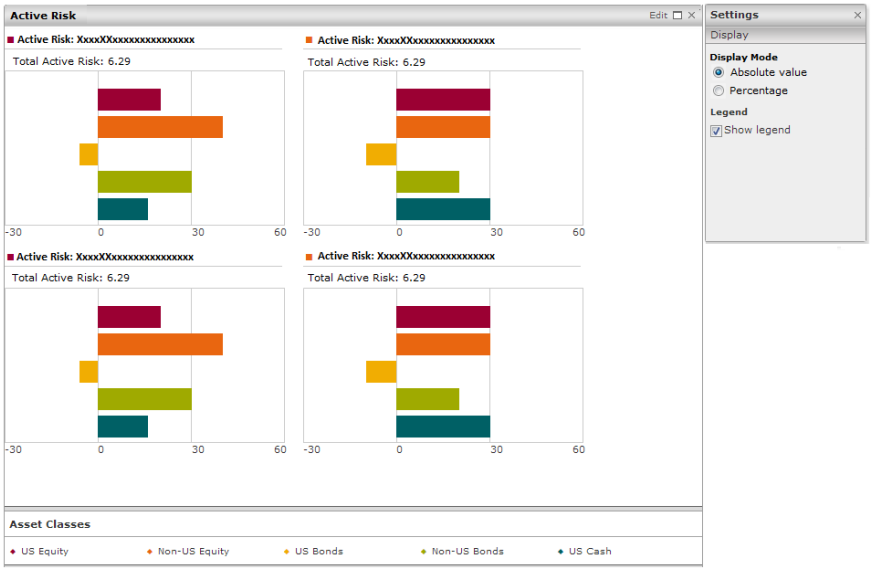
Asset-Allocation Modeling and Wealth-Return Forecasting



What's New in Morningstar Direct℠

Feature Innovation

Determine Risk Attributable to Each Asset Class



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What's Next …

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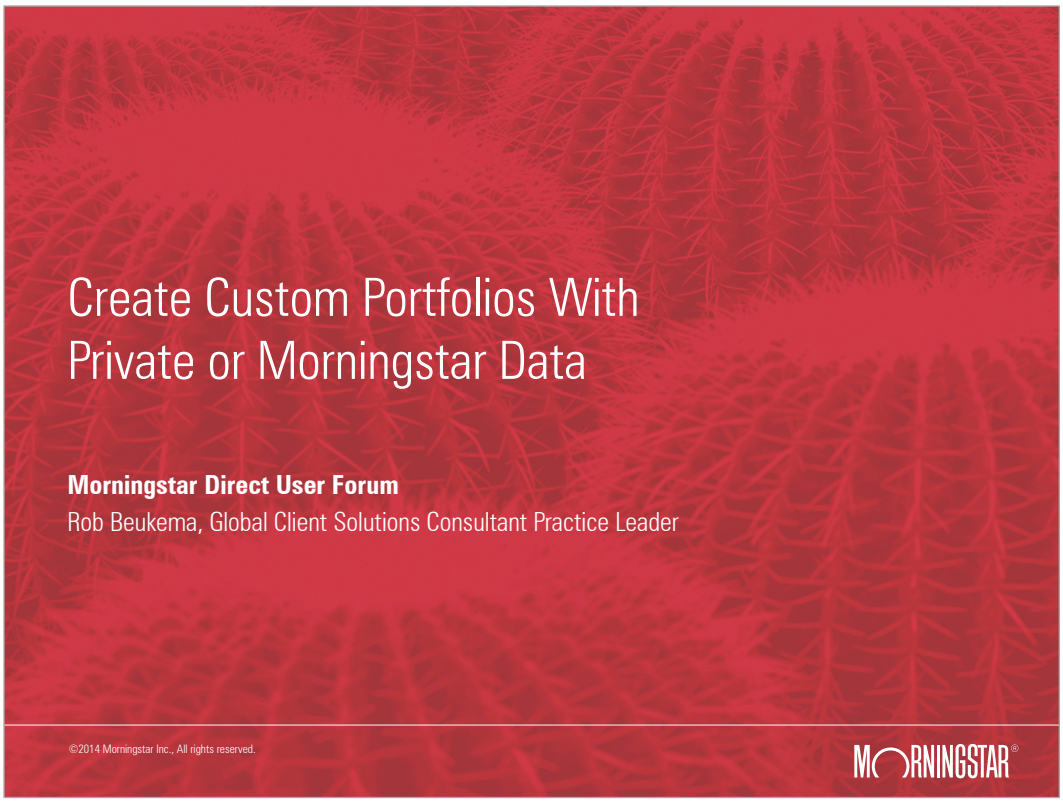
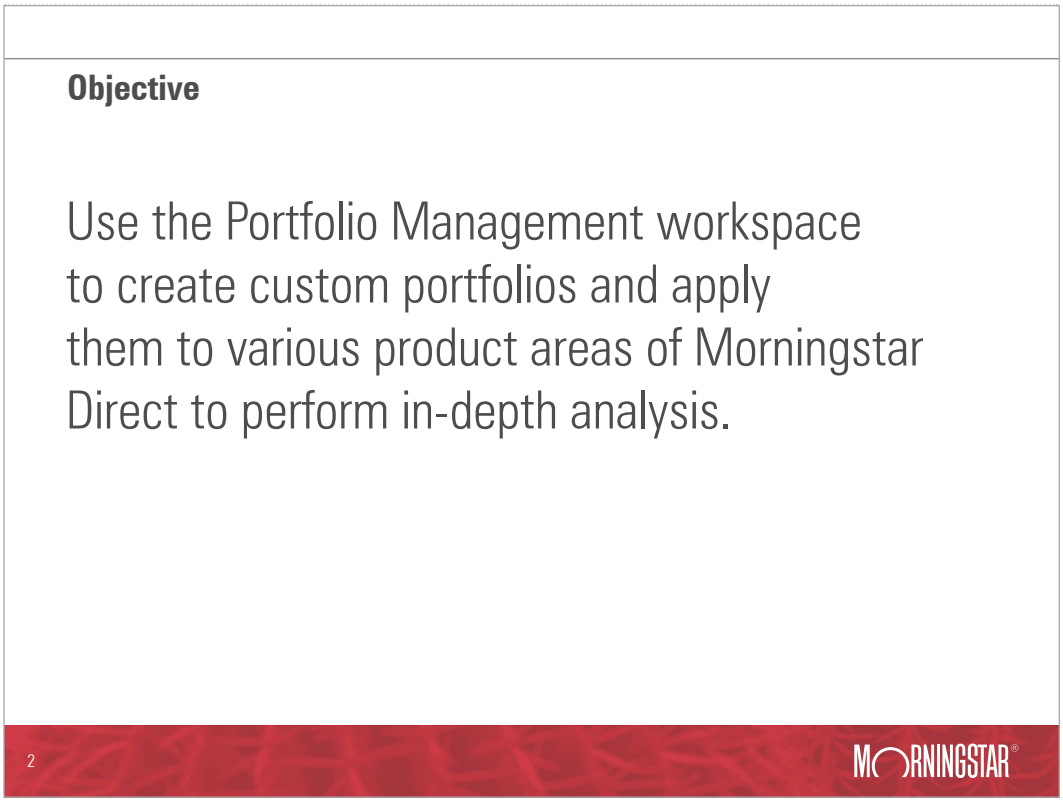
Create Custom Portfolios With Private or Morningstar Data





Options for Creating and Updating Portfolios

- Manually select investments and weightings for a multiple periods
- Importing current and historical holdings and returns data via Excel or text
- Automated importing of holdings and returns from a third party
  - Link up with custodian via FTP
  - Extract from local portfolio accounting system
    - Morningstar relationship with Advent

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Create Custom Portfolios With Private or Morningstar Data

Scenario 1

- Create Custom Portfolio
  - Model portfolio (fund of fund)
- Apply Custom Portfolio to Various Product Modules
  - Performance Reporting to monitor and evaluate portfolios
  - Total Portfolio Attribution to identify the impact of allocation decisions
  - Presentation Studio to effectively communicate results
- Additional Tools
  - Custom database
  - Note manager

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Scenario 2

- Create Custom Portfolio
  - Imported portfolio (stock portfolio)
- Apply Custom Portfolio to Various Product Modules
  - Performance Reporting to monitor and evaluate stocks
  - Equity Attribution to identify impact of investment decisions
  - Portfolio Analysis to monitor stocks in real time
  - Presentation Studio to effectively communicate results

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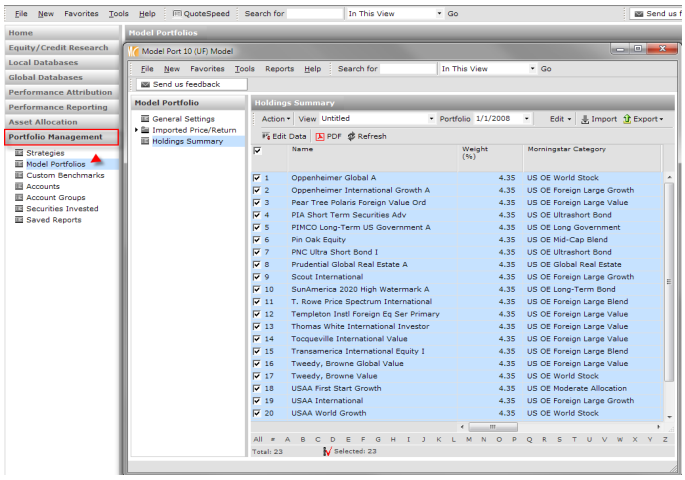
Scenario 2 (continued)

- Perform In-Depth Stock Analysis
  - Equity analyst research for analyst best ideas, weekly updates, videos, discounted cash-flow models, and more
  - Document library for corporate reports
  - Morningstar publications for *StockInvestor* newsletter
- Additional Tools
  - Custom database
  - Note manager

Create Custom Portfolios With Private or Morningstar Data

Scenario 1—Create Model Portfolio

- Model Portfolio (Fund of Fund)



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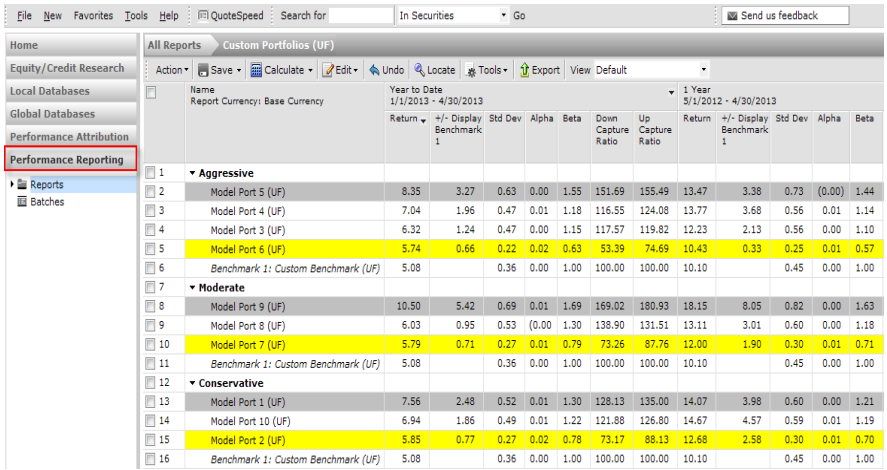
Scenario 1—Apply Custom Portfolio to Various Product Modules

- Performance Reporting to Monitor and Evaluate Portfolios



	Name Report Currency: Base Currency	Year to Date 1/1/2013 - 4/30/2013 Return	+/- Display Benchmark 1	Std Dev	Alpha	Beta	Down Capture Ratio	Up Capture Ratio	1 Year 5/1/2012 - 4/30/2013 Return	+/- Display Benchmark 1	Std Dev	Alpha	Beta
1	**Aggressive**												
2	Model Port 5 (UF)	8.35	3.27	0.63	0.00	1.55	151.69	155.49	13.47	3.38	0.73	(0.00)	1.44
3	Model Port 4 (UF)	7.04	1.96	0.47	0.01	1.18	116.55	124.08	13.77	3.68	0.56	0.01	1.14
4	Model Port 3 (UF)	6.32	1.24	0.47	0.00	1.15	117.57	119.82	12.23	2.13	0.56	0.00	1.10
5	Model Port 6 (UF)	5.74	0.66	0.22	0.02	0.63	53.39	74.69	10.43	0.33	0.25	0.01	0.57
6	*Benchmark 1: Custom Benchmark (UF)*	5.08		0.36	0.00	1.00	100.00	100.00	10.10		0.45	0.00	1.00
7	**Moderate**												
8	Model Port 9 (UF)	10.50	5.42	0.69	0.01	1.69	169.02	180.93	18.15	8.05	0.82	0.00	1.63
9	Model Port 8 (UF)	6.03	0.95	0.53	(0.00	1.30	138.90	131.51	13.11	3.01	0.60	0.00	1.18
10	Model Port 7 (UF)	5.79	0.71	0.27	0.01	0.79	73.26	87.76	12.00	1.90	0.30	0.01	0.71
11	*Benchmark 1: Custom Benchmark (UF)*	5.08		0.36	0.00	1.00	100.00	100.00	10.10		0.45	0.00	1.00
12	**Conservative**												
13	Model Port 1 (UF)	7.56	2.48	0.52	0.01	1.30	128.13	135.00	14.07	3.98	0.60	0.00	1.21
14	Model Port 10 (UF)	6.94	1.86	0.49	0.01	1.22	121.88	126.80	14.67	4.57	0.59	0.01	1.19
15	Model Port 2 (UF)	5.85	0.77	0.27	0.02	0.78	73.17	88.13	12.68	2.58	0.30	0.01	0.70
16	*Benchmark 1: Custom Benchmark (UF)*	5.08		0.36	0.00	1.00	100.00	100.00	10.10		0.45	0.00	1.00

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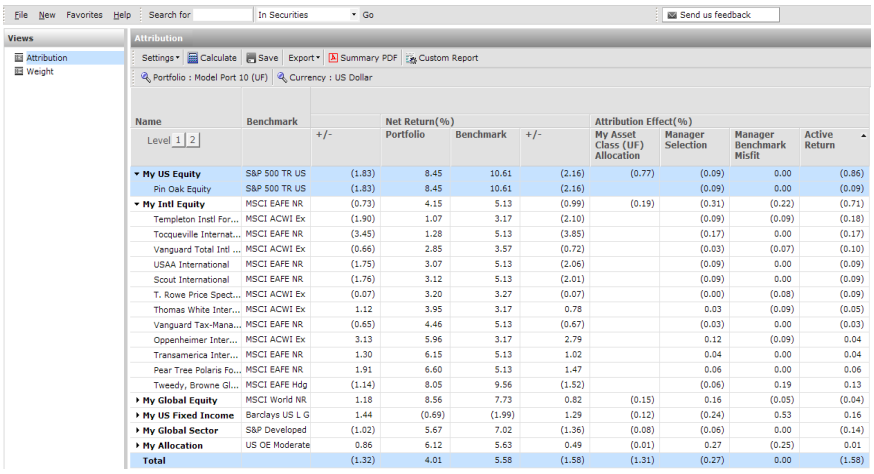
Scenario 1—Apply Custom Portfolio to Various Product Modules

- Total Portfolio Attribution to Identify the Impact of Allocation Decisions



Name	Benchmark	Net Return(%) +/-	Net Return(%) Portfolio	Net Return(%) Benchmark	Net Return(%) +/-	Attribution Effect(%) My Asset Class (UF) Allocation	Attribution Effect(%) Manager Selection	Attribution Effect(%) Manager Benchmark Misfit	Attribution Effect(%) Active Return
My US Equity	S&P 500 TR US	(1.83)	8.45	10.61	(2.16)	(0.77)	(0.09)	0.00	(0.86)
Pin Oak Equity	S&P 500 TR US	(1.83)	8.45	10.61	(2.16)		(0.09)	0.00	(0.09)
My Intl Equity	MSCI EAFE NR	(0.73)	4.15	5.13	(0.99)	(0.19)	(0.31)	(0.22)	(0.71)
Templeton Instl For...	MSCI ACWI Ex	(1.90)	1.07	3.17	(2.10)		(0.09)	(0.09)	(0.18)
Tocqueville Internat...	MSCI EAFE NR	(3.45)	1.28	5.13	(3.85)		(0.17)	0.00	(0.17)
Vanguard Total Intl ...	MSCI ACWI Ex	(0.66)	2.85	3.57	(0.72)		(0.03)	(0.07)	(0.10)
USAA International	MSCI EAFE NR	(1.75)	3.07	5.13	(2.06)		(0.09)	0.00	(0.09)
Scout International	MSCI EAFE NR	(1.76)	3.12	5.13	(2.01)		(0.09)	0.00	(0.09)
T. Rowe Price Spect...	MSCI ACWI Ex	(0.07)	3.20	3.27	(0.07)		(0.00)	(0.08)	(0.09)
Thomas White Inter...	MSCI ACWI Ex	1.12	3.95	3.17	0.78		0.03	(0.09)	(0.05)
Vanguard Tax-Mana...	MSCI EAFE NR	(0.65)	4.46	5.13	(0.67)		(0.03)	0.00	(0.03)
Oppenheimer Inter...	MSCI ACWI Ex	3.13	5.96	3.17	2.79		0.12	(0.09)	0.04
Transamerica Inter...	MSCI EAFE NR	1.30	6.15	5.13	1.02		0.04	0.00	0.04
Pear Tree Polaris Fo...	MSCI EAFE NR	1.91	6.60	5.13	1.47		0.06	0.00	0.06
Tweedy, Browne Gl...	MSCI EAFE Hdg	(1.14)	8.05	9.56	(1.52)		(0.06)	0.19	0.13
My Global Equity	MSCI World NR	1.18	8.56	7.73	0.82	(0.15)	0.16	(0.05)	(0.04)
My US Fixed Income	Barclays US L G	1.44	(0.69)	(1.99)	1.29	(0.12)	(0.24)	0.53	0.16
My Global Sector	S&P Developed	(1.02)	5.67	7.02	(1.36)	(0.08)	(0.06)	0.00	(0.14)
My Allocation	US OE Moderate	0.86	6.12	5.63	0.49	(0.01)	0.27	(0.25)	0.01
Total		(1.32)	4.01	5.58	(1.58)	(1.31)	(0.27)	0.00	(1.58)

Create Custom Portfolios With Private or Morningstar Data

Scenario 1—Apply Custom Portfolio to Various Product Modules

- Presentation Studio to Effectively Communicate Results

XYZ WEALTH ADVISORS

Attribution

Time Period: 1/1/2013 to 3/31/2013

Portfolio: Model Port 10 (UF)

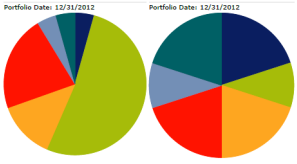
Groupings	Actual Weights	Policy Weights	Portfolio Gross Return	Policy Gross Return	Portfolio Net Return	Policy Net Return	Portfolio Contribution	Policy Contribution	Allocation Effect	Selection Effect	Manager Misfit	Active Return
My US Equity	4.53	20.00	8.78	10.61	8.45	10.61	0.37	2.09	-0.77	-0.09	0.00	-0.86
My Intl Equity	52.24	10.00	4.40	5.13	4.15	5.13	2.16	0.51	-0.19	-0.31	-0.22	-0.71
My Global Equity	13.61	20.00	8.91	7.73	8.56	7.73	1.12	1.54	-0.15	0.16	-0.05	-0.04
My US Fixed Income	20.76	20.00	-0.54	-1.99	-0.69	-1.99	-0.15	-0.39	-0.12	-0.24	0.53	0.16
My Global Sector	4.42	10.00	6.00	7.02	5.67	7.02	0.25	0.70	-0.08	-0.06	0.00	-0.14
My Allocation	4.44	20.00	6.49	5.63	6.12	5.63	0.27	1.13	-0.01	0.27	-0.25	0.01
Total	100.00	100.00	4.26	5.58	4.01	5.58	4.01	5.58	-1.31	-0.27	0.00	-1.58

Portfolio Weights

Portfolio Date: 12/31/2012

Policy Weights

Portfolio Date: 12/31/2012



	%		%
My US Equity	4.3	My US Equity	20.0
My Intl Equity	52.2	My Intl Equity	10.0
My Global Equity	13.6	My Global Equity	20.0
My US Fixed Income	21.7	My US Fixed Income	20.0
My Global Sector	4.3	My Global Sector	10.0
My Allocation	4.3	My Allocation	20.0
Total	100.0	Total	100.0

Source: Morningstar Direct

Top 7 Manager Contributors

Holdings	Actual Weights	Portfolio Net Return	Relative Net Return	Portfolio Contribution	Active Return
Tweedy, Browne Value	4.59	9.72	1.98	0.42	0.09
USAA World Growth	4.55	8.86	1.13	0.39	0.05
Pin Oak Equity	4.53	8.45	-2.16	0.37	-0.09
Tweedy, Browne Global Value	4.52	8.05	-1.52	0.35	0.13
Oppenheimer Global A	4.48	7.09	0.58	0.31	-0.03
Pear Tree Polaris Foreign Value Ord	4.46	6.60	1.47	0.29	0.06
Transamerica International Equity I	4.44	6.15	1.02	0.27	0.04

Top 7 Manager Detractors

Holdings	Actual Weights	Portfolio Net Return	Relative Net Return	Portfolio Contribution	Active Return
PIMCO Long-Term US Government A	4.10	-1.90	-2.61	-0.08	0.00
Vanguard Long-Term Bond Index I	4.11	-1.57	0.42	-0.07	0.02
SunAmerica 2020 High Watermark A	4.17	-0.21	-3.52	-0.01	0.08
PIA Short Term Securities Adv	4.18	0.10	0.03	0.00	0.09
PNC Ultra Short Bond I	4.18	0.11	0.05	0.00	0.09
Templeton Instl Foreign Eq Ser Primary	4.23	1.07	-2.10	0.05	-0.18
Tocqueville International Value	4.23	1.28	-3.85	0.06	-0.17

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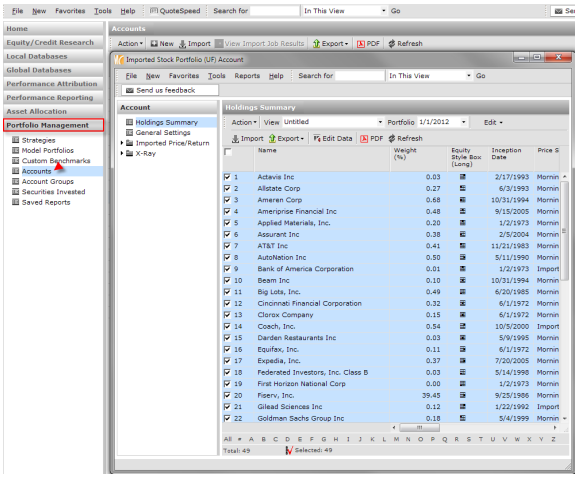
Scenario 2—Create Custom Portfolio

- Imported Portfolio (stock portfolio)



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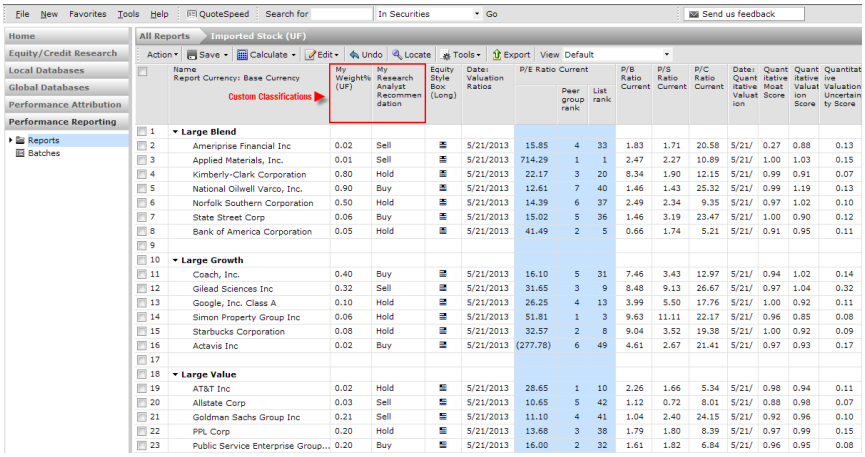
Scenario 2—Apply Custom Portfolio to Various Product Modules

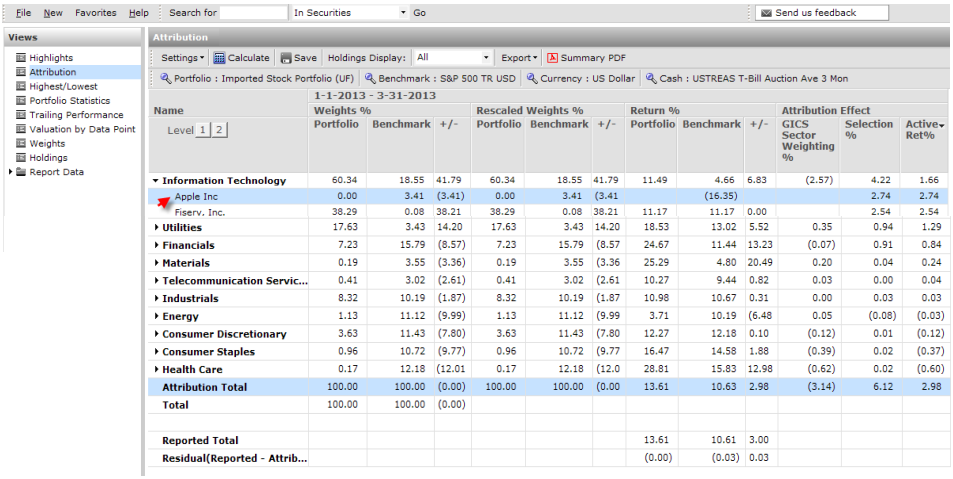
- Performance Reporting to Monitor and Evaluate Stocks



Create Custom Portfolios With Private or Morningstar Data

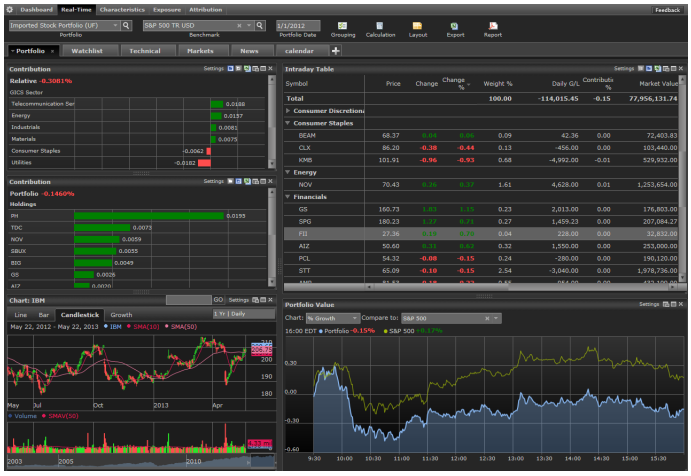
Scenario 2—Apply Custom Portfolio to Various Product Modules

- Equity Attribution to Identify the Impact of Investment Decisions



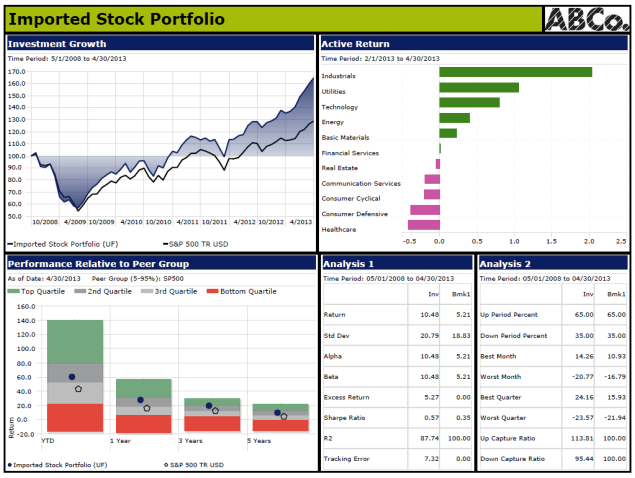
Scenario 2—Apply Custom Portfolio to Various Product Modules

- Portfolio Analysis to Monitor Stocks In Real Time



Scenario 2—Apply Custom Portfolio to Various Product Modules

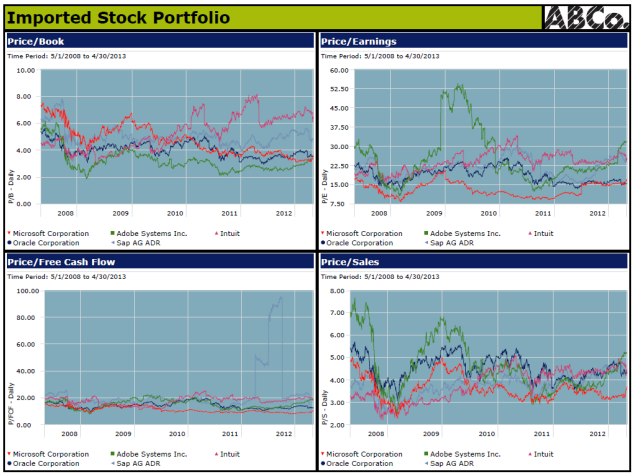
- Presentation Studio to Effectively Communicate Results at Portfolio Level



Create Custom Portfolios With Private or Morningstar Data

Scenario 2—Apply Custom Portfolio to Various Product Modules

- Presentation Studio to Effectively Communicate Results at Stock Level



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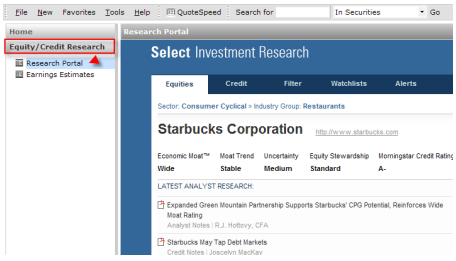
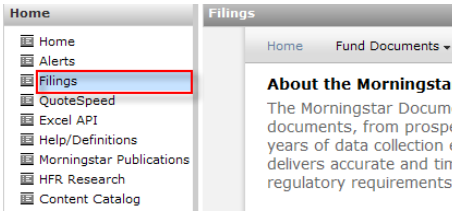
Scenario 2—Perform In-Depth Stock Analysis

- Equity Analysis Research
- Filings and Morningstar Publications





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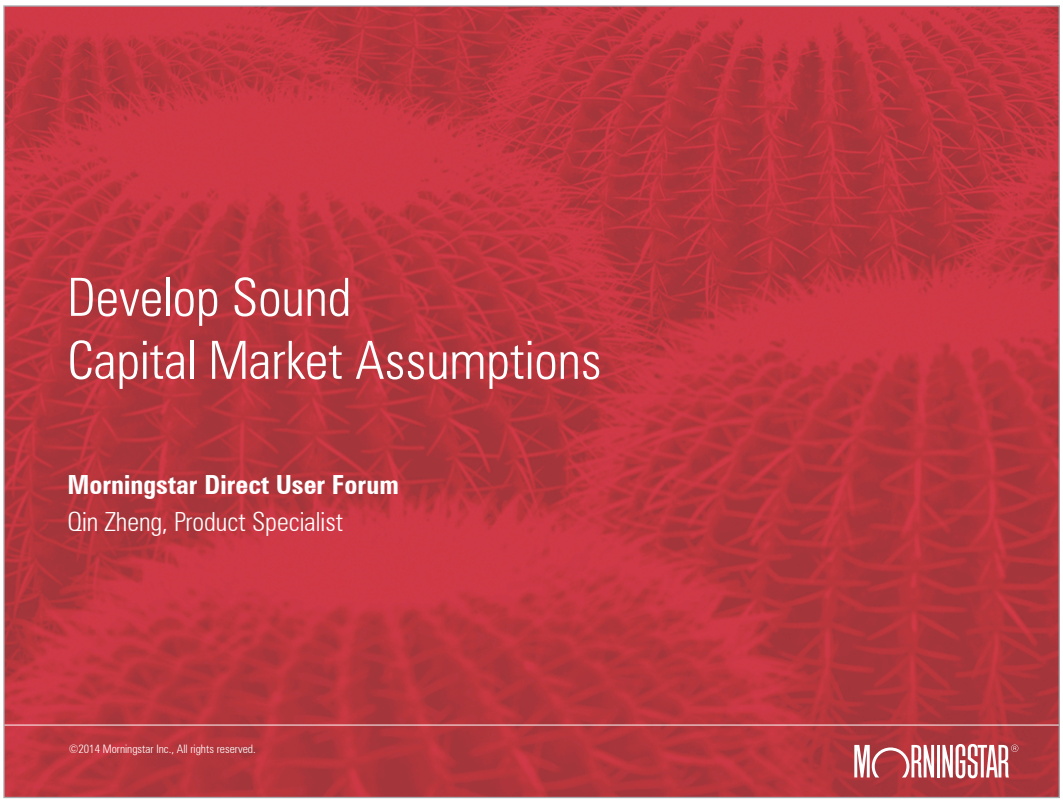
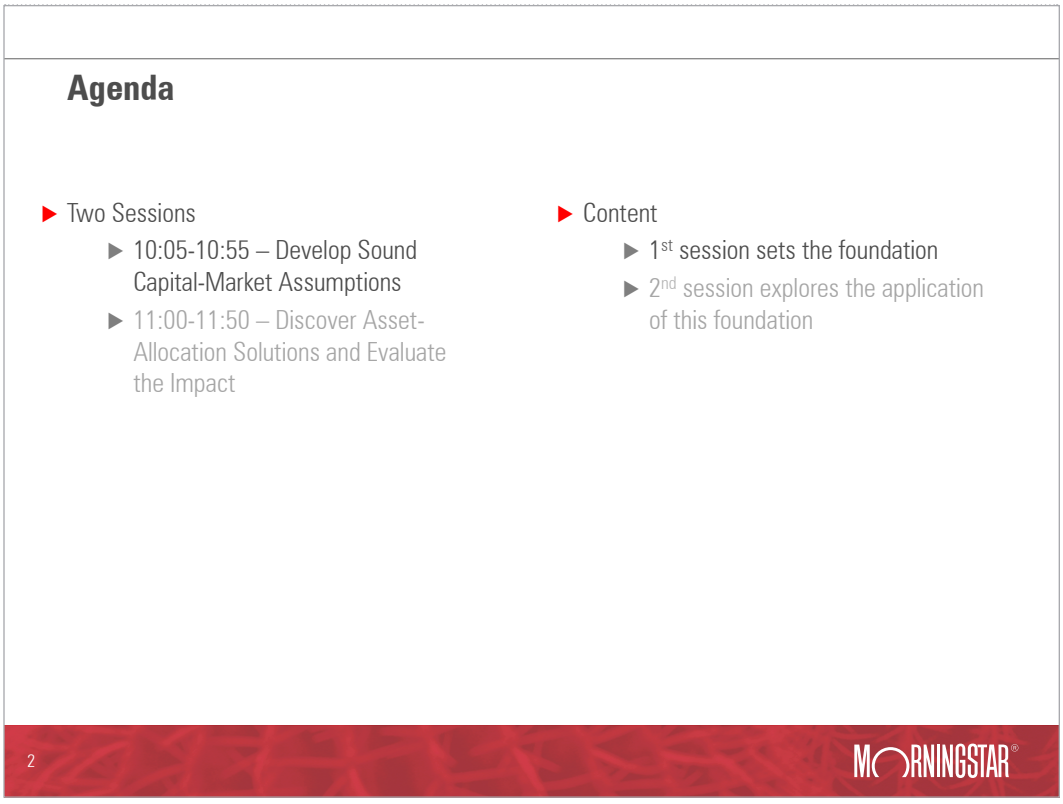
Develop Sound Capital Market Assumptions



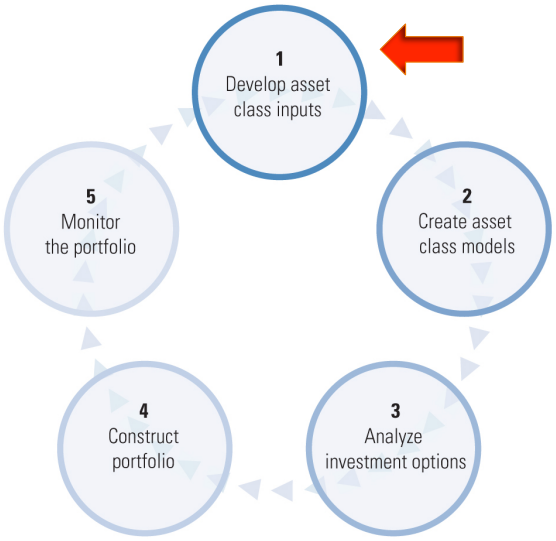


Objective

- Take-away
  - 1st session: Gain awareness of Morningstar Direct's Asset Allocation data and methodologies
  - 2nd session: Learn to create and use a strategic policy to create & monitor model portfolio
- Workflow
  - Define CMAs
  - 2nd session → Optimize → Forecast → Risk Decomposition → Tweak → Forecast → Formulate Strategic Policy → Examine Investment Options (RBSA) → Monitor Portfolio (TPA)

Develop Sound Capital Market Assumptions

Investment Management Process



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Key Asset-Allocation Capabilities

- Proxies
  - Any universe, incl. 60,000 indexes
- Asset Class Assumption Methodologies
  - Normal/log-normal
  - Johnson (fat-tailed)
  - Bootstrapping
- Expected Return Methodologies
  - Historical
  - Building blocks
  - CAPM
  - Black-Litterman
  - User-defined

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What are Capital Market Assumptions

- They are what you feed into your Optimizer
  - Specifically, each asset class essentially ends up with a time series of "prices"
- Fundamentally, they reflect what you believe to be reasonable expectations about the future
  - Beware: garbage in = garbage out
  - Not historical. Expected!
  - *Your assumptions define your set of possibilities—the risk and returns you can expect in the future—as illustrated by the efficient frontier produced by the Optimizer.* (Session 2)

Develop Sound Capital Market Assumptions

What are Capital Market Assumptions

- How do we come up with our expectations?
  - Either parametrically, by fitting historical data into a function and tweaking the function's parameters (mean, standard deviation, skewness, kurtosis, correlation), or empirically, by deciding what history to include or exclude, and how much weight to assign to it.
  - Allow extrinsic knowledge to influence your assumptions.

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Asset-Class Proxies

- Why do we need them?
  - Morningstar Direct requires this as a starting point; most people prefer to start here
- What if they are not adequate or you have your own assumptions?
  - Override
- What if we don't want to bother? How can we jump-start the process?
  - Use sample asset class sets

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Distribution Models

- Lognormal
  - Parametric
  - Your *levers:* mean ("expected return"), standard deviation, correlation, amt. of history
  - Use case: Most widely-used, part and parcel of mean-variance optimization
- Johnson
  - Parametric
  - Your *levers:* same above, plus skewness and kurtosis
  - Use case: Better incorporate extreme events, include alternative asset classes
- Bootstrapping
  - Non-parametric
  - Your *levers:* assign weights to each proxy and period
  - Use case: bimodal history, inadequate or non-continuous history, aberrations
- Use asset class distribution graphs to see what fits

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Develop Sound Capital Market Assumptions

Returns Methodologies

- Purpose
  - They help you come up with expected return which is the most important of the four moments of a statistical distribution
- User-Defined
  - Use case: You have your own view and simply want to override historical mean
- Historical
  - Use case: You are satisfied with historical mean
- CAPM
  - Use case: Rely on the CAPM model to set expected return
- Black-Litterman:
  - Use case: You want to incorporate market cap
- Building Blocks
  - Use case: You want to set a premium for each individual asset class

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Pulling it all together

- You have
  - Created an asset-class set (=determined your candidate asset classes)
  - Picked proxies
  - Picked a distribution model
  - Picked a returns methodology
  - Reviewed and tweaked the applicable parameters
- As a result
  - You now have the ingredients to feed into an Optimizer

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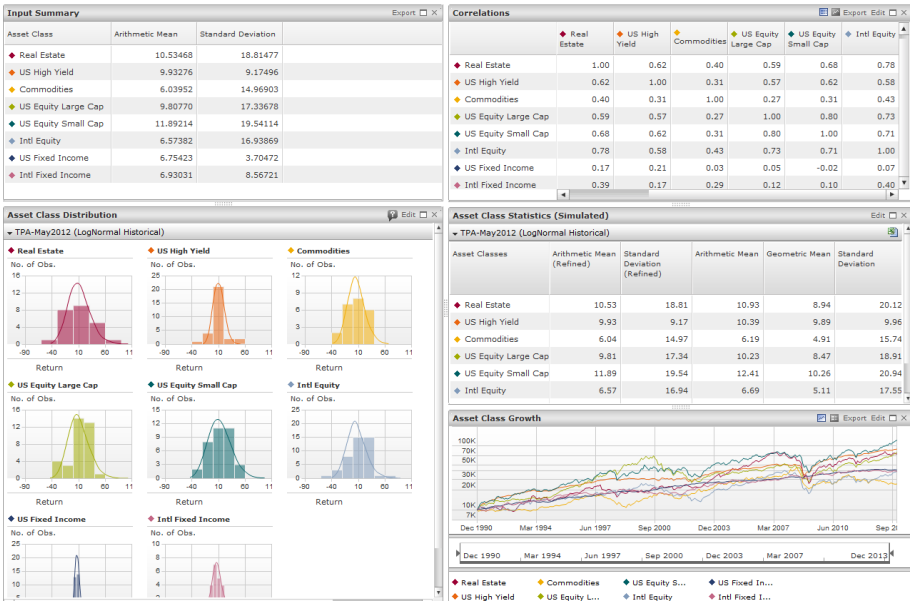
Ingredients for Optimization



Input Summary

Asset Class	Arithmetic Mean	Standard Deviation
Real Estate	10.53468	18.81477
US High Yield	9.93276	9.17496
Commodities	6.03952	14.96903
US Equity Large Cap	9.80770	17.33678
US Equity Small Cap	11.89214	19.54114
Intl Equity	6.57382	16.93869
US Fixed Income	6.75423	3.70472
Intl Fixed Income	6.93031	8.56721

Correlations

	Real Estate	US High Yield	Commodities	US Equity Large Cap	US Equity Small Cap	Intl Equity
Real Estate	1.00	0.62	0.40	0.59	0.68	0.78
US High Yield	0.62	1.00	0.31	0.57	0.62	0.58
Commodities	0.40	0.31	1.00	0.27	0.31	0.43
US Equity Large Cap	0.59	0.57	0.27	1.00	0.80	0.73
US Equity Small Cap	0.68	0.62	0.31	0.80	1.00	0.71
Intl Equity	0.78	0.58	0.43	0.73	0.71	1.00
US Fixed Income	0.17	0.21	0.03	0.05	-0.02	0.07
Intl Fixed Income	0.39	0.17	0.29	0.12	0.10	0.40

Asset Class Distribution

TPA-May2012 (LogNormal Historical)

Real Estate, US High Yield, Commodities, US Equity Large Cap, US Equity Small Cap, Intl Equity, US Fixed Income, Intl Fixed Income — No. of Obs. / Return

Asset Class Statistics (Simulated)

TPA-May2012 (LogNormal Historical)

Asset Classes	Arithmetic Mean (Refined)	Standard Deviation (Refined)	Arithmetic Mean	Geometric Mean	Standard Deviation
Real Estate	10.53	18.81	10.93	8.94	20.12
US High Yield	9.93	9.17	10.39	9.89	9.96
Commodities	6.04	14.97	6.19	4.91	15.74
US Equity Large Cap	9.81	17.34	10.23	8.47	18.91
US Equity Small Cap	11.89	19.54	12.41	10.26	20.94
Intl Equity	6.57	16.94	6.69	5.11	17.55

Asset Class Growth

100K, 70K, 50K, 30K, 20K, 10K, 7K

Dec 1990, Mar 1994, Jun 1997, Sep 2000, Dec 2003, Mar 2007, Jun 2010, Dec 2013

Real Estate, US High Yield, Commodities, US Equity L..., US Equity S..., Intl Equity, US Fixed In..., Intl Fixed I...

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Develop Sound Capital Market Assumptions

Understand Product Performance with Various Morningstar Direct Tools

Understand Product Performance With Various Morningstar Direct℠ Tools

Morningstar Direct User Forum

David Johnson, Product Manager

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Outline

- Performance Results
- Style Exposure
- Historical Sector Exposure
- Impact of Sector Decisions
- Impact of Stock Selection
- What else is driving performance?
- Additional Tools

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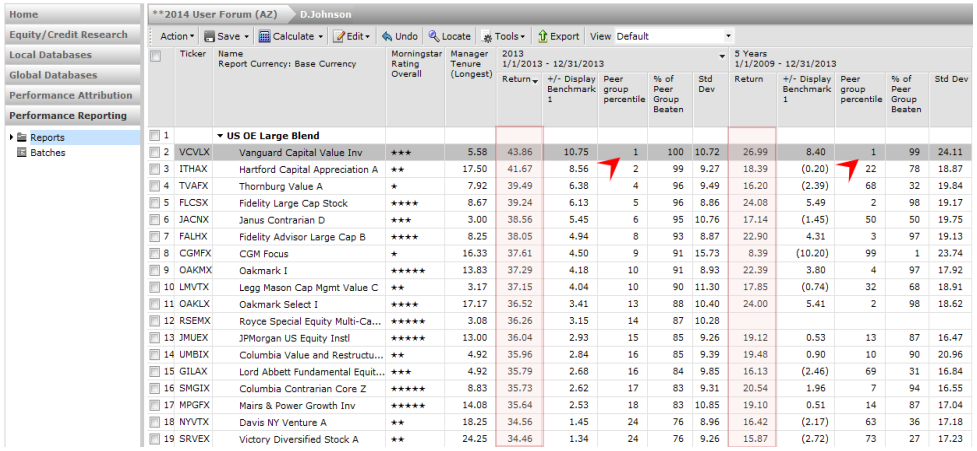
Performance Reporting

- Determine Performance Results

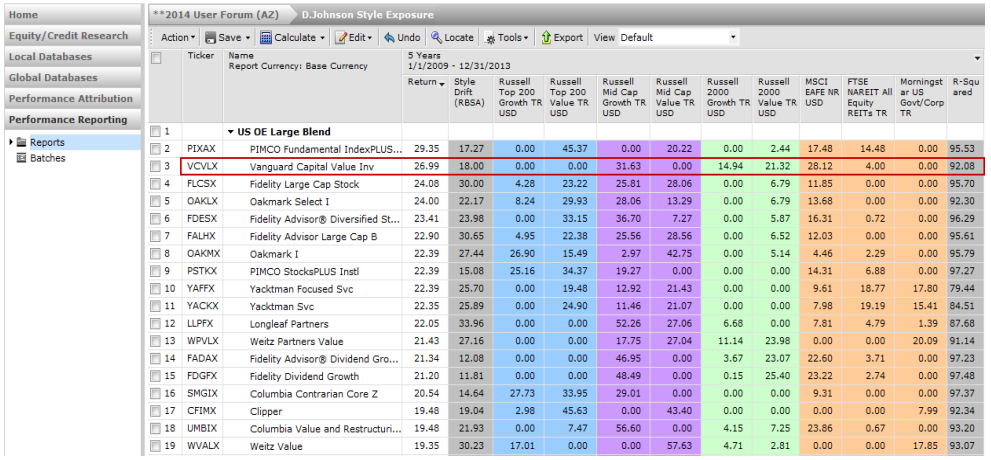


	Ticker	Name Report Currency: Base Currency	Morningstar Rating Overall	Manager Tenure (Longest)	2013 1/1/2013 - 12/31/2013 Return	+/- Display Benchmark 1	Peer group percentile	% of Peer Group Beaten	Std Dev	5 Years 1/1/2009 - 12/31/2013 Return	+/- Display Benchmark 1	Peer group percentile	% of Peer Group Beaten	Std Dev
1		**US OE Large Blend**												
2	VCVLX	Vanguard Capital Value Inv	★★★	5.58	43.86	10.75	1	100	10.72	26.99	8.40	1	99	24.11
3	ITHAX	Hartford Capital Appreciation A	★★	17.50	41.67	8.56	2	99	9.27	18.39	(0.20)	22	78	18.87
4	TVAFX	Thornburg Value A	★	7.92	39.49	6.38	4	96	9.49	16.20	(2.39)	68	32	19.84
5	FLCSX	Fidelity Large Cap Stock	★★★★	8.67	39.24	6.13	5	96	8.86	24.08	5.49	2	98	19.17
6	JACNX	Janus Contrarian D	★★★	3.00	38.56	5.45	6	95	10.76	17.14	(1.45)	50	50	19.75
7	FALHX	Fidelity Advisor Large Cap B	★★★★	8.25	38.05	4.94	8	93	8.87	22.90	4.31	3	97	19.13
8	CGMFX	CGM Focus	★	16.33	37.61	4.50	9	91	15.73	8.39	(10.20)	99	1	23.74
9	OAKMX	Oakmark I	★★★★★	13.83	37.29	4.18	10	91	8.93	22.39	3.80	4	97	17.92
10	LMVTX	Legg Mason Cap Mgmt Value C	★★	3.17	37.15	4.04	10	90	11.30	17.85	(0.74)	32	68	18.91
11	OAKLX	Oakmark Select I	★★★★	17.17	36.52	3.41	13	88	10.40	24.00	5.41	2	98	18.62
12	RSEMX	Royce Special Equity Multi-Ca...	★★★★★	3.08	36.26	3.15	14	87	10.28					
13	JMUEX	JPMorgan US Equity Instl	★★★★★	13.00	36.04	2.93	15	85	9.26	19.12	0.53	13	87	16.47
14	UMBIX	Columbia Value and Restructu...	★★	4.92	35.96	2.84	16	85	9.39	19.48	0.90	10	90	20.96
15	GILAX	Lord Abbett Fundamental Equit...	★★★	4.92	35.79	2.68	16	84	9.85	16.13	(2.46)	69	31	16.84
16	SMGIX	Columbia Contrarian Core Z	★★★★★	8.83	35.73	2.62	17	83	9.31	20.54	1.96	7	94	16.55
17	MPGFX	Mairs & Power Growth Inv	★★★★★	14.08	35.64	2.53	18	83	10.85	19.10	0.51	14	87	17.04
18	NYVTX	Davis NY Venture A	★★	18.25	34.56	1.45	24	76	8.96	16.42	(2.17)	63	36	17.18
19	SRVEX	Victory Diversified Stock A	★★	24.25	34.46	1.34	24	76	9.26	15.87	(2.72)	73	27	17.23

Understand Product Performance with Various Morningstar Direct Tools

Returns-Based Style Analysis

- Identify Style Exposure



	Ticker	Name Report Currency: Base Currency	5 Years 1/1/2009 - 12/31/2013 Return	Style Drift (RBSA)	Russell Top 200 Growth TR USD	Russell Top 200 Value TR USD	Russell Mid Cap Growth TR USD	Russell Mid Cap Value TR USD	Russell 2000 Growth TR USD	Russell 2000 Value TR USD	MSCI EAFE NR USD	FTSE NAREIT All Equity REITs TR	Morningstar US Govt/Corp TR	R-Squared
1		**US OE Large Blend**												
2	PIXAX	PIMCO Fundamental IndexPLUS...	29.35	17.27	0.00	45.37	0.00	20.22	0.00	2.44	17.48	14.48	0.00	95.53
3	VCVLX	Vanguard Capital Value Inv	26.99	18.00	0.00	0.00	31.63	0.00	14.94	21.32	28.12	4.00	0.00	92.08
4	FLCSX	Fidelity Large Cap Stock	24.08	30.00	4.28	23.22	25.81	28.06	0.00	6.79	11.85	0.00	0.00	95.70
5	OAKLX	Oakmark Select I	24.00	22.17	8.24	29.93	28.06	13.29	0.00	6.79	13.68	0.00	0.00	92.30
6	FDESX	Fidelity Advisor® Diversified St...	23.41	23.98	0.00	33.15	36.70	7.27	0.00	5.87	16.31	0.72	0.00	96.29
7	FALHX	Fidelity Advisor Large Cap B	22.90	30.65	4.95	22.38	25.56	28.56	0.00	6.52	12.03	0.00	0.00	95.61
8	OAKMX	Oakmark I	22.39	27.44	26.90	15.49	2.97	42.75	0.00	5.14	4.46	2.29	0.00	95.79
9	PSTKX	PIMCO StocksPLUS Instl	22.39	15.08	25.16	34.37	19.27	0.00	0.00	0.00	14.31	6.88	0.00	97.27
10	YAFFX	Yacktman Focused Svc	22.39	25.70	0.00	19.48	12.92	21.43	0.00	0.00	9.61	18.77	17.80	79.44
11	YACKX	Yacktman Svc	22.35	25.89	0.00	24.90	11.46	21.07	0.00	0.00	7.98	19.19	15.41	84.51
12	LLPFX	Longleaf Partners	22.05	33.96	0.00	0.00	52.26	27.06	6.68	0.00	7.81	4.79	1.39	87.68
13	WPVLX	Weitz Partners Value	21.43	27.16	0.00	0.00	17.75	27.04	11.14	23.98	0.00	0.00	20.09	91.14
14	FADAX	Fidelity Advisor® Dividend Gro...	21.34	12.08	0.00	0.00	46.95	0.00	3.67	23.07	22.60	3.71	0.00	97.23
15	FDGFX	Fidelity Dividend Growth	21.20	11.81	0.00	0.00	48.49	0.00	0.15	25.40	23.22	2.74	0.00	97.48
16	SMGIX	Columbia Contrarian Core Z	20.54	14.64	27.73	33.95	29.01	0.00	0.00	0.00	9.31	0.00	0.00	97.37
17	CFIMX	Clipper	19.48	19.04	2.98	45.63	0.00	43.40	0.00	0.00	0.00	0.00	7.99	92.34
18	UMBIX	Columbia Value and Restructuri...	19.48	21.93	0.00	7.47	56.60	0.00	4.15	7.25	23.86	0.67	0.00	93.20
19	WVALX	Weitz Value	19.35	30.23	17.01	0.00	0.00	57.63	4.71	2.81	0.00	0.00	17.85	93.07

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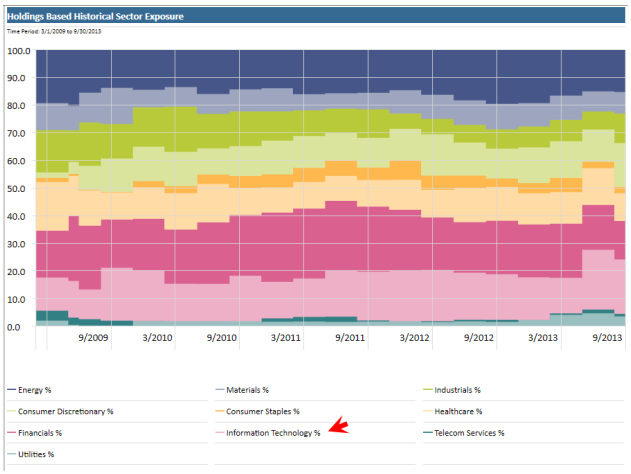
Returns-Based Style Analysis

- Understand Historical Sector Exposure—*specifically Technology*



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Equity Attribution

- Identify the Impact of Sector Decisions

Understand Product Performance with Various Morningstar Direct Tools

Equity Attribution

- Identify the Impact of Specific Security

Table

GICS Sector | Holdings Display: All | Data Column: 1/1/2013 - 12/31/2013

	1/1/2013 - 12/31/2013											
	Weights %			Return %			Contribution to Return %			Attribution Effect		
Name	Portfolio	Benchmark	+/-	Portfolio	Benchmark	+/-	Portfolio	Benchmark	+/-	Allocation %	Selection %	Active Ret%
Total	**100.00**	**100.00**	**0.00**	**44.88**	**33.08**	**11.80**	**44.88**	**33.08**	**11.80**	**-0.27**	**12.07**	**11.80**
Information Technology	17.71	17.63	0.08	83.70	29.61	54.10	14.16	5.50	8.67	0.40	8.58	8.97
Consumer Discretionary	12.46	12.81	-0.36	87.91	44.60	43.31	9.79	5.49	4.30	-0.05	4.59	4.55
Financials	16.61	16.92	-0.30	47.86	33.10	14.77	8.11	5.50	2.60	0.24	2.59	2.83
Consumer Staples	3.30	9.62	-6.32	57.73	26.99	30.74	1.99	2.60	-0.61	0.43	1.26	1.70
Health Care	11.25	12.36	-1.11	49.82	41.86	7.96	5.47	4.92	0.55	-0.01	0.80	0.79
Telecommunication Services	0.67	2.58	-1.91	43.32	14.40	28.91	0.50	0.41	0.09	0.29	0.47	0.76
Industrials	7.80	10.96	-3.15	43.94	42.09	1.85	3.68	4.54	-0.86	-0.24	0.09	-0.16
Utilities	3.51	3.34	0.17	12.58	14.66	-2.08	0.42	0.51	-0.08	-0.22	0.04	-0.18
Cash	0.58	0.00	0.58	0.03			0.00	0.00	0.00	-0.25	0.00	-0.25
Materials	7.61	3.74	3.87	-0.31	24.42	-24.74	0.13	0.98	-0.84	-0.42	-2.41	-2.83
Energy	15.34	10.02	5.33	2.82	25.75	-22.93	0.63	2.64	-2.01	-0.44	-3.95	-4.38
Attribution Total	99.80	99.99	-0.19	44.88	33.08	11.80	44.88	33.08	11.80	-0.27	12.07	11.80

	1/1/2013 - 12/31/2013											
	Weights %			Return %			Contribution to Return %			Attribution Effect		
Name	Portfolio	Benchmark	+/-	Portfolio	Benchmark	+/-	Portfolio	Benchmark	+/-	Allocation %	Selection %	Active Ret%
Total	**100.00**	**100.00**	**0.00**	**44.88**	**33.08**	**11.80**	**44.88**	**33.08**	**11.80**	**-0.27**	**12.07**	**11.80**
Information Technology	17.71	17.63	0.08	83.70	29.61	54.10	14.16	5.50	8.67	0.40	8.58	8.97
Micron Technology, Inc.	1.99	0.08	1.91	243.06	243.06	0.00	3.14	0.11	3.03		2.55	2.55
SunEdison Inc	1.50	0.00	1.50	59.73			2.79	0.00	2.79		1.84	1.84
Pandora Media Inc	1.02	0.01	1.00	173.75	189.76	-16.01	1.69	0.01	1.68		1.74	1.74

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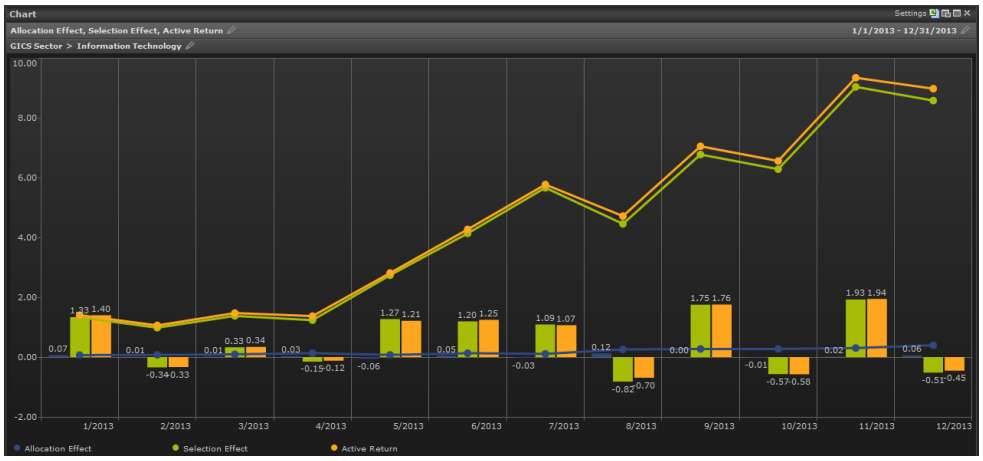
Equity Attribution

- Identify the Historical Impact of Stock Selection



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What Else is Driving Performance?

- Factor Exposure

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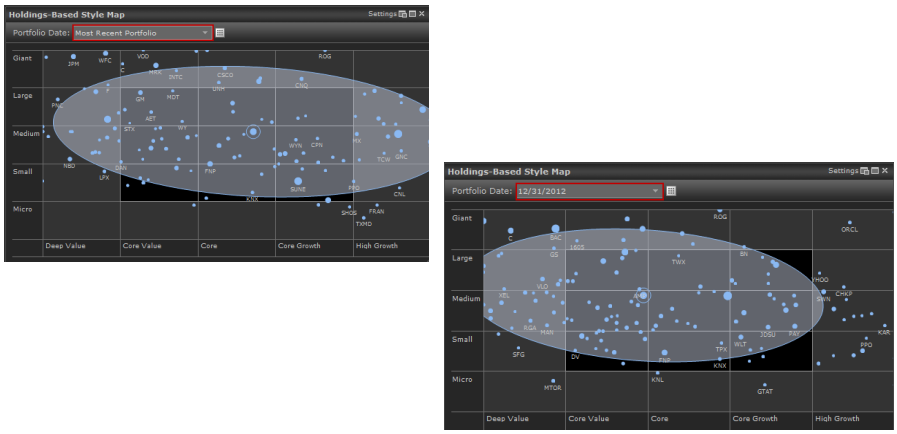
Understand Product Performance with Various Morningstar Direct Tools

What Else is Driving Performance

- Style Drift



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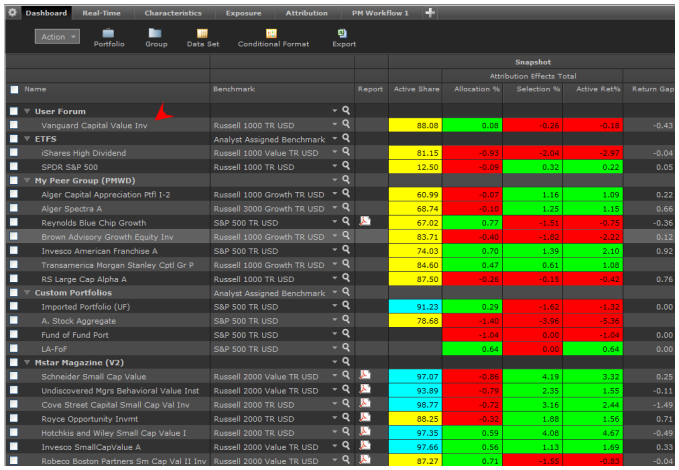
Other Tools

- Dashboard to Compare Multiple Attribution Reports



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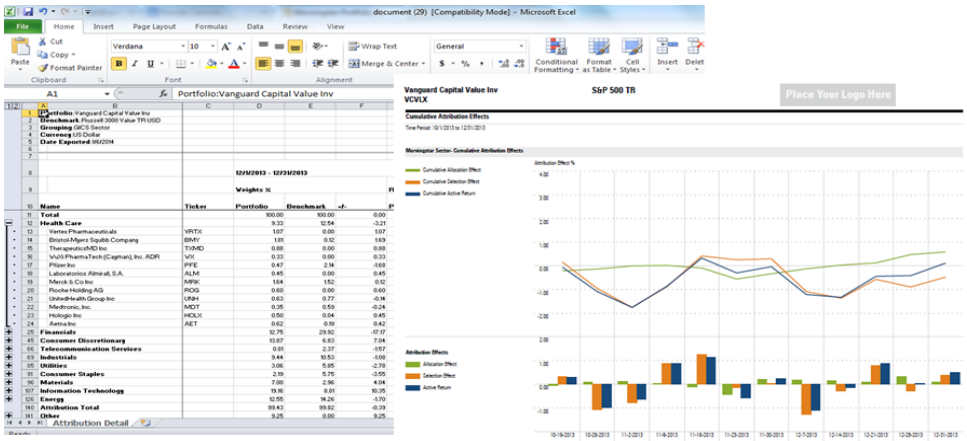
Other Tools

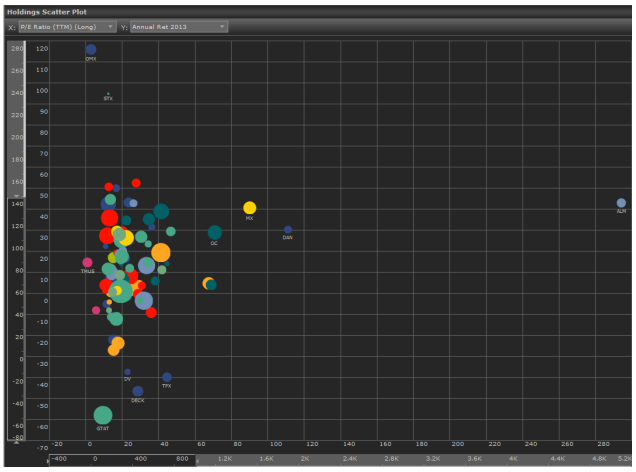
- Excel and Links to Presentation Studio Templates



Understand Product Performance with Various Morningstar Direct Tools

Other Tools

- Illustrating the Relationship Between Data Points



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Other Tools

- Technical Analysis

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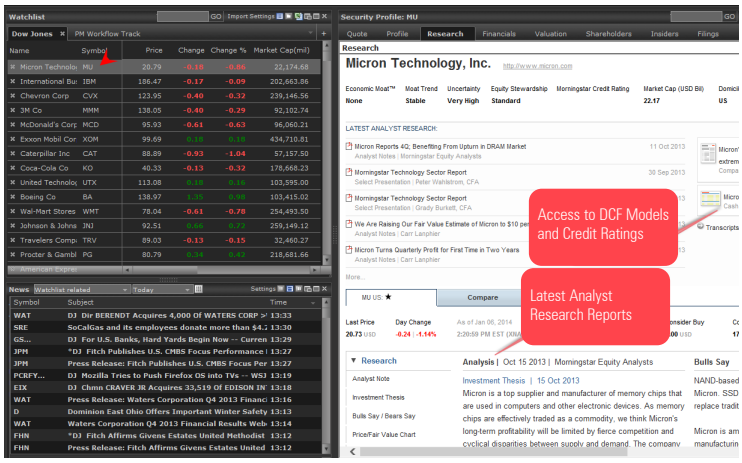
Other Tools

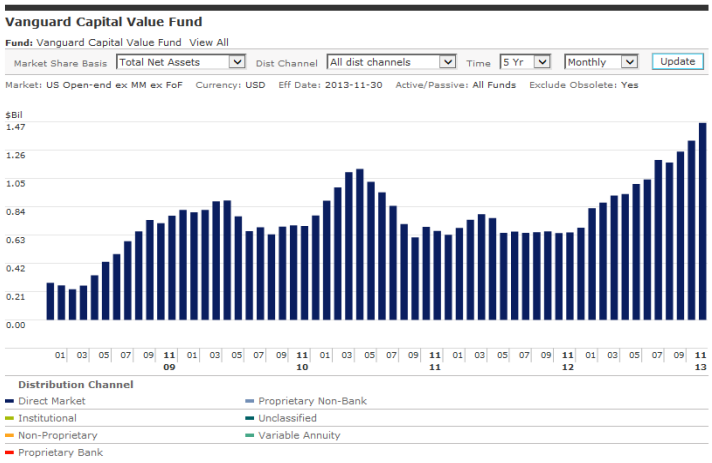
- Watch Lists and Access to Select Equity Research



Understand Product Performance with Various Morningstar Direct Tools

Other Tools

- Asset Flows to Get Insight on Investor Trends



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Other Tools

- Equity and ETF Research in Portfolio Analytics
  - Company profiles
  - Morningstar Stock Analyst Reports
  - Financial statement analysis
  - Ownership
  - Valuation ratios
  - Earnings estimates
  - Call transcripts
  - Industry peers
  - Debt analysis
- News and Market Calendar
  - Earnings announcements
  - Upgrades/downgrades
  - IPOs
  - Splits
  - Economic announcements
  - Events

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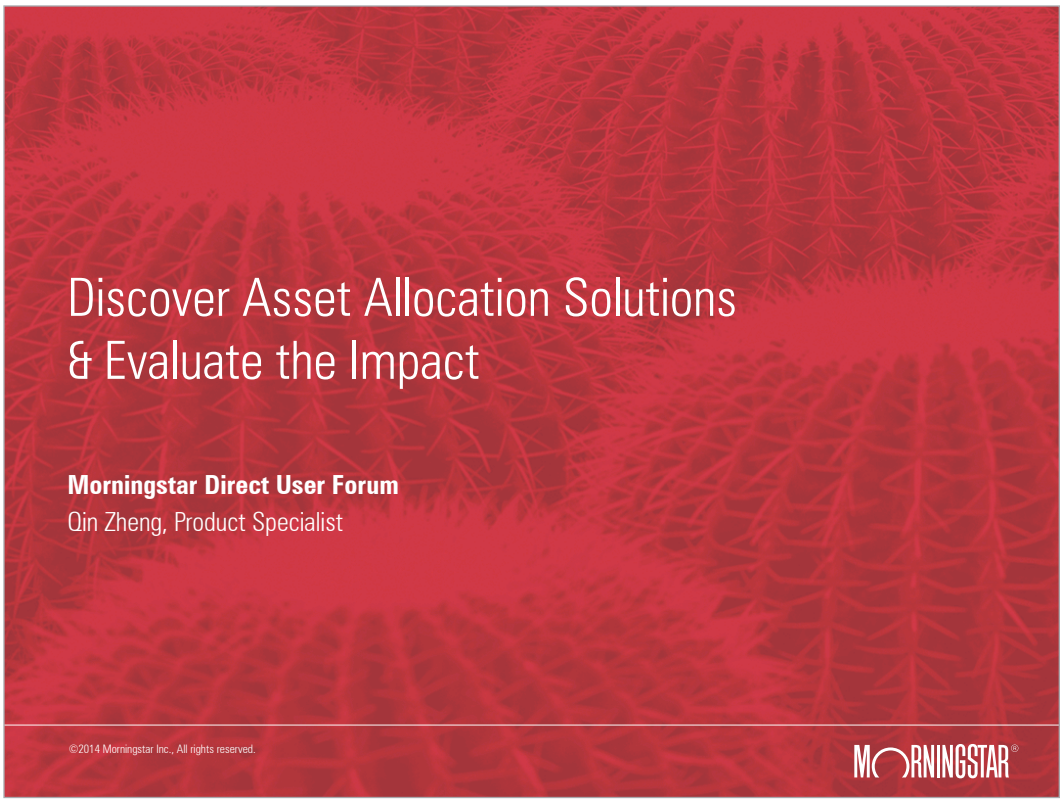
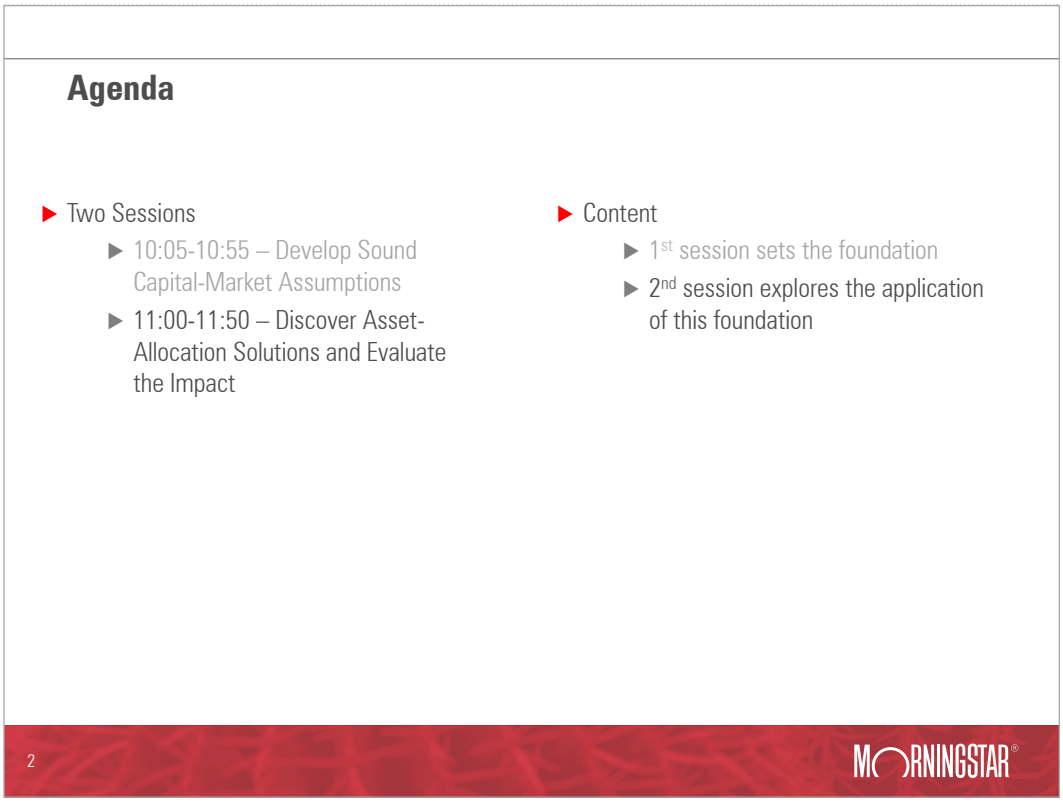
Discover Asset Allocation Solutions & Evaluate the Impact



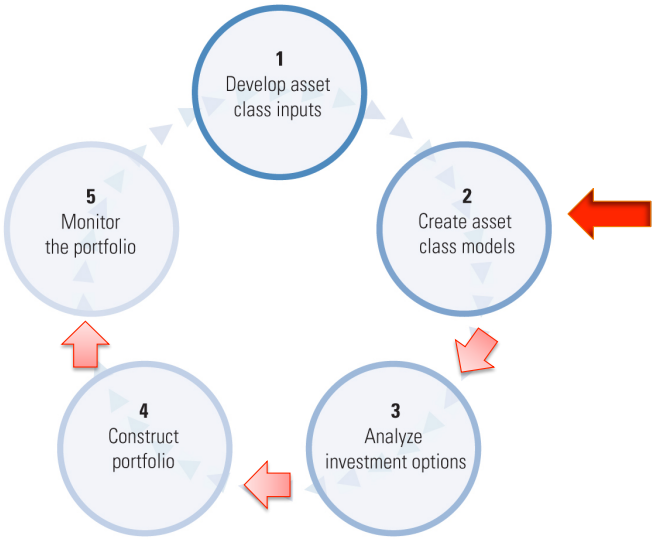


Agenda

- Take-away
  - 1st session: Gain awareness of Morningstar Direct's Asset-Allocation data and methodologies
  - 2nd session: Learn to create and use a strategic policy to create & monitor model portfolio
- Workflow
  - Define CMAs → Optimize → Risk Decomposition → Forecast → Tweak → Forecast → Formulate Strategic Policy → Examine Investment Options (RBSA) → Monitor Portfolio (TPA)

Discover Asset Allocation Solutions & Evaluate the Impact

Investment Management Process



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Key Asset Allocation Capabilities

- Optimization Return Metrics
  - Arithmetic mean
  - Geometric mean
- Optimization Risk Metrics
  - Standard deviation
  - Conditional Value-at-risk (CVaR)
  - Downside deviation
  - First lower partial moment

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Key Asset Allocation Capabilities

- Constraints
- Resampling
- Surplus Optimization
- Risk Decomposition
- RBSA (Returns Based Style Analysis)
- TPA (Total Portfolio Attribution)

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Optimizing

- Picking up where we left off
  - *Your assumptions define your set of possibilities—the risk and returns you can expect in the future*
- Next Step
  - Run optimization on your assumptions

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Optimizing

- Before you run Optimization, what else do you need to know?
  - How do you define return ("reward") —arithmetic or geometric mean
  - How do you define risk?—SD, CVaR, downside deviation, FLPM
  - What constitutes MVO?—arithmetic mean and SD
  - Are you confident in your CMAs or do you want room for error? – resampling
  - Do you have real-world constraints? – individual, relative, group
  - What is your goal? Maximize return or surplus? – surplus optimization

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Risk Decomposition

- What is risk decomposition?
  - *Risk decomposition dissects the risk of the asset mix, highlighting concentrations and helping adjust allocation to better meet risk preferences, mandates, and diversification.*
- Why is it relevant?
  - Show which assets are most responsible for portfolio risk
  - Help make decisions about rebalancing the portfolio to alter the risk

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Risk Decomposition, continued

- What are the steps?
  - Start with an efficient asset mix
  - See where the risk and return is
    - Contribution of each asset class to risk and return
  - See where the active risk is (tracking error)
    - Contribution of each asset class to active risk
  - See how allocation adjustments can help, fix any problems
    - Marginal contribution to risk and active risk
- What is the end result?
  - Asset mixes that are more appropriate
  - And hopefully still efficient or close to efficient

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Forecasting

- What is forecasting?
  - *Forecasting performs thousands of simulations to come up with a range of likely outcomes, based on your CMAs. As such, it helps determine whether an Asset Mix is adequate.*
- What is the underlying methodology?
  - Monte Carlo simulation

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Forecasting, continued

- How do you do it?
  - Select asset mixes
    - One of them will end up becoming your strategic asset allocation – identify which is suitable
  - Define your goals for the strategic asset allocation
    - Return, wealth, risk, cash-flow needs
  - Review how each asset mix performs in forecasting

Discover Asset Allocation Solutions & Evaluate the Impact

Returns-Based Style Analysis

- What is RBSA?
  - *Runs a regression of fund returns against your asset-class proxies*
- Why do we need it?
  - You are trying to construct a model portfolio—a portfolio of actual funds that acts in accordance with your strategic policy (the very strategic policy you came up with at the end of forecasting).
- How does it work?
  - Single period or multi period (overall or rolling period)
  - Allows you to identify a fund's true style, style shift over time, and best-fit benchmark set
  - Provides a starting point
    - Use performance reporting and Scorecard to reduce the list further based on your specific needs
    - Construct a model portfolio

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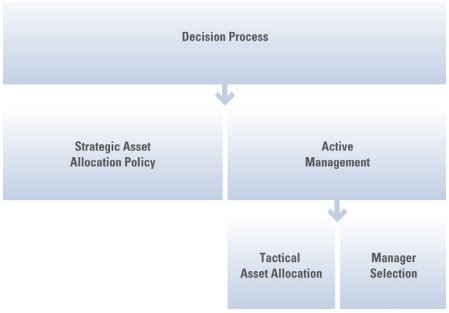
Total Portfolio Attribution

- What is total portfolio attribution?
  - *Whereas asset allocation is used to come up with a strategic policy, total portfolio attribution compares your model portfolio with your strategic policy and quantifies the value added from active management.*
- Asset Allocation Decision vs. Investment Manager Decision



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Total Portfolio Attribution, continued

- Specifically, it isolates the impact of
  - Over/under allocation and timing to various asset classes
  - Selection and allocation to investment managers
  - Differences between style benchmarks and asset-class proxies (manager benchmark misfit)
  - Manager fees and expenses

Discover Asset Allocation Solutions & Evaluate the Impact

Pulling It All Together

- You have
  - Come up with *capital market assumptions*
  - Created an efficient frontier with the help of an *Optimizer*
  - Selected Asset Mixes and tweaked them to fine-tune your risk with *Risk Decomposition*
  - Run Monte Carlo simulations in *Forecasting* to see which asset mix is adequate and should become your strategic policy
  - Started building a Model Portfolio by narrowing down a list of funds based on the quality of the *RBSA* regression against the asset classes that compose your strategic policy
  - Finished building your model portfolio (not covered in these sessions)
  - Monitored how your model portfolio performed relative to the strategic policy with total portfolio attribution

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Pulling It All Together

- You can further
  - Rely on *Performance Reporting* and *Scorecard* to monitor and screen specific results of your model portfolio
  - Present the analysis and results in customized format using *Presentation Studio*

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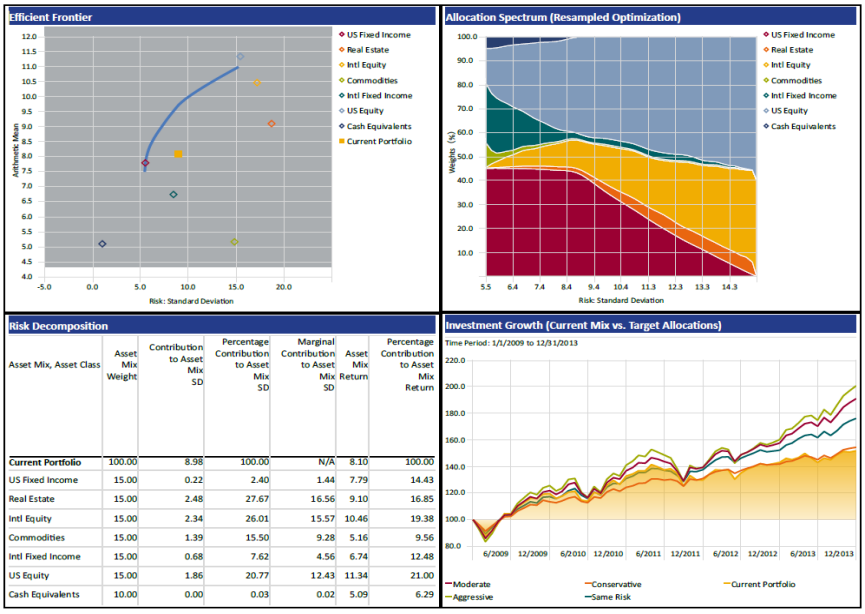
Sample Output of Tools



Risk Decomposition

Asset Mix, Asset Class	Asset Mix Weight	Contribution to Asset Mix SD	Percentage Contribution to Asset Mix SD	Marginal Contribution to Asset Mix SD	Asset Mix Return	Percentage Contribution to Asset Mix Return
Current Portfolio	100.00	8.98	100.00	N/A	8.10	100.00
US Fixed Income	15.00	0.22	2.40	1.44	7.79	14.43
Real Estate	15.00	2.48	27.67	16.56	9.10	16.85
Intl Equity	15.00	2.34	26.01	15.57	10.46	19.38
Commodities	15.00	1.39	15.50	9.28	5.16	9.56
Intl Fixed Income	15.00	0.68	7.62	4.56	6.74	12.48
US Equity	15.00	1.86	20.77	12.43	11.34	21.00
Cash Equivalents	10.00	0.00	0.03	0.02	5.09	6.29

Discover Asset Allocation Solutions & Evaluate the Impact

Back to Markowitz

Back to Markowitz

Morningstar Direct User Forum

Paul D. Kaplan, Ph.D., CFA, Director of Research, Morningstar Canada

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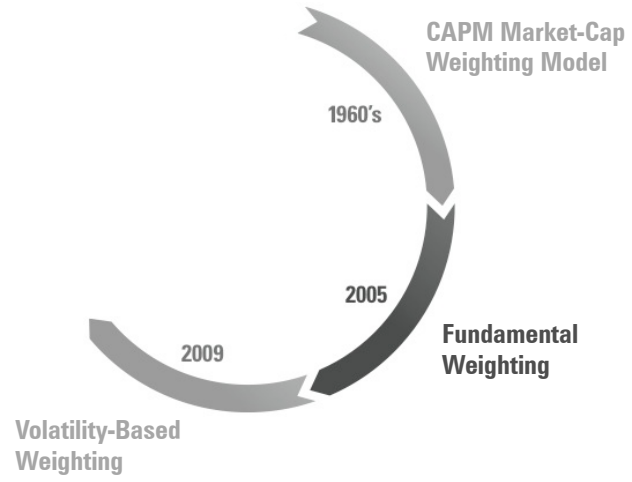
The Evolution of Equity Indexes



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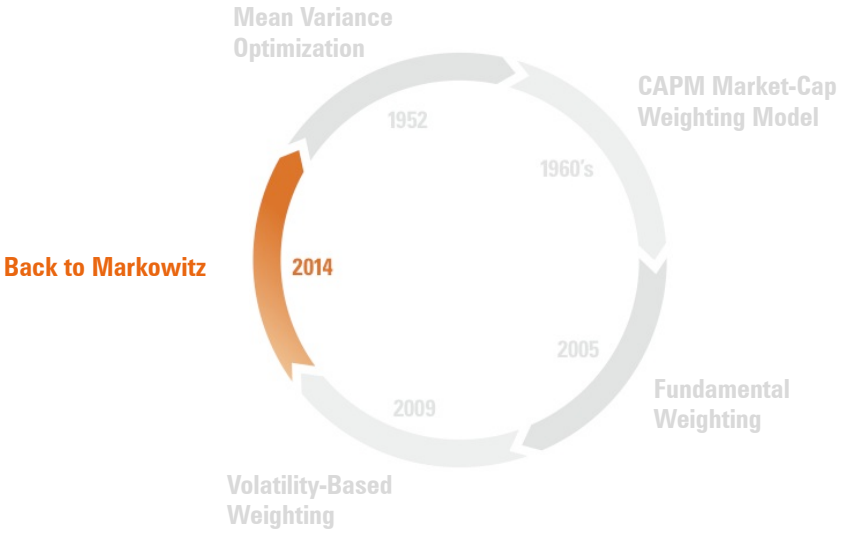
What's Next?



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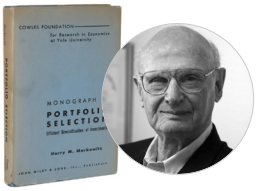
Back to Markowitz

Where It All Began



1952, 1959
Portfolio Selection

Harry Markowitz
"Father of Modern
Portfolio Theory"

1990
Nobel Prize
in Economic
Sciences
for theory of
portfolio selection

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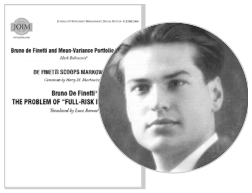
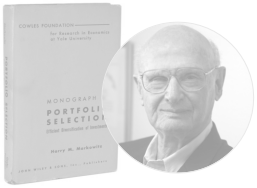
It Almost Began 12 Years Earlier!





1940
*The Problem
of Full-Risk
Insurances*

Bruno de Finetti

1952, 1959
Portfolio Selection

Harry Markowitz
"Father of Modern
Portfolio Theory"

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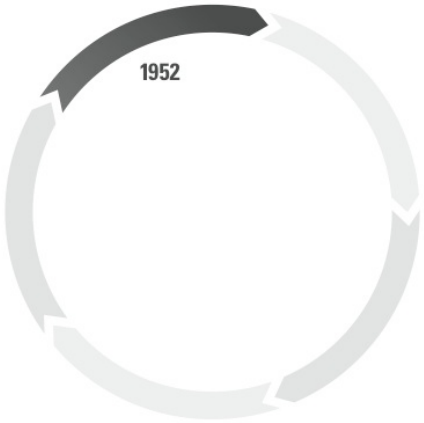
Mean Variance Optimization

Markowitz Mean-Variance Model

- Requires explicit risk and expected return assumptions
- Portfolios derived by optimization



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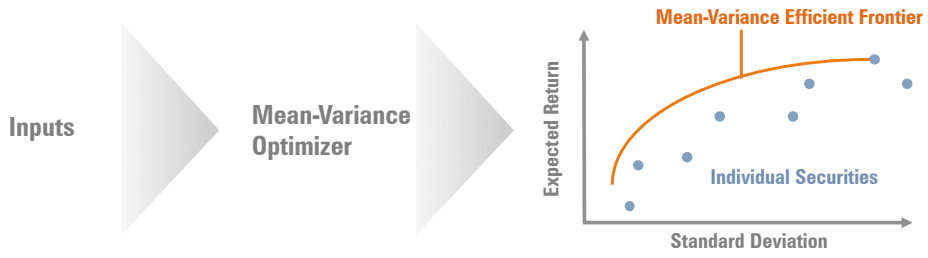
Back to Markowitz

Mean Variance Optimization
How to Use MVO

- Capital Market Assumptions (CMAs)
  - Expected Returns
  - Standard Deviations
  - Correlations



Mean Variance Optimization
What Markowitz Did and Did Not Say

What he did say

- Risk and expected return both matter
- The trade-off between the two is limited to efficient portfolios
- Diversification opportunities improve the trade-off
- Pick the efficient portfolio that fits your level of risk aversion

What he did not say

- Hold the market portfolio
- Minimize risk
- Balance risk contributions across securities
- Maximize diversification

Mean Variance Optimization

The Appeal of an Alternative to MVO

- Limitations of MVO
  - Requires many inputs that need to be estimated
  - Results sensitive to inputs, especially expected returns
  - Computational intensive
- These limitations make alternatives very appealing, especially if motivated by a powerful theory

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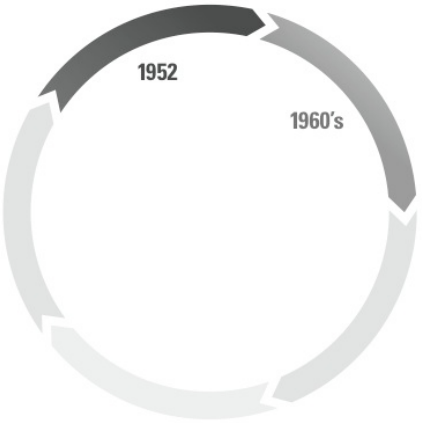
Back to Markowitz

Capital Asset Pricing Model (CAPM)
A Radical Alternative to MVO

CAPM Market-Cap Weighting Model

- Theoretical basis of market-cap weighted indexes
- No Inputs other than market-cap
- No optimization



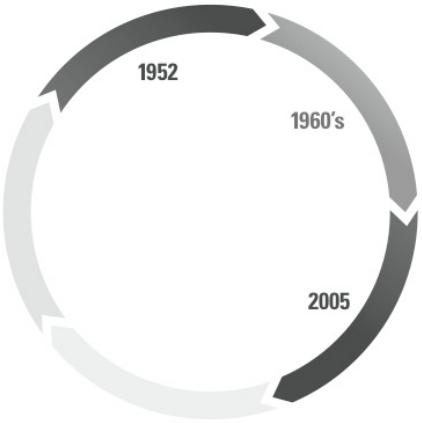
Capital Asset Pricing Model (CAPM)
A Radical Alternative to MVO

- Assumptions
  - All investor uses MVO with the same CMAs
  - All investors can borrow and lend at the same risk-free rate
- Conclusions
  - The market portfolio is on the efficient frontier
  - Each investor combines the market portfolio with the risk-free asset (long or short)
  - MVO not needed!
  - The expected excess return of each security is proportional to its systematic risk with respect to the market portfolio (beta)
  - Only systematic risk as measured by beta is priced

Fundamental Weighting
Another Radical Alternative to MVO

Fundamental Weighting Model

- Weigh securities in proportion to "fundamental" measures of size rather than market capitalization such as earnings, revenue, dividends, book value
- Requires fundamental data
- No optimization
- Market values do not enter calculation of weights
- Method devoid of any measure of risk
- Intrinsically a value strategy

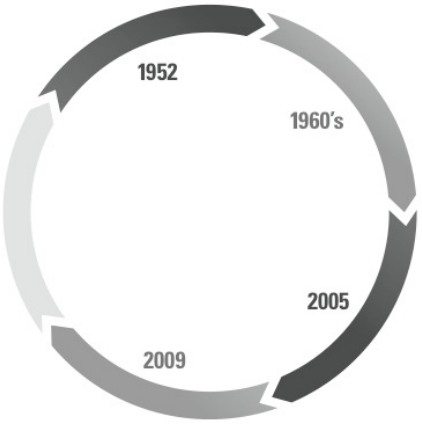


Back to Markowitz

Volatility-Based Strategies
First Steps Back to Markowitz

Volatility-Based Weighting Models

- Reintroduces risk modeling into portfolio construction
- Silent about expected returns, leaving them implicit
- Can require optimization



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Volatility-Based Strategies
Low Volatility—First Step Back to Markowitz

- Low volatility strategies are motivated by empirical regularity that portfolios of relatively low volatility stocks tend to outperform those of high volatility stocks over long periods
- Implementations
  - Screen for low volatility stocks
  - Weigh stocks in inverse proportion to their volatilities
  - Use both volatility screening and volatility weighting
- Since low volatility strategies require a measure of the risk of each stock, they are a step back towards Markowitz MVO
- However, they lack any explicit consideration of correlations and expected returns

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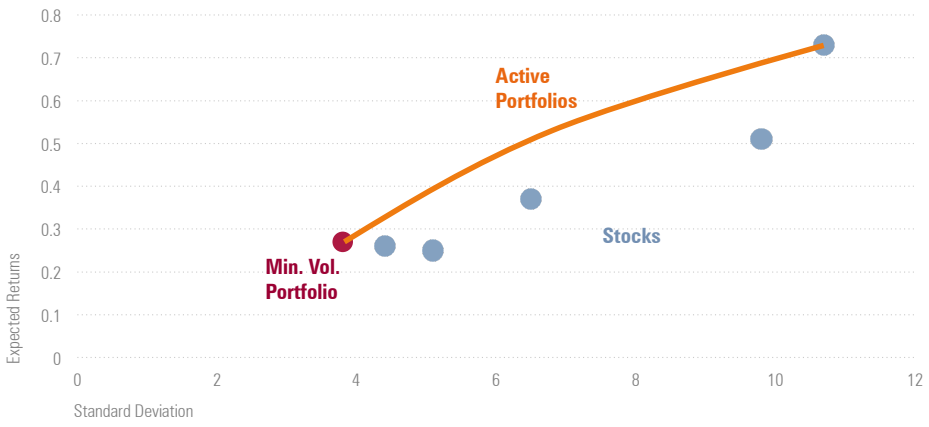
Volatility-Based Strategies

Minimum Volatility—Reintroducing Correlations and MVO

- Empirical evidence suggests that low volatility portfolios tend to outperform those with high volatility over long periods
- This suggests that overall portfolio volatility should be minimized
- To do this
  - Model the standard deviations and correlations of stock returns with a factor model
  - Use MVO with expected returns on all stocks set equal
- Note that if expected returns were set using manager insights, we would have active quantitative portfolio management!

Back to Markowitz

Volatility-Based Strategies
Minimum Volatility and Active Management



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Volatility-Based Strategies
Volatility-Based Weighting and Sector Concentration

	S&P 500 Low Volatility (%)	Russell 1000 Low Volatility (%)	MSCI USA Minimum Volatility (%)	Morningstar US Market (%)
Cyclical	**23.54**	**20.33**	**25.86**	**33.52**
Basic Materials	5.12	0.34	3.93	3.44
Consumer Cyclical	3.16	5.19	7.71	12.14
Financial Services	14.40	7.83	11.15	14.90
Real Estate	0.86	6.97	3.07	3.03
Sensitive	**20.05**	**34.58**	**30.77**	**41.37**
Communication Services	0.93	2.93	5.30	3.52
Energy	3.17	5.49	5.61	9.30
Industrials	15.94	19.77	12.61	12.32
Technology	—	6.40	7.24	16.23
Defensive	**56.63**	**45.08**	**42.90**	**24.88**
Consumer Defensive	21.79	19.16	17.60	9.55
Health Care	10.97	11.31	17.44	12.32
Utilities	23.87	14.61	7.86	3.00

Data as of November 30, 2013

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Volatility-Based Strategies
Equal Risk Contribution Strategies

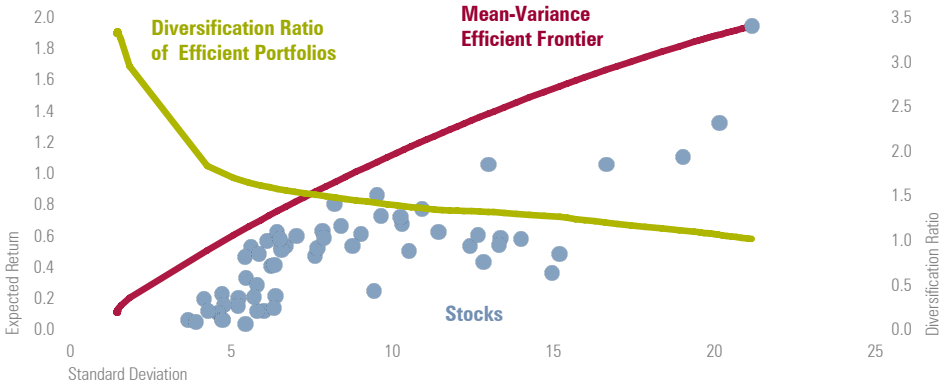
- In Equal Risk Contribution (ERC) strategies (aka Risk Parity), the weight of each stock is inversely proportional to its exposure to the variance of the overall portfolio
- In this way, risk contributions (weight × exposure) are equalized
- To do this
  - Model the standard deviations and correlations of stock returns with a factor model
  - Solve a system of equations to achieve risk parity
- Note that like minimum volatility, the risk part of the MVO framework is used but not expected returns

Back to Markowitz

Volatility-Based Strategies
Maximum Diversification Strategies

- The degree of portfolio diversification can be measured by:
  Average of Standard Deviations of Stocks / Standard Deviation of Portfolio
- A Maximum Diversification strategy maximizes this ratio
- To do this, use MVO with *Stock Expected Return = Stock Standard Deviation*

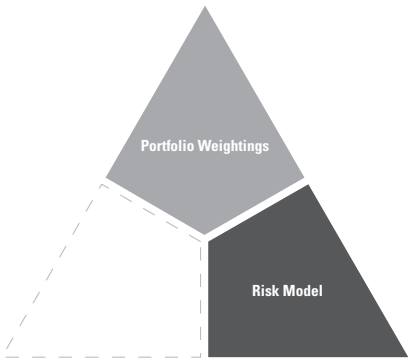
Is Maximizing Diversification a Good Idea?



Based on the S&P/TSX 60 as of Sep. 2013 using a single factor risk model estimated over the period Oct 2008—Sep 2013 and expected returns based on the CAPM.

What About Expected Returns?

Before Markowitz, no one had taken risk explicitly into account, only expected returns



Volatility-based weighting commits the opposite error, being explicit about risk but not about expected returns

Back to Markowitz

The Markowitz Triangle

By knowing any two of the three variables in Markowitz's portfolio construction model, the third can be derived

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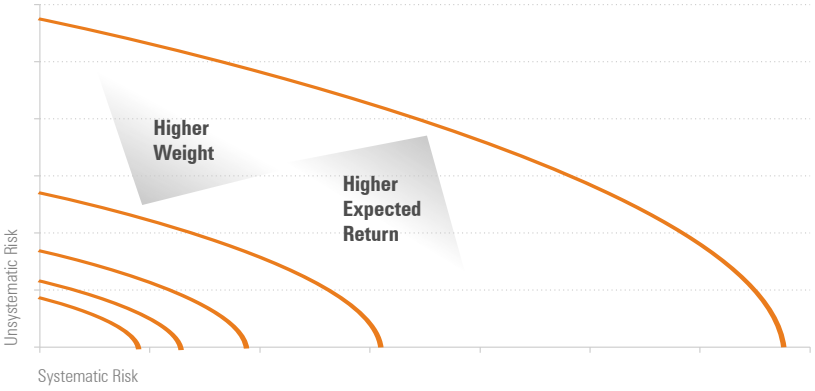
Implied Expected Returns of Equal Risk Contribution



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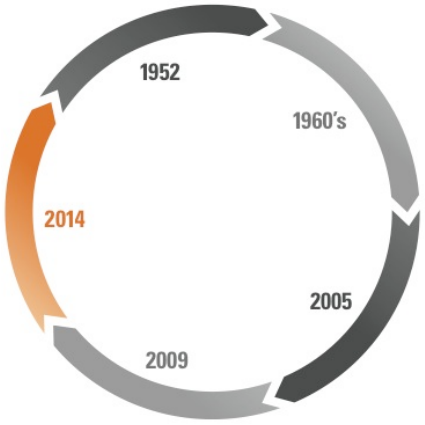
Coming Full Circle—Back to Markowitz

Markowitz's Original Framework, But With a New Implementation Model

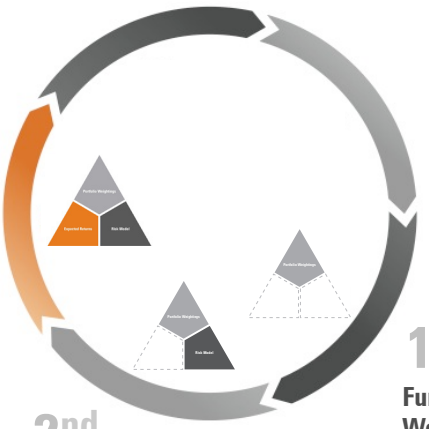
Explicit Expected Returns

- Pick up where volatility-based weighting schemes leave off
- Reintroduce explicit expected return assumptions
- Expected return assumptions based on recent research on drivers of equity value
- Quantitative models of expected return could be based on:
  - Valuation models
  - Measures of financial health
  - Indicators of "economic moat"



Back to Markowitz

Generations of Smart Beta



3rd
Expected Return & Volatility-Based Weighting

1st
Fundamental Weighting

2nd
Volatility-Based Weighting

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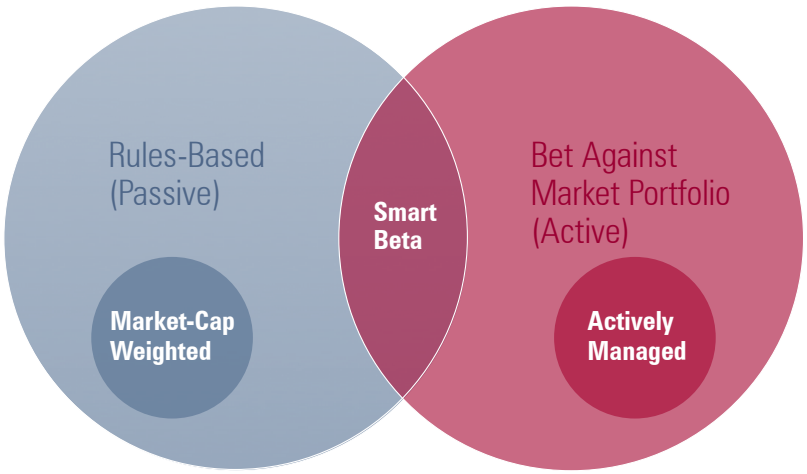
Is Smart Beta Passive, Active, or Both?



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Conclusions

- Volatility-based weighting schemes take us back towards Markowitz but come up short because they don't make explicit expected return assumptions
- Advances in quantitative models of expected return could be used to complete the inputs and take us fully back to Markowitz
- However, the limitations of MVO would still need to be addressed to make such strategies practical
- That would lead to a 3rd generation of smart beta indexes

Back to Markowitz

Monitor and Evaluate Ongoing Product Performance

Monitor and Evaluate Ongoing Product Performance

Morningstar Direct User Forum

Lale Akman, Training Manager

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Objective

Learn how to streamline ongoing performance monitoring for internal reporting (a firm's investment products), and product positioning (competitive analysis against peer groups) with performance reporting in Morningstar Direct.℠

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Outline

- Internal Reporting and Product Positioning Scenarios
  - Business need
  - Morningstar Direct capabilities
  - Sample output
- Demonstration
- Questions

Monitor and Evaluate Ongoing Product Performance

Scenario 1: Internal Performance Monitoring

- Business Need
  - Ongoing performance monitoring of products for internal reporting to the firm, senior management, board, and investment committee
- Morningstar Direct Capabilities
  - Analyze both quantitative and qualitative data
  - Calculate peer group percentile, ranking, and benchmark differential for the entire fund lineup
  - *Apply batch management to automate report production*
  - *Create heat map to track trends*

Scenario 1a: Internal Performance Monitoring

- Sample Output of Firm Level Report (Overview)

File New Favorites Tools Help QuoteSpeed Search for In Securities Go Send us feedback

Home
Equity/Credit Research
Local Databases
Global Databases
Performance Attribution
Performance Reporting
Reports
Batches

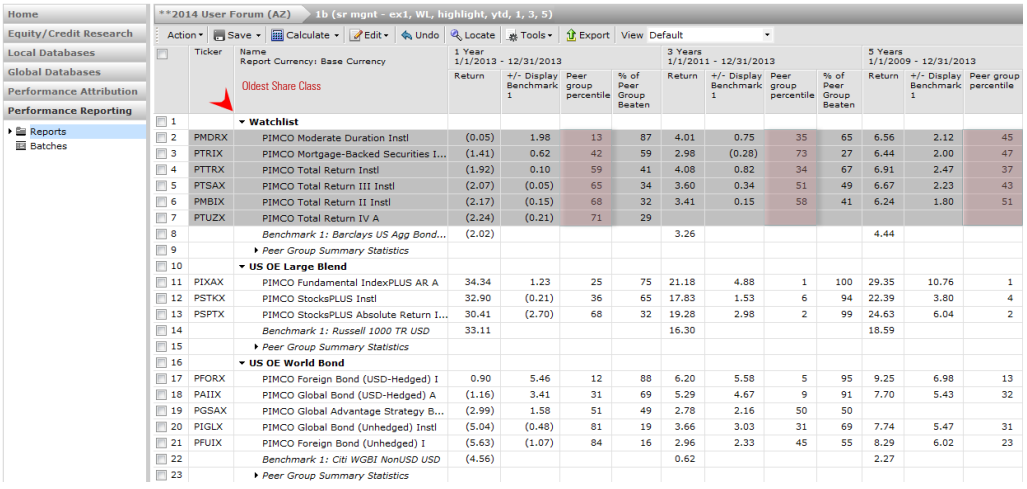
**2014 User Forum (AZ) 1a (firm level - ytd, 1, 3, 5)

Action Save Calculate Edit Undo Locate Tools Export View Default

	Ticker	Name Report Currency: Base Currency Oldest Share Class	1 Year 1/1/2013 - 12/31/2013				3 Years 1/1/2011 - 12/31/2013				5 Years 1/1/2009 - 12/31/2013		
			Return	+/- Display Benchmark 1	Peer group percentile	% of Peer Group Beaten	Return	+/- Display Benchmark 1	Peer group percentile	% of Peer Group Beaten	Return	+/- Display Benchmark 1	Peer group percentile
59		**US OE Intermediate-Term Bond**											
60	PMDRX	PIMCO Moderate Duration Instl	(0.05)	1.98	13	87	4.01	0.75	35	65	6.56	2.12	45
61	PTRIX	PIMCO Mortgage-Backed Securities Instl	(1.41)	0.62	42	59	2.98	(0.28)	73	27	6.44	2.00	47
62	PTTRX	PIMCO Total Return Instl	(1.92)	0.10	59	41	4.08	0.82	34	67	6.91	2.47	37
63	PTSAX	PIMCO Total Return III Instl	(2.07)	(0.05)	65	34	3.60	0.34	51	49	6.67	2.23	43
64	PMBIX	PIMCO Total Return II Instl	(2.17)	(0.15)	68	32	3.41	0.15	58	41	6.24	1.80	51
65	PTUZX	PIMCO Total Return IV A	(2.24)	(0.21)	71	29							
66		*Benchmark 1: Barclays US Agg Bond TR USD*	(2.02)				3.26				4.44		
67		*Peer Group Summary Statistics*											
68		**US OE Inflation-Protected Bond**											
69	PRTNX	PIMCO Real Return A	(9.41)	(0.80)	80	19	3.08	(0.47)	31	69	6.84	1.21	5
70	PRAIX	PIMCO Real Return Asset Instl	(16.51)	(7.90)	99	1	5.03	1.48	1	100	8.43	2.80	1
71		*Benchmark 1: Barclays US Treasury US TIP...*	(8.61)				3.55				5.63		
72		*Peer Group Summary Statistics*											
73		**US OE Short-Term Bond**											
74	PLDIX	PIMCO Low Duration III Instl	0.24	(0.04)	56	43	2.84	0.97	20	81	5.05	2.19	25
75	PTLDX	PIMCO Low Duration Instl	0.10	(0.18)	63	37	2.63	0.75	24	76	5.16	2.30	23
76	PLDTX	PIMCO Low Duration II Instl	0.04	(0.25)	65	35	2.19	0.31	39	61	4.03	1.18	47
77		*Benchmark 1: Barclays Govt/Credit 1-5 Yr ...*	0.28				1.88				2.86		
78		*Peer Group Summary Statistics*											

Scenario 1b: Internal Performance Monitoring

- Sample Output for Senior Management (Watchlist)



Home | Equity/Credit Research | Local Databases | Global Databases | Performance Attribution | Performance Reporting
Reports | Batches

**2014 User Forum (AZ) › 1b (sr mgnt - ex1, WL, highlight, ytd, 1, 3, 5)

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	Ticker	Name Report Currency: Base Currency Oldest Share Class	1 Year 1/1/2013 - 12/31/2013				3 Years 1/1/2011 - 12/31/2013				5 Years 1/1/2009 - 12/31/2013		
			Return	+/- Display Benchmark 1	Peer group percentile	% of Peer Group Beaten	Return	+/- Display Benchmark 1	Peer group percentile	% of Peer Group Beaten	Return	+/- Display Benchmark 1	Peer group percentile
1		**Watchlist**											
2	PMDRX	PIMCO Moderate Duration Instl	(0.05)	1.98	13	87	4.01	0.75	35	65	6.56	2.12	45
3	PTRIX	PIMCO Mortgage-Backed Securities I...	(1.41)	0.62	42	59	2.98	(0.28)	73	27	6.44	2.00	47
4	PTTRX	PIMCO Total Return Instl	(1.92)	0.10	59	41	4.08	0.82	34	67	6.91	2.47	37
5	PTSAX	PIMCO Total Return III Instl	(2.07)	(0.05)	65	34	3.60	0.34	51	49	6.67	2.23	43
6	PMBIX	PIMCO Total Return II Instl	(2.17)	(0.15)	68	32	3.41	0.15	58	41	6.24	1.80	51
7	PTUZX	PIMCO Total Return IV A	(2.24)	(0.21)	71	29							
8		*Benchmark 1: Barclays US Agg Bond...*	(2.02)				3.26				4.44		
9		*Peer Group Summary Statistics*											
10		**US OE Large Blend**											
11	PIXAX	PIMCO Fundamental IndexPLUS AR A	34.34	1.23	25	75	21.18	4.88	1	100	29.35	10.76	1
12	PSTKX	PIMCO StocksPLUS Instl	32.90	(0.21)	36	65	17.83	1.53	6	94	22.39	3.80	4
13	PSPTX	PIMCO StocksPLUS Absolute Return I...	30.41	(2.70)	68	32	19.28	2.98	2	99	24.63	6.04	2
14		*Benchmark 1: Russell 1000 TR USD*	33.11				16.30				18.59		
15		*Peer Group Summary Statistics*											
16		**US OE World Bond**											
17	PFORX	PIMCO Foreign Bond (USD-Hedged) I	0.90	5.46	12	88	6.20	5.58	5	95	9.25	6.98	13
18	PAIIX	PIMCO Global Bond (USD-Hedged) A	(1.16)	3.41	31	69	5.29	4.67	9	91	7.70	5.43	32
19	PGSAX	PIMCO Global Advantage Strategy B...	(2.99)	1.58	51	49	2.78	2.16	50	50			
20	PIGLX	PIMCO Global Bond (Unhedged) Instl	(5.04)	(0.48)	81	19	3.66	3.03	31	69	7.74	5.47	31
21	PFUIX	PIMCO Foreign Bond (Unhedged) I	(5.63)	(1.07)	84	16	2.96	2.33	45	55	8.29	6.02	23
22		*Benchmark 1: Citi WGBI NonUSD USD*	(4.56)				0.62				2.27		
23		*Peer Group Summary Statistics*											

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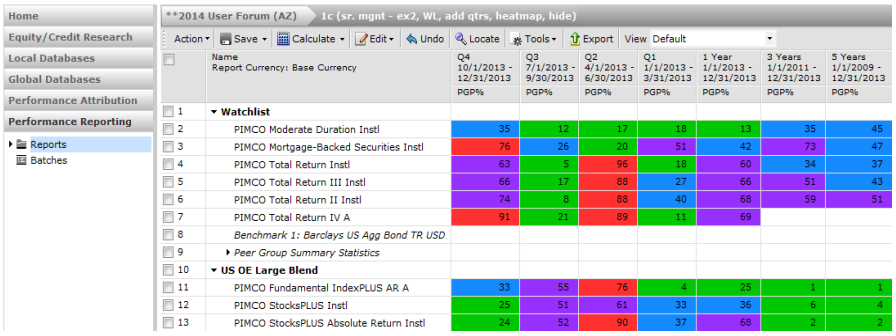
Monitor and Evaluate Ongoing Product Performance

Scenario 1c: Internal Performance Monitoring

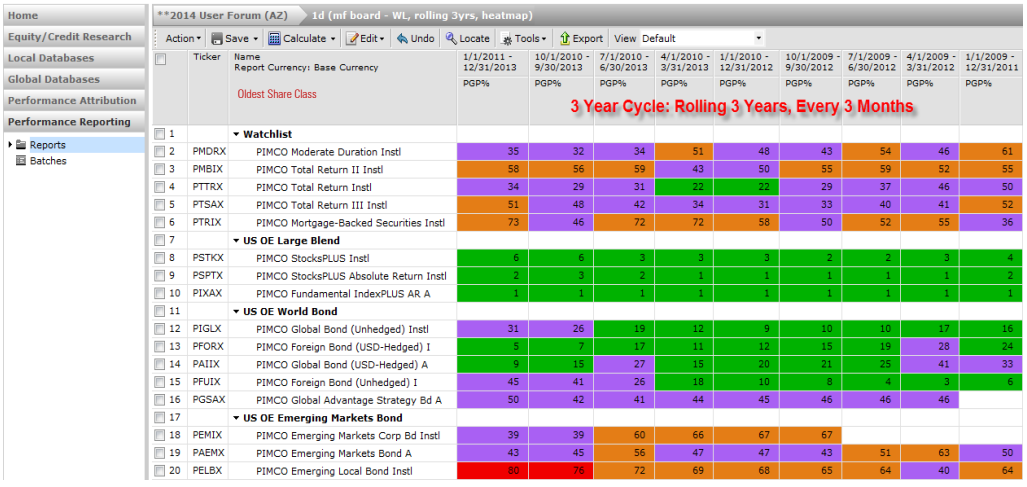
- Sample Output for Senior Management (Conditional Formatting)



	Name Report Currency: Base Currency	Q4 10/1/2013 - 12/31/2013 PGP%	Q3 7/1/2013 - 9/30/2013 PGP%	Q2 4/1/2013 - 6/30/2013 PGP%	Q1 1/1/2013 - 3/31/2013 PGP%	1 Year 1/1/2013 - 12/31/2013 PGP%	3 Years 1/1/2011 - 12/31/2013 PGP%	5 Years 1/1/2009 - 12/31/2013 PGP%
1	**Watchlist**							
2	PIMCO Moderate Duration Instl	35	12	17	18	13	35	45
3	PIMCO Mortgage-Backed Securities Instl	76	26	20	51	42	73	47
4	PIMCO Total Return Instl	63	5	96	18	60	34	37
5	PIMCO Total Return III Instl	66	17	88	27	66	51	43
6	PIMCO Total Return II Instl	74	8	88	40	68	59	51
7	PIMCO Total Return IV A	91	21	89	11	69		
8	*Benchmark 1: Barclays US Agg Bond TR USD*							
9	*Peer Group Summary Statistics*							
10	**US OE Large Blend**							
11	PIMCO Fundamental IndexPLUS AR A	33	55	76	4	25	1	1
12	PIMCO StocksPLUS Instl	25	51	61	33	36	6	4
13	PIMCO StocksPLUS Absolute Return Instl	24	52	90	37	68	2	2

Scenario 1d: Internal Performance Monitoring

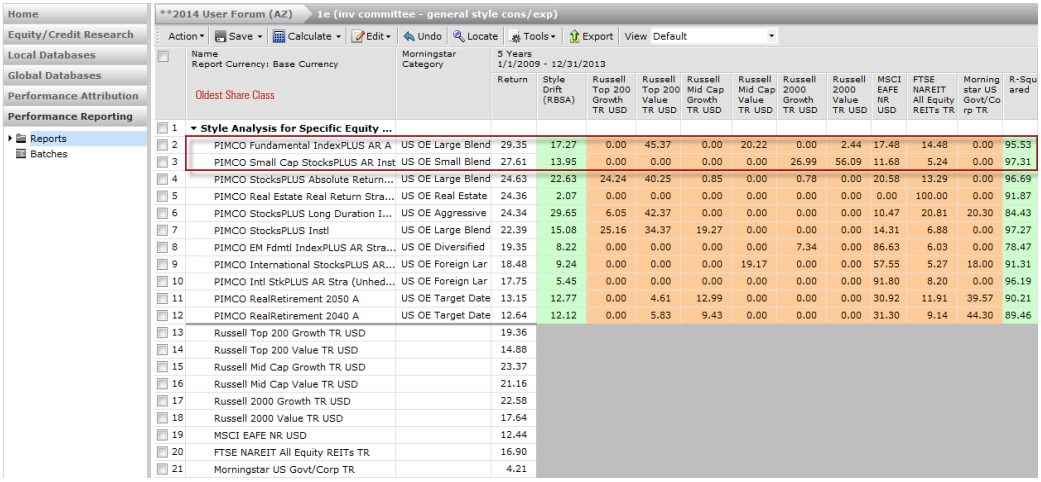
- Sample Output for Mutual Fund Board (Rolling Three-Year Periods)



	Ticker	Name Report Currency: Base Currency	1/1/2011 - 12/31/2013 PGP%	10/1/2010 - 9/30/2013 PGP%	7/1/2010 - 6/30/2013 PGP%	4/1/2010 - 3/31/2013 PGP%	1/1/2010 - 12/31/2012 PGP%	10/1/2009 - 9/30/2012 PGP%	7/1/2009 - 6/30/2012 PGP%	4/1/2009 - 3/31/2012 PGP%	1/1/2009 - 12/31/2011 PGP%
1		**Watchlist**									
2	PMDRX	PIMCO Moderate Duration Instl	35	32	34	51	48	43	54	46	61
3	PMBIX	PIMCO Total Return II Instl	58	56	59	43	50	55	59	52	55
4	PTTRX	PIMCO Total Return Instl	34	29	31	22	22	29	37	46	50
5	PTSAX	PIMCO Total Return III Instl	51	48	42	34	31	33	40	41	52
6	PTRIX	PIMCO Mortgage-Backed Securities Instl	73	46	72	72	58	50	52	55	36
7		**US OE Large Blend**									
8	PSTKX	PIMCO StocksPLUS Instl	6	6	3	3	3	2	2	3	4
9	PSPTX	PIMCO StocksPLUS Absolute Return Instl	2	3	2	1	1	1	1	1	2
10	PIXAX	PIMCO Fundamental IndexPLUS AR A	1	1	1	1	1	1	1	1	1
11		**US OE World Bond**									
12	PIGLX	PIMCO Global Bond (Unhedged) Instl	31	26	19	12	9	10	10	17	16
13	PFORX	PIMCO Foreign Bond (USD-Hedged) I	5	7	17	11	12	15	19	28	24
14	PAIIX	PIMCO Global Bond (USD-Hedged) A	9	15	27	15	20	21	25	41	33
15	PFUIX	PIMCO Foreign Bond (Unhedged) I	45	41	26	18	10	8	4	3	6
16	PGSAX	PIMCO Global Advantage Strategy Bd A	50	42	41	44	45	46	46	46	
17		**US OE Emerging Markets Bond**									
18	PEMIX	PIMCO Emerging Markets Corp Bd Instl	39	39	60	66	67	67			
19	PAEMX	PIMCO Emerging Markets Bond A	43	45	56	47	47	43	51	63	50
20	PELBX	PIMCO Emerging Local Bond Instl	80	76	72	69	68	65	64	40	64

Scenario 1e: Internal Performance Monitoring

- Sample Output for Investment Committee (Style Consistency)



Monitor and Evaluate Ongoing Product Performance

Scenario 2: Competitive Analysis and Positioning

- Business Need
  - Understand competitive positioning to support portfolio managers and sales force
- Morningstar Direct Capability
  - Compare funds against the entire Morningstar Category or customized peer group
  - Analyze more than 100 performance data points, including style consistency and exposure
  - *Apply batch management to automate report production*
  - *Create heat map to track trends*

Scenario 2a: Competitive Analysis and Positioning

- Sample Output of Quantitative and Qualitative Data

Home
Equity/Credit Research
Local Databases
Global Databases
Performance Attribution
Performance Reporting
Reports
Batches

**2014 User Forum (AZ) > 2a (Quant/Qual - LB, Ytd, 1, 3, 5)

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	Ticker	Name Report Currency: Base Currency Oldest Share Class	Morningstar Rating Overall	Morningstar Analyst Rating	Manager Tenure (Longest)	Prospectus Net Expense Ratio	2013 1/1/2013 - 12/31/2013 Return	+/- Display Benchmark 1	Peer group percentile	Std Dev	Alpha	Beta
1		**US OE Large Blend**										
2	VCVLX	Vanguard Capital Value Inv	★★★	Bronze	5.58	0.47	43.86	10.75	1	10.72	5.42	1.15
3	ITHAX	Hartford Capital Appreciatio...	★★★	Bronze	17.50	1.16	41.67	8.56	2	9.27	6.65	1.04
4	TVAFX	Thornburg Value A	★	Neutral	7.92	1.32	39.49	6.38	4	9.49	5.37	1.03
5	FLCSX	Fidelity Large Cap Stock	★★★★	Silver	8.67	0.85	39.24	6.13	5	8.86	5.61	1.01
6	JACNX	Janus Contrarian D	★★★	Neutral	3.00	0.67	38.56	5.45	6	10.76	3.43	1.08
7	FALHX	Fidelity Advisor Large Cap B	★★★★	Silver	8.25	2.02	38.05	4.94	8	8.87	4.71	1.02
8	CGMFX	CGM Focus	★	Neutral	16.33	1.34	37.61	4.50	9	15.73	(11.62)	1.62
9	OAKMX	Oakmark I	★★★★★	Gold	13.83	1.03	37.29	4.18	10	8.93	4.48	1.00
10	LMVTX	Legg Mason Cap Mgmt Valu...	★★	Neutral	3.17	1.80	37.15	4.04	10	11.30	(1.84)	1.23
11	OAKLX	Oakmark Select I	★★★★	Gold	17.17	1.05	36.52	3.41	13	10.40	0.55	1.13
12	RSEMX	Royce Special Equity Multi-...		Bronze	3.08	1.39	36.26	3.15	14	10.28	2.63	1.05
13	JMUEX	JPMorgan US Equity Instl	★★★★★	Bronze	13.00	0.64	36.04	2.93	15	9.26	1.43	1.08
14	UMBIX	Columbia Value and Restru...	★★	Neutral	4.92	0.96	35.96	2.84	16	9.39	1.24	1.08
15	GILAX	Lord Abbett Fundamental Eq...	★★★	Neutral	4.92	1.74	35.79	2.68	16	9.85	0.49	1.11
16	SMGIX	Columbia Contrarian Core Z	★★★★★	Bronze	8.83	0.89	35.73	2.62	17	9.31	1.44	1.07
17	MPGFX	Mairs & Power Growth Inv	★★★★★	Silver	14.08	0.70	35.64	2.53	18	10.85	(3.17)	1.24
18	NYVTX	Davis NY Venture A	★★	Bronze	18.25	0.88	34.56	1.45	24	8.96	1.65	1.03
19	SRVEX	Victory Diversified Stock A	★★	Neutral	24.25	1.09	34.46	1.34	24	9.26	1.57	1.03

Scenario 2b: Competitive Analysis and Positioning

- Sample Output of Screening Specific Results

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**2014 User Forum (AZ) > 2b (score - ex1, LB, ytd, 1, 3, 5, highlight)

Action | Save | Calculate | Edit | Undo | Locate | Tools | Export | View Default

	Ticker	Name Report Currency: Base Currency Oldest Share Class	1 Year 1/1/2013 - 12/31/2013		3 Years 1/1/2011 - 12/31/2013		5 Years 1/1/2009 - 12/31/2013		Scorecard
			Return: Peer group percentile Score [10%]	Time Period Score	Return: Peer group percentile Score [20%]	Time Period Score	Return: Peer group percentile Score [50%]	Time Period Score	Weighted Score
1		**US OE Large Blend**							
2	SMGIX	Columbia Contrarian Core Z	Approve	4.00	Approve	4.00	Approve	4.00	4.00
3	FALHX	Fidelity Advisor Large Cap B	Approve	4.00	Approve	4.00	Approve	4.00	4.00
4	FLCSX	Fidelity Large Cap Stock	Approve	4.00	Approve	4.00	Approve	4.00	4.00
5	JMUEX	JPMorgan US Equity Instl	Approve	4.00	Approve	4.00	Approve	4.00	4.00
6	MPGFX	Mairs & Power Growth Inv	Approve	4.00	Approve	4.00	Approve	4.00	4.00
7	OAKMX	Oakmark I	Approve	4.00	Approve	4.00	Approve	4.00	4.00
8	OAKLX	Oakmark Select I	Approve	4.00	Approve	4.00	Approve	4.00	4.00
9	PIXAX	PIMCO Fundamental IndexPLUS AR A	Approve	4.00	Approve	4.00	Approve	4.00	4.00
10	POSKX	PRIMECAP Odyssey Stock	Approve	4.00	Still Appro	3.00	Approve	4.00	3.80
11	TISCX	TIAA-CREF Social Choice Eq Instl	Approve	4.00	Still Appro	3.00	Approve	4.00	3.80
12	FDESX	Fidelity Advisor® Diversified Stock O	Still Appro	3.00	Approve	4.00	Approve	4.00	3.70
13	FSTMX	Fidelity Spartan Total Market Index Inv	Still Appro	3.00	Approve	4.00	Approve	4.00	3.70
14	PSTKX	PIMCO StocksPLUS Instl	Still Appro	3.00	Approve	4.00	Approve	4.00	3.70
15	SWTSX	Schwab Total Stock Market Index	Still Appro	3.00	Approve	4.00	Approve	4.00	3.70
16	VTCIX	Vanguard Tax-Managed Capital App I	Still Appro	3.00	Approve	4.00	Approve	4.00	3.70
17	VTSMX	Vanguard Total Stock Mkt Idx Inv	Still Appro	3.00	Approve	4.00	Approve	4.00	3.70
18	VCVLX	Vanguard Capital Value Inv	Approve	4.00	Watch	2.00	Approve	4.00	3.60

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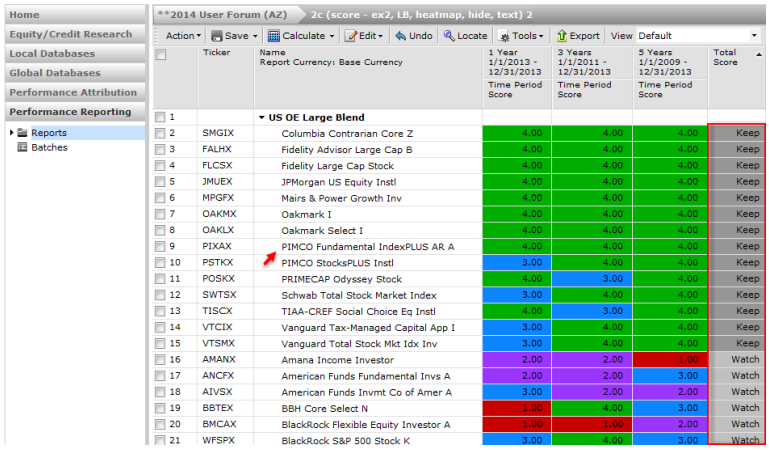
Monitor and Evaluate Ongoing Product Performance

Scenario 2c: Competitive Analysis and Positioning

- Sample Output With Conditional Formatting to Identify Specific Results



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**2014 User Forum (AZ) > 2c (score - ex2, LB, heatmap, hide, text) 2

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	Ticker	Name Report Currency: Base Currency	1 Year 1/1/2013 - 12/31/2013 Time Period Score	3 Years 1/1/2011 - 12/31/2013 Time Period Score	5 Years 1/1/2009 - 12/31/2013 Time Period Score	Total Score
1		**US OE Large Blend**				
2	SMGIX	Columbia Contrarian Core Z	4.00	4.00	4.00	Keep
3	FALHX	Fidelity Advisor Large Cap B	4.00	4.00	4.00	Keep
4	FLCSX	Fidelity Large Cap Stock	4.00	4.00	4.00	Keep
5	JMUEX	JPMorgan US Equity Instl	4.00	4.00	4.00	Keep
6	MPGFX	Mairs & Power Growth Inv	4.00	4.00	4.00	Keep
7	OAKMX	Oakmark I	4.00	4.00	4.00	Keep
8	OAKLX	Oakmark Select I	4.00	4.00	4.00	Keep
9	PIXAX	PIMCO Fundamental IndexPLUS AR A	4.00	4.00	4.00	Keep
10	PSTKX	PIMCO StocksPLUS Instl	3.00	4.00	4.00	Keep
11	POSKX	PRIMECAP Odyssey Stock	4.00	3.00	4.00	Keep
12	SWTSX	Schwab Total Stock Market Index	3.00	4.00	4.00	Keep
13	TISCX	TIAA-CREF Social Choice Eq Instl	4.00	3.00	4.00	Keep
14	VTCIX	Vanguard Tax-Managed Capital App I	3.00	4.00	4.00	Keep
15	VTSMX	Vanguard Total Stock Mkt Idx Inv	3.00	4.00	4.00	Keep
16	AMANX	Amana Income Investor	2.00	2.00	1.00	Watch
17	ANCFX	American Funds Fundamental Invs A	2.00	2.00	3.00	Watch
18	AIVSX	American Funds Invmt Co of Amer A	3.00	2.00	2.00	Watch
19	BBTEX	BBH Core Select N	1.00	4.00	3.00	Watch
20	BMCAX	BlackRock Flexible Equity Investor A	1.00	1.00	2.00	Watch
21	WFSPX	BlackRock S&P 500 Stock K	3.00	4.00	3.00	Watch

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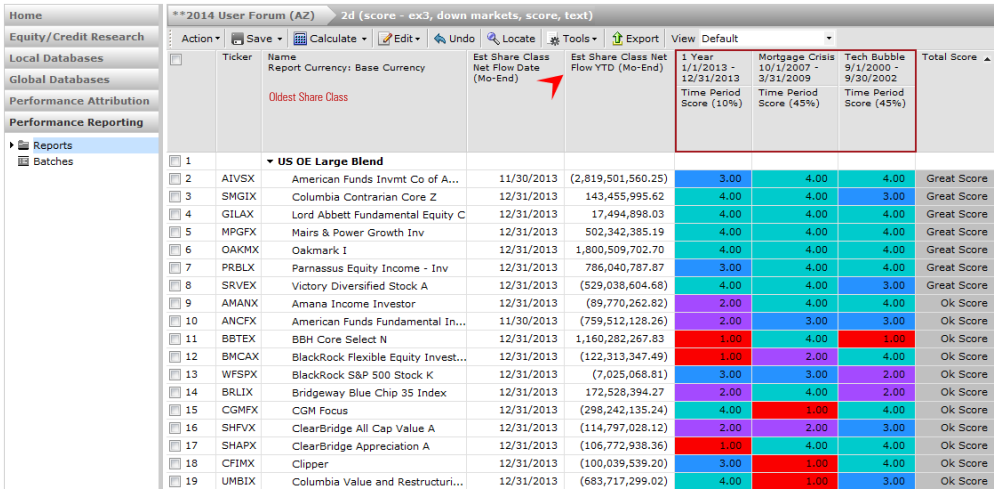
Scenario 2d: Competitive Analysis and Positioning

- Sample Output of Screening Results for Down Markets



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**2014 User Forum (AZ) > 2d (score - ex3, down markets, score, text)

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	Ticker	Name Report Currency: Base Currency Oldest Share Class	Est Share Class Net Flow Date (Mo-End)	Est Share Class Net Flow YTD (Mo-End)	1 Year 1/1/2013 - 12/31/2013 Time Period Score (10%)	Mortgage Crisis 10/1/2007 - 3/31/2009 Time Period Score (45%)	Tech Bubble 9/1/2000 - 9/30/2002 Time Period Score (45%)	Total Score
1		**US OE Large Blend**						
2	AIVSX	American Funds Invmt Co of A...	11/30/2013	(2,819,501,560.25)	3.00	4.00	4.00	Great Score
3	SMGIX	Columbia Contrarian Core Z	12/31/2013	143,455,995.62	4.00	4.00	3.00	Great Score
4	GILAX	Lord Abbett Fundamental Equity C	12/31/2013	17,494,898.03	4.00	4.00	4.00	Great Score
5	MPGFX	Mairs & Power Growth Inv	12/31/2013	502,342,385.19	4.00	4.00	4.00	Great Score
6	OAKMX	Oakmark I	12/31/2013	1,800,509,702.70	4.00	4.00	4.00	Great Score
7	PRBLX	Parnassus Equity Income - Inv	12/31/2013	786,040,787.87	3.00	4.00	4.00	Great Score
8	SRVEX	Victory Diversified Stock A	12/31/2013	(529,038,604.68)	4.00	4.00	3.00	Great Score
9	AMANX	Amana Income Investor	12/31/2013	(89,770,262.82)	2.00	4.00	4.00	Ok Score
10	ANCFX	American Funds Fundamental In...	11/30/2013	(759,512,128.26)	2.00	3.00	3.00	Ok Score
11	BBTEX	BBH Core Select N	12/31/2013	1,160,282,267.83	1.00	4.00	1.00	Ok Score
12	BMCAX	BlackRock Flexible Equity Invest...	12/31/2013	(122,313,347.49)	1.00	2.00	4.00	Ok Score
13	WFSPX	BlackRock S&P 500 Stock K	12/31/2013	(7,025,068.81)	3.00	3.00	2.00	Ok Score
14	BRLIX	Bridgeway Blue Chip 35 Index	12/31/2013	172,528,394.27	2.00	4.00	2.00	Ok Score
15	CGMFX	CGM Focus	12/31/2013	(298,242,135.24)	4.00	1.00	4.00	Ok Score
16	SHFVX	ClearBridge All Cap Value A	12/31/2013	(114,797,028.12)	2.00	2.00	3.00	Ok Score
17	SHAPX	ClearBridge Appreciation A	12/31/2013	(106,772,938.36)	1.00	4.00	4.00	Ok Score
18	CFIMX	Clipper	12/31/2013	(100,039,539.20)	3.00	1.00	4.00	Ok Score
19	UMBIX	Columbia Value and Restructuri...	12/31/2013	(683,717,299.02)	4.00	1.00	3.00	Ok Score

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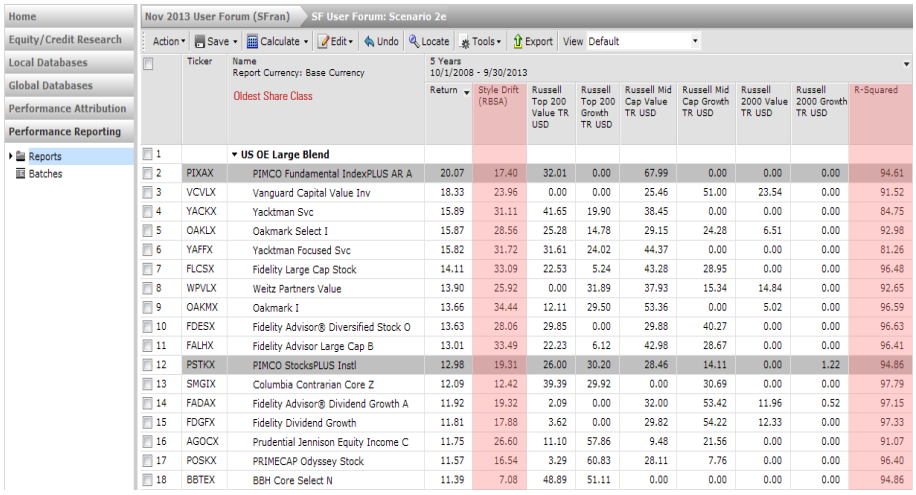
Scenario 2e: Competitive Analysis and Positioning

- Sample Output Focusing on Style Consistency



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Nov 2013 User Forum (SFran) > SF User Forum: Scenario 2e

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	Ticker	Name Report Currency: Base Currency Oldest Share Class	5 Years 10/1/2008 - 9/30/2013 Return	Style Drift (RBSA)	Russell Top 200 Value TR USD	Russell Top 200 Growth TR USD	Russell Mid Cap Value TR USD	Russell Mid Cap Growth TR USD	Russell 2000 Value TR USD	Russell 2000 Growth TR USD	R-Squared
1		**US OE Large Blend**									
2	PIXAX	PIMCO Fundamental IndexPLUS AR A	20.07	17.40	32.01	0.00	67.99	0.00	0.00	0.00	94.61
3	VCVLX	Vanguard Capital Value Inv	18.33	23.96	0.00	0.00	25.46	51.00	23.54	0.00	91.52
4	YACKX	Yacktman Svc	15.89	31.11	41.65	19.90	38.45	0.00	0.00	0.00	84.75
5	OAKLX	Oakmark Select I	15.87	28.56	25.28	14.78	29.15	24.28	6.51	0.00	92.98
6	YAFFX	Yacktman Focused Svc	15.82	31.72	31.61	24.02	44.37	0.00	0.00	0.00	81.26
7	FLCSX	Fidelity Large Cap Stock	14.11	33.09	22.53	5.24	43.28	28.95	0.00	0.00	96.48
8	WPVLX	Weitz Partners Value	13.90	25.92	0.00	31.89	37.93	15.34	14.84	0.00	92.65
9	OAKMX	Oakmark I	13.66	34.44	12.11	29.50	53.36	0.00	5.02	0.00	96.59
10	FDESX	Fidelity Advisor® Diversified Stock O	13.63	28.06	29.85	0.00	29.88	40.27	0.00	0.00	96.63
11	FALHX	Fidelity Advisor Large Cap B	13.01	33.49	22.23	6.12	42.98	28.67	0.00	0.00	96.41
12	PSTKX	PIMCO StocksPLUS Instl	12.98	19.31	26.00	30.20	28.46	14.11	0.00	1.22	94.86
13	SMGIX	Columbia Contrarian Core Z	12.09	12.42	39.39	29.92	0.00	30.69	0.00	0.00	97.79
14	FADAX	Fidelity Advisor® Dividend Growth A	11.92	19.32	2.09	0.00	32.00	53.42	11.96	0.52	97.15
15	FDGFX	Fidelity Dividend Growth	11.81	17.88	3.62	0.00	29.82	54.22	12.33	0.00	97.33
16	AGOCX	Prudential Jennison Equity Income C	11.75	26.60	11.10	57.86	9.48	21.56	0.00	0.00	91.07
17	POSKX	PRIMECAP Odyssey Stock	11.57	16.54	3.29	60.83	28.11	7.76	0.00	0.00	96.40
18	BBTEX	BBH Core Select N	11.39	7.08	48.89	51.11	0.00	0.00	0.00	0.00	94.86

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Monitor and Evaluate Ongoing Product Performance

Conduct Manager Due Diligence With Morningstar or Custom Data

Conduct Manager Due Diligence With Morningstar or Custom Data

Morningstar Direct User Forum

Jonathan O'Keefe, Senior Product Consultant

MORNINGSTAR®

Objective

Learn how to streamline and simplify your manager due-diligence and reporting process for various investments across multiple asset classes and custom groups.

MORNINGSTAR®

Outline

- Manager Search
  - Search for investments across global universes that meet specific mandates for performance, risk, and operational- and portfolio-derived statistics
- Performance Reporting
  - Monitor and report on investment lineups across multiple asset classes against pre-defined or customized peer groups and benchmarks
  - Take advantage of the new returns-based style analysis to identify true market cap or style managers
- Scorecard
  - Apply a custom grading system on the search list to calculate overall scores and identify a short list of managers that meet specific mandates

MORNINGSTAR®

Conduct Manager Due Diligence With Morningstar or Custom Data

Outline

- Further In-Depth Analysis
  - Equity Attribution to identify impact of investment decisions
  - Portfolio Analysis to monitor specific portfolios in real time
- Additional Tools
  - Custom Database
  - Notes

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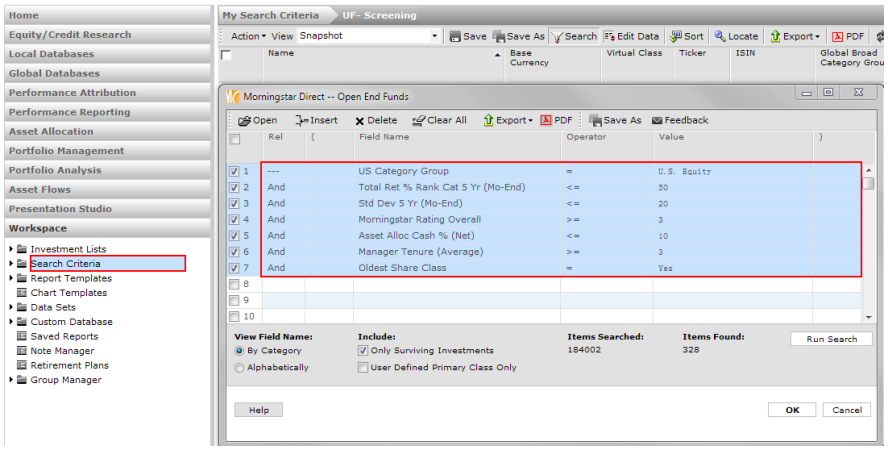
Manager Search

- Search by specific mandates across multiple categories



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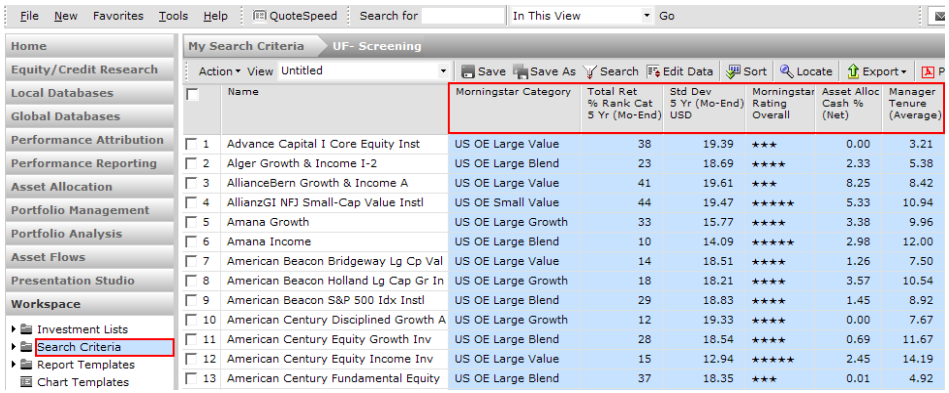
Manager Search

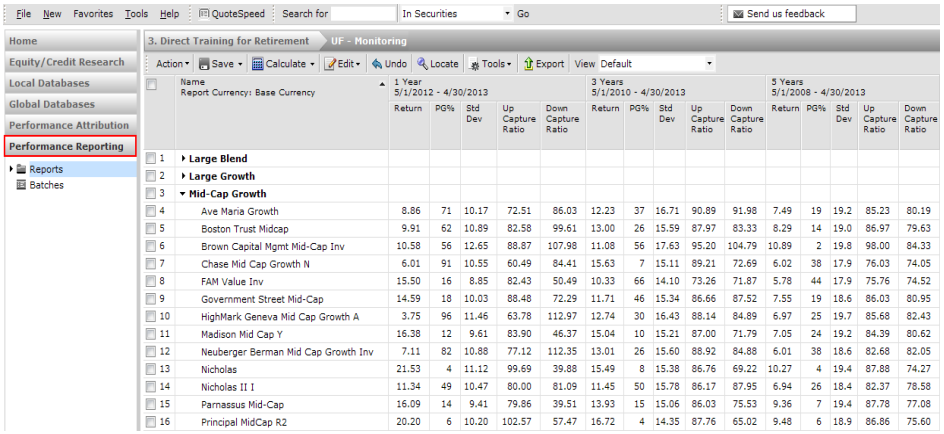
- Evaluate search results



Conduct Manager Due Diligence With Morningstar or Custom Data

Performance Reporting

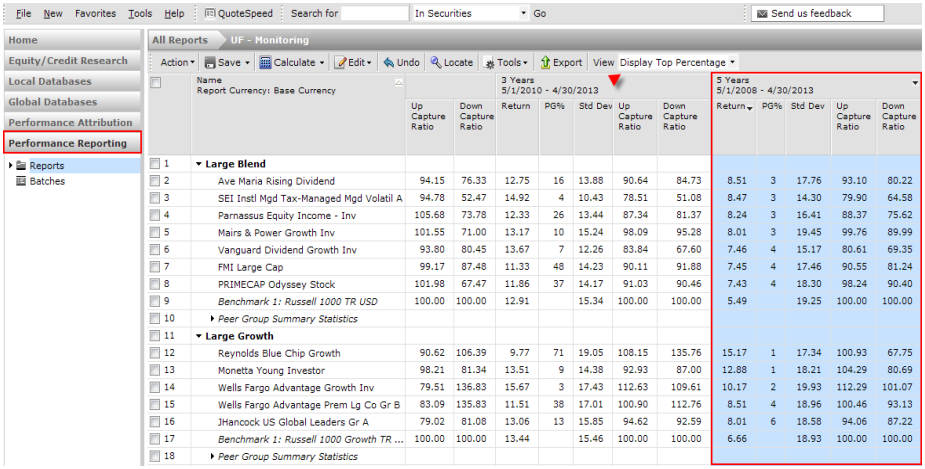
- Monitor investment lineup



	Name Report Currency: Base Currency	1 Year 5/1/2012 - 4/30/2013					3 Years 5/1/2010 - 4/30/2013					5 Years 5/1/2008 - 4/30/2013				
		Return	PG%	Std Dev	Up Capture Ratio	Down Capture Ratio	Return	PG%	Std Dev	Up Capture Ratio	Down Capture Ratio	Return	PG%	Std Dev	Up Capture Ratio	Down Capture Ratio
1	**Large Blend**															
2	**Large Growth**															
3	**Mid-Cap Growth**															
4	Ave Maria Growth	8.86	71	10.17	72.51	86.03	12.23	37	16.71	90.89	91.98	7.49	19	19.2	85.23	80.19
5	Boston Trust Midcap	9.91	62	10.89	82.58	99.61	13.00	26	15.59	87.97	83.33	8.29	14	19.0	86.97	79.63
6	Brown Capital Mgmt Mid-Cap Inv	10.58	56	12.65	88.87	107.98	11.08	56	17.63	95.20	104.79	10.89	2	19.8	98.00	84.33
7	Chase Mid Cap Growth N	6.01	91	10.55	60.49	84.41	15.63	7	15.11	89.21	72.69	6.02	38	17.9	76.03	74.05
8	FAM Value Inv	15.50	16	8.85	82.43	50.49	10.33	66	14.10	73.26	71.87	5.78	44	17.9	75.76	74.52
9	Government Street Mid-Cap	14.59	18	10.03	88.48	72.29	11.71	46	15.34	86.66	87.52	7.55	19	18.6	86.03	80.95
10	HighMark Geneva Mid Cap Growth A	3.75	96	11.46	63.78	112.97	12.74	30	16.43	88.14	84.89	6.97	25	19.7	85.68	82.43
11	Madison Mid Cap Y	16.38	12	9.61	83.90	46.37	15.04	10	15.21	87.00	71.79	7.05	24	19.2	84.39	80.62
12	Neuberger Berman Mid Cap Growth Inv	7.11	82	10.88	77.12	112.35	13.01	26	15.60	88.92	84.88	6.01	38	18.6	82.68	82.05
13	Nicholas	21.53	4	11.12	99.69	39.88	15.49	8	15.38	86.76	69.22	10.27	4	19.4	87.88	74.27
14	Nicholas II I	11.34	49	10.47	80.00	81.09	11.45	50	15.78	86.17	87.95	6.94	26	18.4	82.37	78.58
15	Parnassus Mid-Cap	16.09	14	9.41	79.86	39.51	13.93	15	15.06	86.03	75.53	9.36	7	19.4	87.78	77.08
16	Principal MidCap R2	20.20	6	10.20	102.57	57.47	16.72	4	14.35	87.76	65.02	9.48	6	18.9	86.86	75.60

Performance Reporting

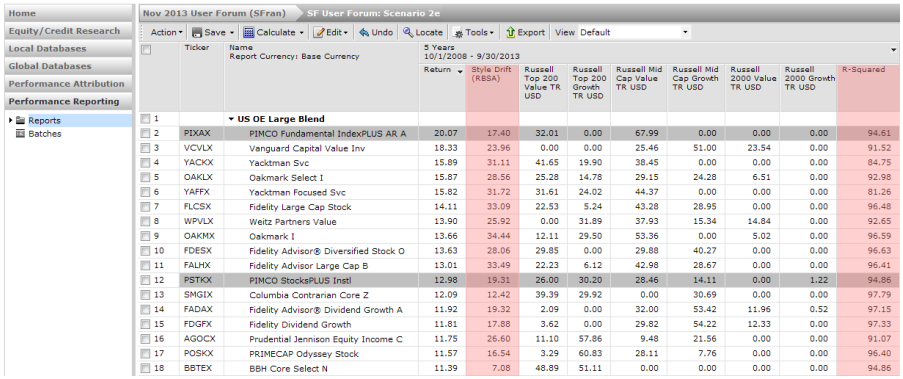
- Highlight specific results



	Name Report Currency: Base Currency			3 Years 5/1/2010 - 4/30/2013					5 Years 5/1/2008 - 4/30/2013				
		Up Capture Ratio	Down Capture Ratio	Return	PG%	Std Dev	Up Capture Ratio	Down Capture Ratio	Return	PG%	Std Dev	Up Capture Ratio	Down Capture Ratio
1	**Large Blend**												
2	Ave Maria Rising Dividend	94.15	76.33	12.75	16	13.88	90.64	84.73	8.51	3	17.76	93.10	80.22
3	SEI Instl Mgd Tax-Managed Mgd Volatil A	94.78	52.47	14.92	4	10.43	78.51	51.08	8.47	3	14.30	79.90	64.58
4	Parnassus Equity Income - Inv	105.68	73.78	12.33	26	13.44	87.34	81.37	8.24	3	16.41	88.37	75.62
5	Mairs & Power Growth Inv	101.55	71.00	13.17	10	15.24	98.09	95.28	8.01	3	19.45	99.76	89.99
6	Vanguard Dividend Growth Inv	93.80	80.45	13.67	7	12.26	83.84	67.60	7.46	4	15.17	80.61	69.35
7	FMI Large Cap	99.17	87.48	11.33	48	14.23	90.11	91.88	7.45	4	17.46	90.55	81.24
8	PRIMECAP Odyssey Stock	101.98	67.47	11.86	37	14.17	91.03	90.46	7.43	4	18.30	98.24	90.40
9	*Benchmark 1: Russell 1000 TR USD*	100.00	100.00	12.91		15.34	100.00	100.00	5.49		19.25	100.00	100.00
10	*Peer Group Summary Statistics*												
11	**Large Growth**												
12	Reynolds Blue Chip Growth	90.62	106.39	9.77	71	19.05	108.15	135.76	15.17	1	17.34	100.93	67.75
13	Monetta Young Investor	98.21	81.34	13.51	9	14.38	92.93	87.00	12.88	1	18.21	104.29	80.69
14	Wells Fargo Advantage Growth Inv	79.51	136.83	15.67	3	17.43	112.63	109.61	10.17	2	19.93	112.29	101.07
15	Wells Fargo Advantage Prem Lg Co Gr B	83.09	135.83	11.51	38	17.01	100.90	112.76	8.51	4	18.96	100.46	93.13
16	JHancock US Global Leaders Gr A	79.02	81.08	13.06	13	15.85	94.62	92.59	8.01	6	18.58	94.06	87.22
17	*Benchmark 1: Russell 1000 Growth TR ...*	100.00	100.00	13.44		15.46	100.00	100.00	6.66		18.93	100.00	100.00
18	*Peer Group Summary Statistics*												

Search/Screen—Returns-Based Style Analysis

- Style consistency (i.e. is this lineup true large-core managers?)

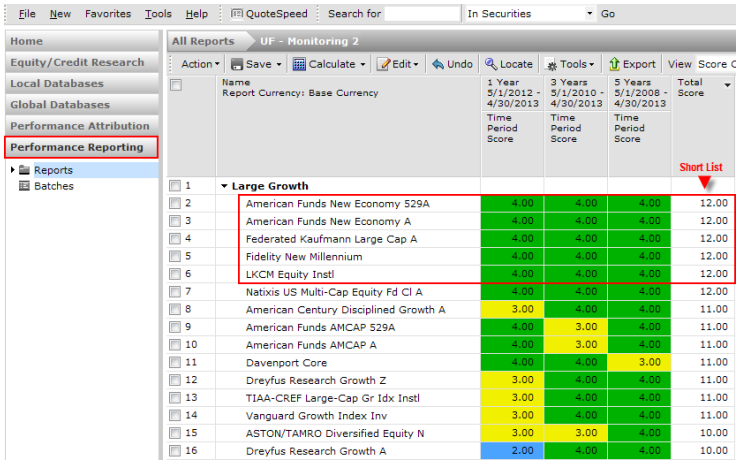


	Ticker	Name Report Currency: Base Currency	5 Years 10/1/2008 - 9/30/2013 Return	Style Drift (RBSA)	Russell Top 200 Value TR USD	Russell Top 200 Growth TR USD	Russell Mid Cap Value TR USD	Russell Mid Cap Growth TR USD	Russell 2000 Value TR USD	Russell 2000 Growth TR USD	R-Squared
1		**US OE Large Blend**									
2	PIXAX	PIMCO Fundamental IndexPLUS AR A	20.07	17.40	32.01	0.00	67.99	0.00	0.00	0.00	94.61
3	VCVLX	Vanguard Capital Value Inv	18.33	23.96	0.00	0.00	25.46	51.00	23.54	0.00	91.52
4	YACKX	Yacktman Svc	15.89	31.11	41.65	19.90	38.45	0.00	0.00	0.00	84.75
5	OAKLX	Oakmark Select I	15.87	28.56	25.28	14.78	29.15	24.28	6.51	0.00	92.98
6	YAFFX	Yacktman Focused Svc	15.82	31.72	31.61	24.02	44.37	0.00	0.00	0.00	81.26
7	FLCSX	Fidelity Large Cap Stock	14.11	33.09	22.53	5.24	43.28	28.95	0.00	0.00	96.48
8	WPVLX	Weitz Partners Value	13.90	25.92	0.00	31.89	37.93	15.34	14.84	0.00	92.65
9	OAKMX	Oakmark I	13.66	34.44	12.11	29.50	53.36	0.00	5.02	0.00	96.59
10	FDESX	Fidelity Advisor® Diversified Stock O	13.63	28.06	29.85	0.00	29.88	40.27	0.00	0.00	96.63
11	FALHX	Fidelity Advisor Large Cap B	13.01	33.49	22.23	6.12	42.98	28.67	0.00	0.00	96.41
12	PSTKX	PIMCO StocksPLUS Instl	12.98	19.31	26.00	30.20	28.46	14.11	0.00	1.22	94.86
13	SMGIX	Columbia Contrarian Core Z	12.09	12.42	39.39	29.92	0.00	30.69	0.00	0.00	97.79
14	FADAX	Fidelity Advisor® Dividend Growth A	11.92	19.32	2.09	0.00	32.00	53.42	11.96	0.52	97.15
15	FDGFX	Fidelity Dividend Growth	11.81	17.88	3.62	0.00	29.82	54.22	12.33	0.00	97.33
16	AGOCX	Prudential Jennison Equity Income C	11.75	26.60	11.10	57.86	9.48	21.56	0.00	0.00	91.07
17	POSKX	PRIMECAP Odyssey Stock	11.57	16.54	3.29	60.83	28.11	7.76	0.00	0.00	96.40
18	BBTEX	BBH Core Select N	11.39	7.08	48.89	51.11	0.00	0.00	0.00	0.00	94.86

Conduct Manager Due Diligence With Morningstar or Custom Data

Scorecard

- Identify short list of managers



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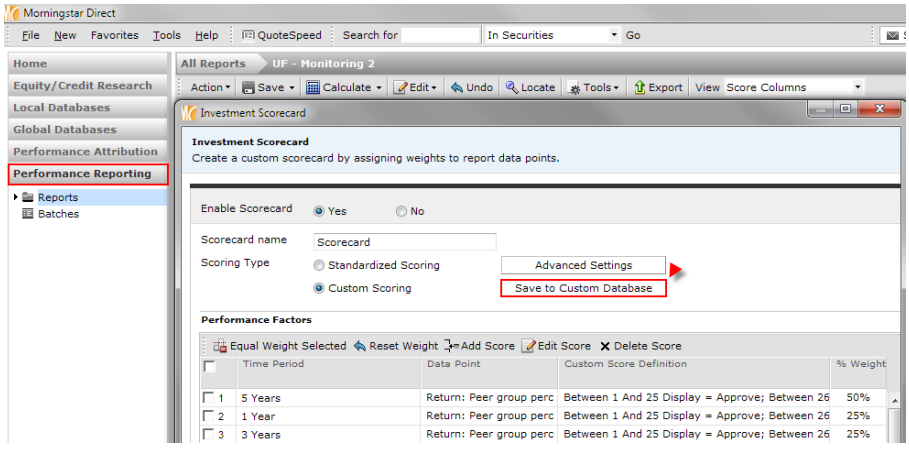
Scorecard

- Save score results to custom database



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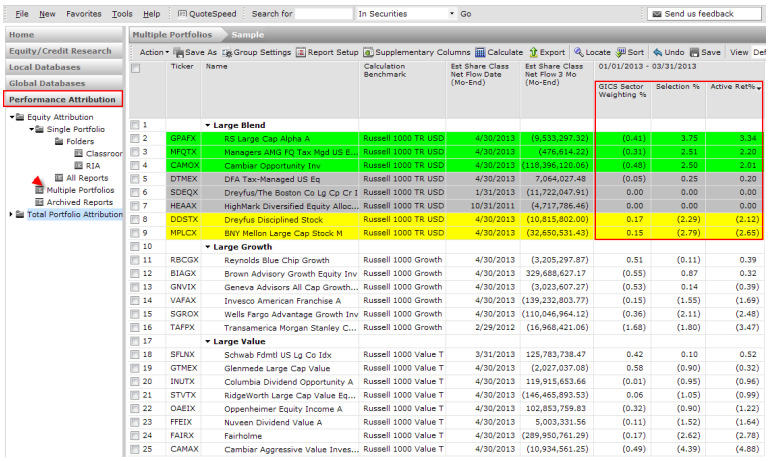
Equity Attribution

- Evaluate investment decisions in/for multiple portfolios

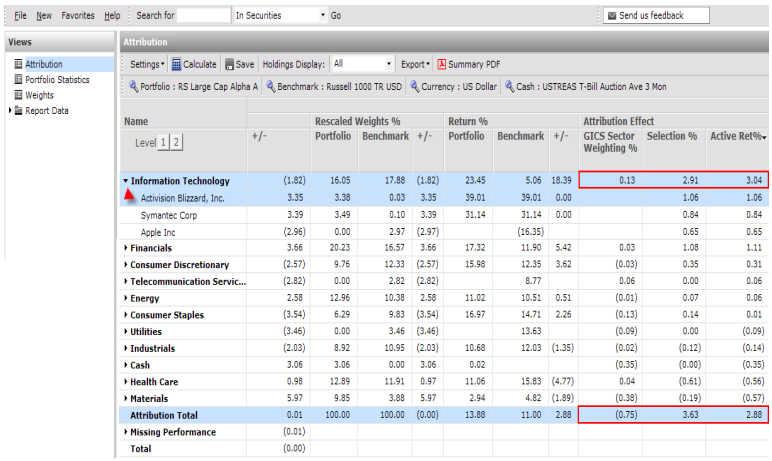


	Ticker	Name	Calculation Benchmark	Est Share Class Net Flow Date (Mo-End)	Est Share Class Net Flow 3 Mo (Mo-End)	GICS Sector Weighting %	Selection %	Active Ret%
1		**Large Blend**						
2	GPAFX	RS Large Cap Alpha A	Russell 1000 TR USD	4/30/2013	(9,533,297.32)	(0.41)	3.75	3.34
3	MFQTX	Managers AMG FQ Tax Mgd US E...	Russell 1000 TR USD	4/30/2013	(476,814.22)	(0.31)	2.51	2.20
4	CAMGX	Cambiar Opportunity Inv	Russell 1000 TR USD	4/30/2013	(118,396,120.06)	(0.48)	2.50	2.01
5	DTMEX	DFA Tax-Managed US Eq	Russell 1000 TR USD	4/30/2013	7,064,027.48	(0.05)	0.25	0.20
6	SDEQX	Dreyfus/The Boston Co Lg Cp Cr I	Russell 1000 TR USD	1/31/2013	(11,722,047.91)	0.00	0.00	0.00
7	HEAAX	HighMark Diversified Equity Alloc...	Russell 1000 TR USD	10/31/2011	(4,717,786.46)	0.00	0.00	0.00
8	DDSTX	Dreyfus Disciplined Stock	Russell 1000 TR USD	4/30/2013	(10,815,802.00)	0.17	(2.29)	(2.12)
9	MPLCX	BNY Mellon Large Cap Stock M	Russell 1000 TR USD	4/30/2013	(32,650,531.43)	0.15	(2.79)	(2.65)
10		**Large Growth**						
11	RBCGX	Reynolds Blue Chip Growth	Russell 1000 Growth	4/30/2013	(3,205,297.87)	0.51	(0.11)	0.39
12	BIAGX	Brown Advisory Growth Equity Inv	Russell 1000 Growth	4/30/2013	329,688,627.17	(0.55)	0.87	0.32
13	GNVIX	Geneva Advisors All Cap Growth...	Russell 1000 Growth	4/30/2013	(3,023,607.27)	(0.53)	0.14	(0.39)
14	VAFAX	Invesco American Franchise A	Russell 1000 Growth	4/30/2013	(139,232,803.77)	(0.15)	(1.55)	(1.69)
15	SGROX	Wells Fargo Advantage Growth Inv	Russell 1000 Growth	4/30/2013	(110,046,964.12)	(0.36)	(2.11)	(2.48)
16	TAFPX	Transamerica Morgan Stanley C...	Russell 1000 Growth	2/29/2012	(16,968,421.06)	(1.68)	(1.80)	(3.47)
17		**Large Value**						
18	SFLNX	Schwab Fdmtl US Lg Co Idx	Russell 1000 Value T	3/31/2013	125,783,738.47	0.42	0.10	0.52
19	GTMEX	Glenmede Large Cap Value	Russell 1000 Value T	4/30/2013	(2,027,037.08)	0.58	(0.90)	(0.32)
20	INUTX	Columbia Dividend Opportunity A	Russell 1000 Value T	4/30/2013	119,915,653.66	(0.01)	(0.95)	(0.96)
21	STVTX	RidgeWorth Large Cap Value Eq...	Russell 1000 Value T	4/30/2013	(146,465,893.53)	0.06	(1.05)	(0.99)
22	OAEIX	Oppenheimer Equity Income A	Russell 1000 Value T	4/30/2013	102,853,759.83	(0.32)	(0.90)	(1.22)
23	FFEIX	Nuveen Dividend Value A	Russell 1000 Value T	4/30/2013	5,003,331.56	(0.11)	(1.52)	(1.64)
24	FAIRX	Fairholme	Russell 1000 Value T	4/30/2013	(289,950,761.29)	(0.17)	(2.62)	(2.78)
25	CAMAX	Cambiar Aggressive Value Inves...	Russell 1000 Value T	4/30/2013	(10,934,561.25)	(0.49)	(4.39)	(4.88)

Conduct Manager Due Diligence With Morningstar or Custom Data

Equity Attribution

- Identify the impact of investment decisions for deeper analysis



Name	Rescaled Weights %			Return %			Attribution Effect		
Level 1 2	+/-	Portfolio	Benchmark	+/-	Portfolio	Benchmark	+/-	GICS Sector Weighting %	Selection %	Active Ret%
Information Technology	(1.82)	16.05	17.88	(1.82)	23.45	5.06	18.39	0.13	2.91	3.04
Activision Blizzard, Inc.	3.35	3.38	0.03	3.35	39.01	0.00			1.06	1.06
Symantec Corp	3.39	3.49	0.10	3.39	31.14	31.14	0.00		0.84	0.84
Apple Inc	(2.96)	0.00	2.97	(2.97)		(16.35)			0.65	0.65
Financials	3.66	20.23	16.57	3.66	17.32	11.90	5.42	0.03	1.08	1.11
Consumer Discretionary	(2.57)	9.76	12.33	(2.57)	15.98	12.35	3.62	(0.03)	0.35	0.31
Telecommunication Servic...	(2.82)	0.00	2.82	(2.82)		8.77		0.06	0.00	0.06
Energy	2.58	12.96	10.38	2.58	11.02	10.51	0.51	(0.01)	0.07	0.06
Consumer Staples	(3.54)	6.29	9.83	(3.54)	16.97	14.71	2.26	(0.13)	0.14	0.01
Utilities	(3.46)	0.00	3.46	(3.46)		13.63		(0.09)	0.00	(0.09)
Industrials	(2.03)	8.92	10.95	(2.03)	10.68	12.03	(1.35)	(0.02)	(0.12)	(0.14)
Cash	3.06	3.06	0.00	3.06	0.02			(0.35)	(0.00)	(0.35)
Health Care	0.98	12.89	11.91	0.97	11.06	15.83	(4.77)	0.04	(0.61)	(0.56)
Materials	5.97	9.85	3.88	5.97	2.94	4.82	(1.89)	(0.38)	(0.19)	(0.57)
Attribution Total	0.01	100.00	100.00	(0.00)	13.88	11.00	2.88	(0.75)	3.63	2.88
Missing Performance	(0.01)									
Total	(0.00)									

Real-Time Portfolio Analysis

- Monitor specific portfolios in real time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Communicate Information With Powerful Reporting Solutions

Communicate Information With Powerful Reporting Solutions

Morningstar Direct User Forum

Jim Ofria, Product Manager

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Outline

- Why Use Presentation Studio?
- Sales and Marketing Needs
- Reporting Solution Examples
- Demonstration
- Additional Solution With Report Portal
- Sample Presentation Studio Links

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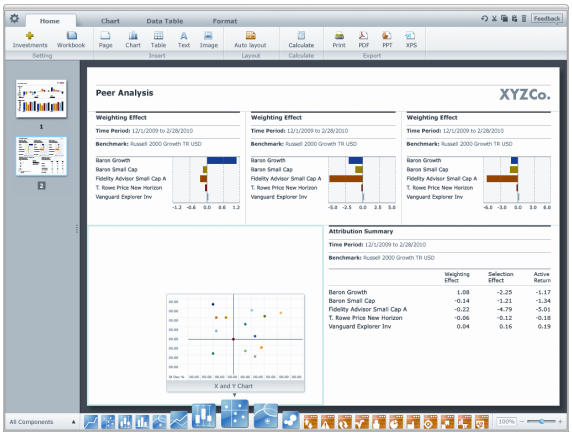
Presentation Studio

- Presentation Studio combines Morningstar data with an easy-to-use tool for creating customized presentation templates using charts, data tables, images, and text based on up-to-the-minute investment data.



Communicate Information With Powerful Reporting Solutions

Sales and Marketing
Communicate Your Value Proposition

- Create customized reports for investments and portfolios
  - Design the layout and content
  - Customize colors and fonts
  - Include company logos or other images
  - Write custom commentary and text
  - Integrate custom peer groups and custom data points
  - Export directly to PowerPoint and PDF
- Used for manager search reports, client portfolio results, current and proposed portfolio comparisons, custom investment and portfolio factsheets, and more

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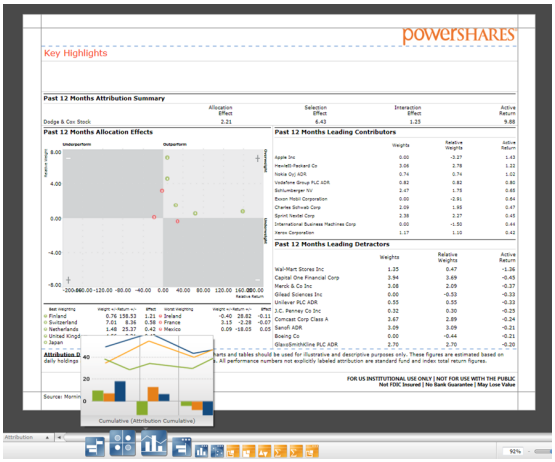
Sales and Marketing
Communicate Your Deep Dive Analysis

- Gateway to Morningstar Direct's Institutional Data and Analytics Power
  - Asset flows
  - Performance attribution
  - Return- and holdings-based style analysis
  - Custom calculations (active share, kurtosis, etc.)



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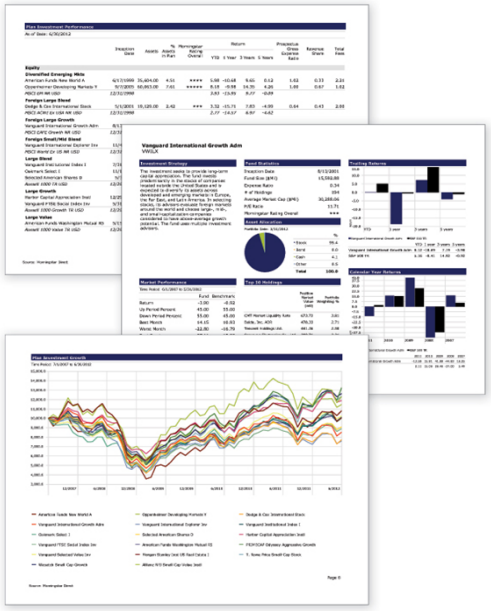
Reporting Solutions
Plan Review Book

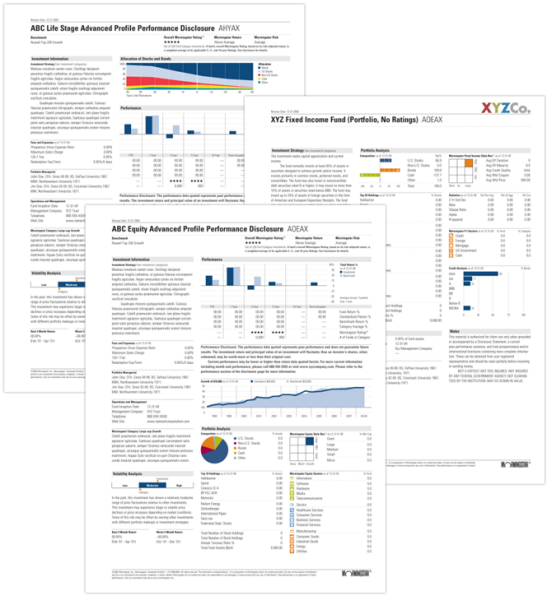
- Customize plan investment summary and fact sheet templates
- Organize investments by style, asset class, or custom groupings
- Integrate scoring
- Customize and automate peer group and benchmark assignments



Communicate Information With Powerful Reporting Solutions

Reporting Solutions
Factsheets

- Present investment information in a clear and consistent format for all types of investments
- Customize branding, content, and design
- Do-it-yourself and fully outsourced solutions
- Combine Morningstar data with your proprietary and custom data



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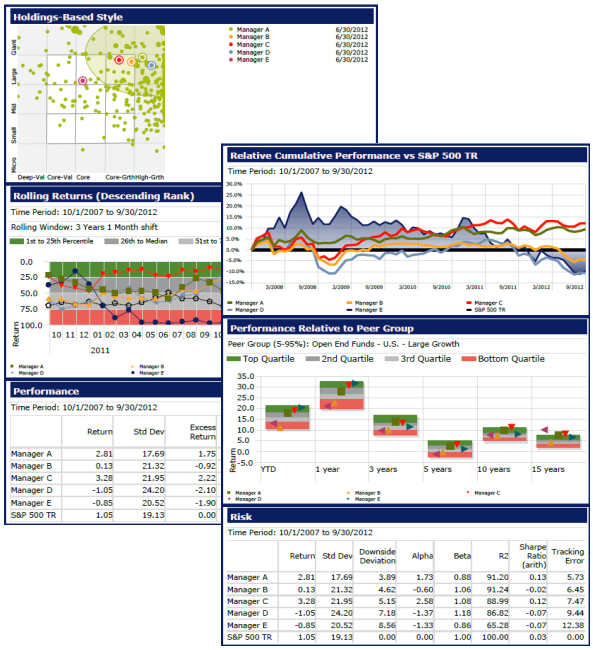
Reporting Solutions
Pitchbooks

- Compare multiple investments
- Present investment information in a clear and consistent format for all types of investments
- Customize branding, content, and design
- Do-it-yourself
- Combine Morningstar data with your proprietary and custom data



	Return	Std Dev	Excess Return
Manager A	2.81	17.69	1.75
Manager B	0.13	21.32	-0.92
Manager C	3.28	21.95	2.22
Manager D	-1.05	24.20	-2.10
Manager E	-0.85	20.52	-1.90
S&P 500 TR	1.05	19.13	0.00

	Return	Std Dev	Downside Deviation	Alpha	Beta	R2	Sharpe Ratio (arith)	Tracking Error
Manager A	2.81	17.69	3.89	1.73	0.88	91.20	0.13	5.73
Manager B	0.13	21.32	4.62	-0.60	1.06	91.24	-0.02	6.45
Manager C	3.28	21.95	5.15	2.58	1.08	88.99	0.12	7.47
Manager D	-1.05	24.20	7.18	-1.37	1.18	86.82	-0.07	9.44
Manager E	-0.85	20.52	8.56	-1.33	0.86	65.28	-0.07	12.38
S&P 500 TR	1.05	19.13	0.00	0.00	1.00	100.00	0.03	0.00

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Demonstration

- How to create a Presentation Studio report

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Communicate Information With Powerful Reporting Solutions

Sample Presentations
Additional Solution

- Stand-alone, pure-web product for wholesalers to browse preapproved templates and run reports on demand
- Reduces bottlenecks and demands on central reporting group
- Centralized messaging control
- Increases consistency and quality across field organization with consistent templates

Sample Presentations

- ALL Samples
  - http://morningstardirect.morningstar.com/clientcomm/CombinedPS.Samples.pdf
- Fact Sheet Samples (Single Investments):
  - http://morningstardirect.morningstar.com/clientcomm/F.FactsheetSamples.pdf
- Workbook Samples (Multiple Investments):
  - http://morningstardirect.morningstar.com/clientcomm/F.WorkbookSamples.pdf
- Plan Report Sample:
  - http://morningstardirect.morningstar.com/clientcomm/F.PlanReportSamples.pdf
- Asset Allocation Sample:
  - http://morningstardirect.morningstar.com/clientcomm/F.AssetAllocationSamples.pdf


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Monitor Lineups With Equity Portfolio Analytics

Monitor Lineups With Equity Portfolio Analytics

Morningstar Direct User Forum

David Johnson, Product Manager

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Agenda

- Equity Portfolio Analytics
- Multi-Asset-Class Portfolio Analytics

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Portfolio Analysis in Morningstar Direct

Real-Time Data

- Real-time portfolio monitoring
- Market data, news, and quotes

Equity Analysis

- Analyst research
- Fundamental data
- Earnings estimates
- Screen with quantitative scoring

Portfolio Analytics

- Integrate with private portfolio data
- Contribution, attribution, and factor exposure
- Risk and quantitative analysis

Reporting

- Ad-hoc reporting with Presentation Studio integration
- Export to Excel

3

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Monitor Lineups With Equity Portfolio Analytics

Options for Integrating Your Private Data

- Fully automated to our secure FTP site
  - From custodians: BNY, State Street
  - From accounting systems: Advent
  - Optional back-office service support
- Upload files
- Manual entry

4

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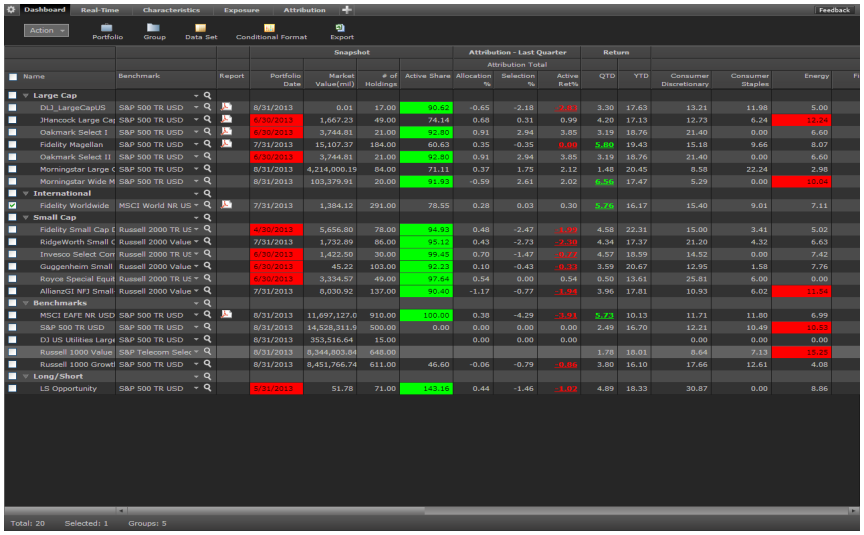
Dashboard: Overview Per Investment



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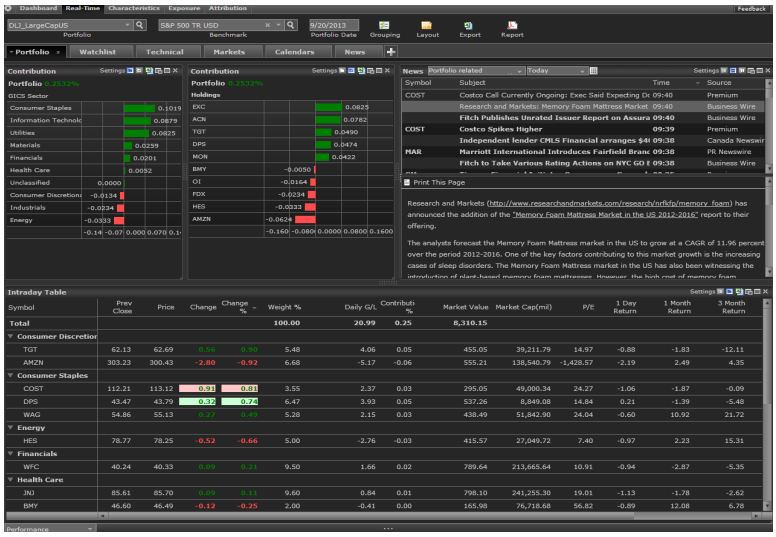
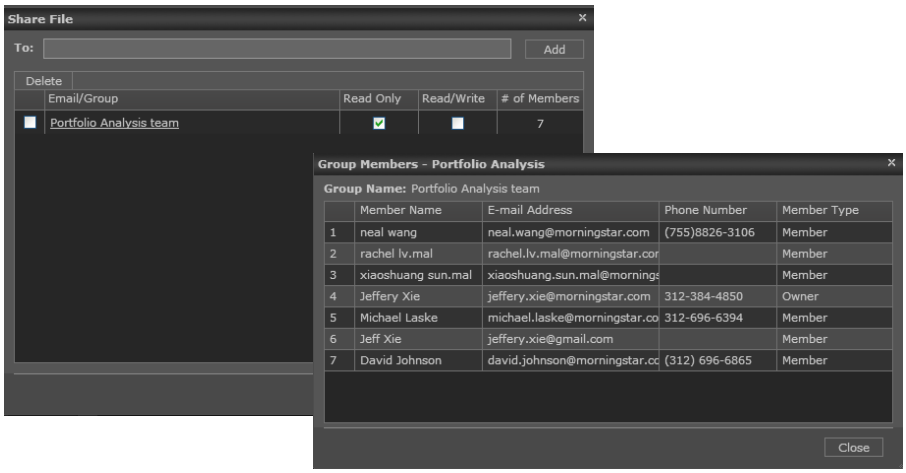
Real-Time Analysis by Sector or Portfolio Holdings



Monitor Lineups With Equity Portfolio Analytics

Create Groups of Users and Share Setup Across Enterprise



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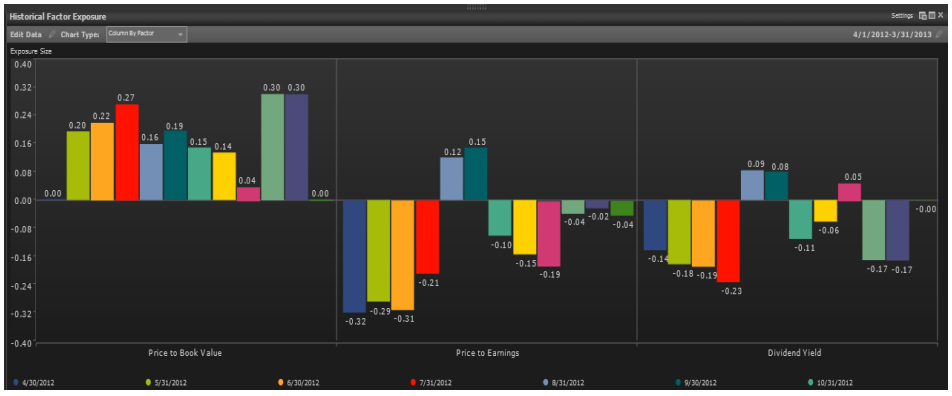
Factor Exposure: Identify Portfolio Tilts



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Buy/Sell Activity: Identify Changes in Positions

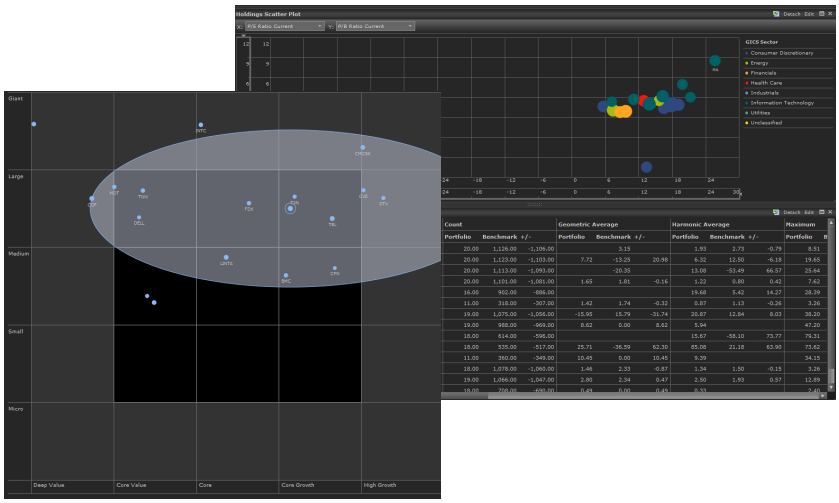
Portfolio Activity

GICS Sector | Holdings Display: Portfolio-only

Name	Ticker	Overall Activity %	5/31/2012 Weights %	6/30/2012 Weights %	Return %	Contribution to Return %
Consumer Discretionary			36.74	31.81	6.80	2.50
Discovery Communications Inc	DISCK	RED -17.83	9.14	8.37	7.51	0.69
Liberty Interactive Corp Class A	LINTA	RED -19.59	5.68	5.45	6.06	0.34
Comcast Corp	CMCSK	RED -20.56	5.40	5.08	9.90	0.53
Time Warner Inc	TWX	SOLD	4.32	4.67	11.69	0.51
TRW Automotive Holdings Corp	TRW	INC 9.38	4.31	4.00	-4.69	-0.20
Directv	DTV	RED -7.55	4.11	4.23	9.83	0.40
H&R Block Inc	HRB	SOLD	3.77	0.00	6.01	0.23
Information Technology			27.93	32.06	3.44	0.96
TE Connectivity Ltd	TEL		5.58	5.48	1.56	0.09
Intel Corp	INTC		5.00	4.81	3.13	0.16
eBay Inc	EBAY	SOLD	4.93	5.01	7.20	0.35
MasterCard Incorporated Class A	MA	RED -7.35	4.83	4.61	5.81	0.28
Texas Instruments, Inc.	TXN		4.05	3.96	0.74	0.03

Monitor Lineups With Equity Portfolio Analytics

Portfolio Analysis: Fundamental, Holdings-Based Analysis



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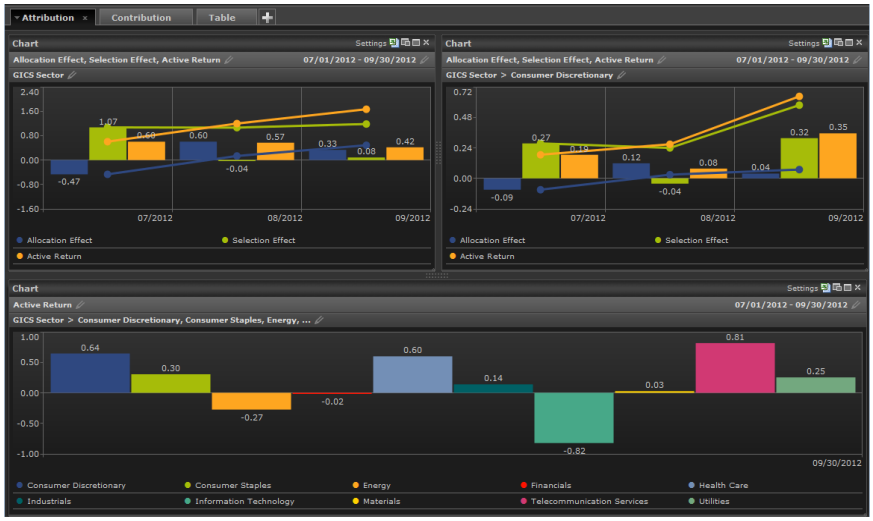
Attribution: Identify Drivers of Performance



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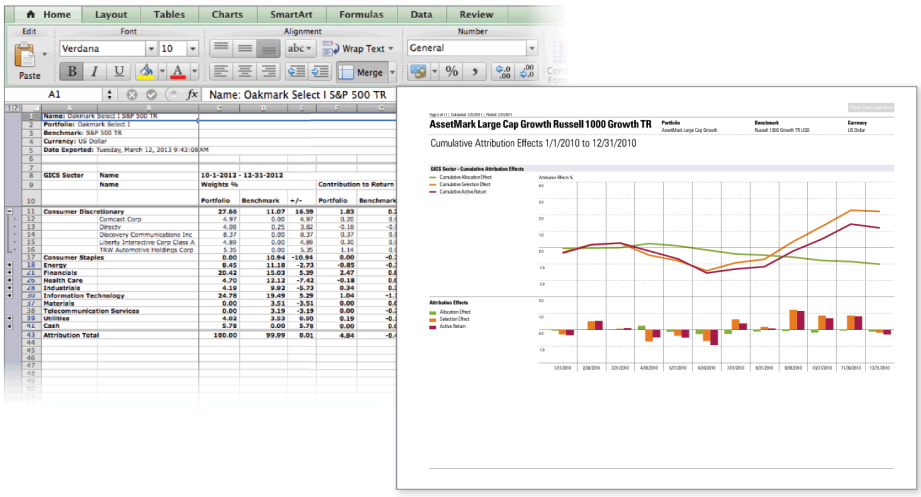
Output: Excel and Links to Presentation Studio Templates



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Monitor Lineups With Equity Portfolio Analytics

Equity and Exchange Traded Fund Research in Portfolio Analytics

- Company profiles
- Morningstar Stock Analyst Reports
- Financial statement analysis
- Ownership
- Valuation ratios
- Earnings estimates
- Call transcripts
- Industry peers
- Debt analysis

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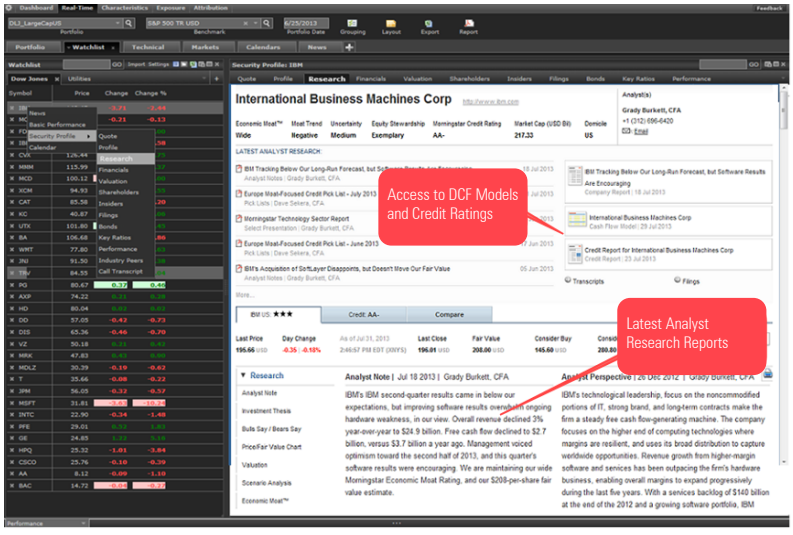
Watch Lists and Access to Select Equity Research



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Technical Analysis

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Monitor Lineups With Equity Portfolio Analytics

News and Market Calendar

- Earnings announcements
- Upgrades/downgrades
- IPOs
- Splits
- Economic announcements
- Events

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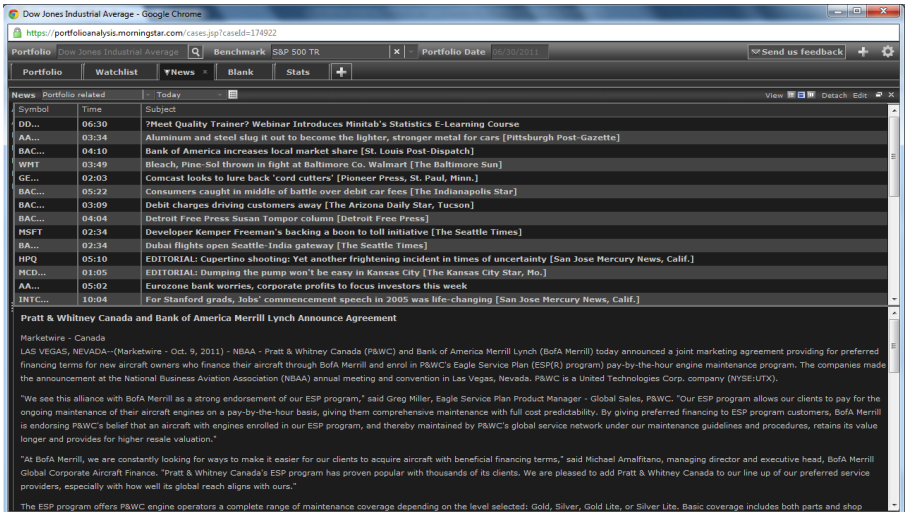
News



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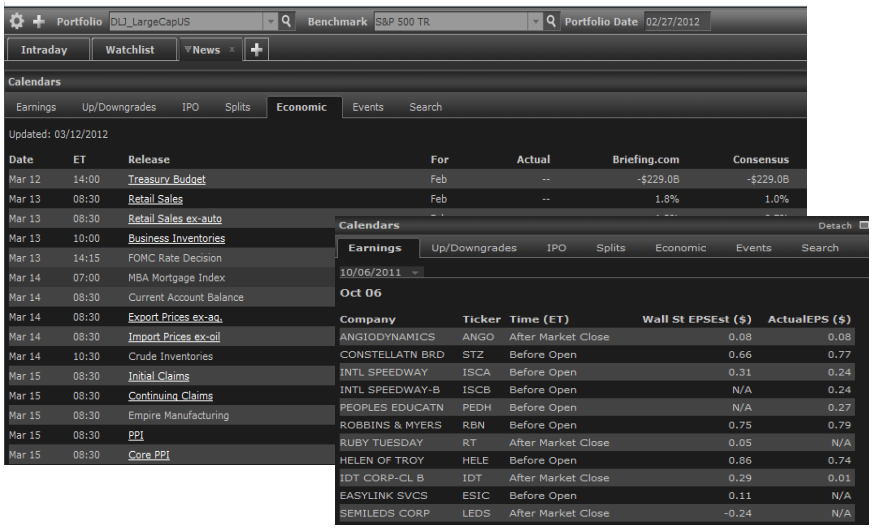
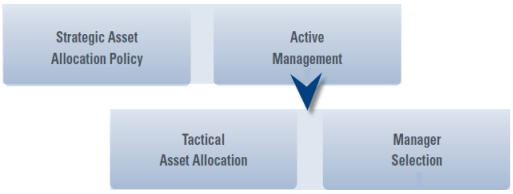
Market Calendars



Monitor Lineups With Equity Portfolio Analytics

Multi-Asset-Class Portfolio Analysis

- Also known as macro or balanced attribution, total portfolio attribution has the ability to identify the performance attributable to strategic asset allocation and active investment management
  - Active investment management is broken down by tactical asset allocation and manager selection



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Multi-Asset-Class Portfolio Analysis

- Total Portfolio Attribution Sample Output

Attribution

Time Period: 1/1/2012 to 1/1/2012

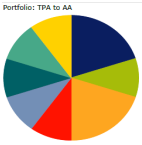
Portfolio: TPA to AA

Groupings	Actual Weights	Policy Weights	Portfolio Gross Return	Policy Gross Return	Portfolio Net Return	Policy Net Return	Portfolio Contribution	Policy Contribution	Allocation Effect	Selection Effect	Manager Misfit	Active Return
US Large Cap	20.00	20.00	17.63	14.69	17.53	14.69	3.48	2.89	0.00	0.72	-0.17	0.54
US Small Cap	10.00	10.00	9.90	12.44	9.90	12.44	0.99	1.23	0.00	-0.17	-0.08	-0.25
Intl Equity	20.00	15.00	15.47	9.52	15.31	9.52	3.04	1.43	0.12	0.51	0.64	1.27
US Fixed Inc	10.00	15.00	3.00	0.30	2.88	0.30	0.29	0.04	0.35	0.23	0.04	0.62
US High Yield Fixed Inc	10.00	15.00	10.00	5.34	9.68	5.34	0.97	0.80	0.10	0.46	-0.02	0.53
Intl Fixed Inc	10.00	10.00	2.26	1.16	1.96	1.16	0.19	0.11	0.00	0.23	-0.14	0.08
Real Estate	10.00	5.00	12.75	12.90	12.46	12.90	1.24	0.64	0.28	-0.01	-0.04	0.24
Commodities	10.00	10.00	3.38	0.89	3.19	0.89	0.31	0.09	0.00	0.24	0.00	0.24
Total	100.00	100.00	10.69	7.23	10.51	7.23	10.51	7.23	0.85	2.21	0.23	3.29

Portfolio Weights

Portfolio Date: 12/31/2011

Portfolio: TPA to AA

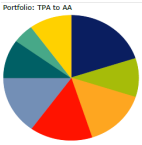


	%
US Large Cap	20.0
US Small Cap	10.0
Intl Equity	20.0
US Fixed Inc	10.0
US High Yield Fixed Inc	10.0
Intl Fixed Inc	10.0
Real Estate	10.0
Commodities	10.0
Total	100.0

Policy Weights

Portfolio Date: 12/31/2011

Portfolio: TPA to AA



	%
US Large Cap	20.0
US Small Cap	10.0
Intl Equity	15.0
US Fixed Inc	15.0
US High Yield Fixed Inc	15.0
Intl Fixed Inc	10.0
Real Estate	5.0
Commodities	10.0
Total	100.0

Top 7 Manager Contributors

Holdings	Actual Weights	Portfolio Net Return	Relative Net Return	Portfolio Contribution	Active Return
Harbor Capital Appreciation Instl	10.00	19.08	4.39	1.89	0.42
Lazard Emerging Markets Equity Instl	10.00	17.32	3.25	1.71	0.78
Harris Assoc. Large Cap Value	10.00	15.99	3.09	1.59	0.13
Hansberger International Core Equity	10.00	13.30	2.07	1.33	0.38
DWS RREEF Global Real Estate Secs I	10.00	12.46	-0.06	1.24	-0.04
Diamond Hill Small Cap Equity	10.00	9.90	-1.69	0.99	-0.25
Loomis Sayles High Income A Load Waived	10.00	9.68	4.53	0.97	0.44

Top 7 Manager Detractors

Holdings	Actual Weights	Portfolio Net Return	Relative Net Return	Portfolio Contribution	Active Return
T. Rowe Price International Bond Adv	10.00	1.96	2.18	0.19	0.08
PIMCO Total Return Instl	10.00	2.88	2.16	0.29	0.27
PIMCO Commodity Real Ret Strat Instl	10.00	3.19	2.31	0.31	0.24
Loomis Sayles High Income A Load Waived	10.00	9.68	4.53	0.97	0.44
Diamond Hill Small Cap Equity	10.00	9.90	-1.69	0.99	-0.25
DWS RREEF Global Real Estate Secs I	10.00	12.46	-0.06	1.24	-0.04
Hansberger International Core Equity	10.00	13.30	2.07	1.33	0.38

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In Search of Skill: A Consultant's Point of View on Manager Selection

In Search of Skill: A Consultant's Point of View on Manager Selection

Morningstar Direct User Forum

Jon Hale, Managing Consultant & Portfolio Manager Ph.D., CFA

MORNINGSTAR®

Outline

- Introduction
- Manager Due Diligence
- Manager Selection
- Portfolio Construction
- Ongoing Monitoring

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Background

- Challenge
- Research on Performance Persistence
- Research on Fund Characteristics

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In Search of Skill:
A Consultant's Point of View on Manager Selection

Background
Challenge

- Active management is zero-sum game
  - superior investors earn positive alpha
  - inferior investors generate negative alpha
- Average actively managed fund doesn't capture alpha net of fees
- Good news is that academic research reveals manager skill may exist
- Challenge is to identify those superior managers beforehand and limit exposure to inferior managers

Background
Research on Performance Persistence

- Funds with highest alpha against returns-based style benchmark outperform
  - Ibbotson and Patel (2002)
- Evidence of persistence in alpha among separately managed accounts over 1 to 3-year periods
  - Peterson, Lachini, and Lam (2011)
- Selection of funds with higher past alpha and lower expenses significantly increases probability of identifying future superior managers
  - Harlow and Brown (2006)
- Significant persistence in alphas of top decile managers based on a bootstrap analysis that adjusts for non-normality in fund alphas
  - Kosowski, Timmermann, Wermers, and White (2006)

Background
Research on Fund Characteristics

- Funds with higher levels of manager ownership of funds' shares earned higher risk-adjusted returns relative to category peers.
  - Morningstar study of mutual fund stewardship (2011)
- A more positive assessment of a firm's culture led to better manager retention and better risk-adjusted performance.
  - Morningstar stewardship study (2011)
- Funds with lower expense ratios tend to outperform.
  - Morningstar and Kinnel (2010)
- Active share is a significant predicator of future alpha
  - Cremers and Petajisto (2009)

In Search of Skill:
A Consultant's Point of View on Manager Selection

Background
Research on Fund Characteristics

- Evidence that more assets under management can be a negative factor for performance of separately managed accounts
  - Peterson, Lachini, and Lam (2011)
- Funds that hold contrarian stocks tend outperform herding managers based on their four-factor alpha that controls for the momentum effect
  - Wei, Wermers, and Yao (2009)
- Funds that invest in low liquidity and high momentum stocks outperform
  - Idzorek, Xiong, and Ibbotson (2011)

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Manager Due Diligence

- Fundamental Research: The Five Pillars
- Manager Meetings and Notes
- Manager Research Analyst Team
- Global Fund Reports
- Analyst Medals
- New Directions

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Manager Due Diligence

Fundamental Research—The Five Pillars

People

- Team quality / experience
- Team depth
- Team continuity
- Alignment of interests

Process

- Security selection/idea generation
- Valuation discipline
- Portfolio construction/risk management
- Capacity

Parent

- Structure/ Ownership
- Organization Stability / Financial Strength
- Culture / Stewardship
- Regulatory / Compliance

Performance

- Rolling risk-adjusted returns vs. style benchmark
- Downside statistics
- Attribution

Price

- Expense ratio relative to peer group

In Search of Skill: A Consultant's Point of View on Manager Selection

Monitoring & Due Diligence
Fundamental Research

▶ Due-Diligence Questionnaire Excerpt

The investment staff may periodically participate in meetings with existing and prospective clients as well as intermediaries. Portfolio managers and research analysts within a fixed income discipline are responsible for research production within their respective asset classes. Research analysts at times consult with each other regarding credits and industries that are in their respective universes. Global market and sector specific insights are shared between teams during monthly inter-disciplinary fixed income meetings and more often when appropriate.

6. **What has been the level of turnover on the investment staff over the past three years?**

There has been no turnover of investment professionals since the firm's inception in December 2009.

7. **How are portfolio managers and analysts compensated? What are the specific factors used to determine bonuses for portfolio managers and analysts and how much weight is given to each factor?**

Professionals at DoubleLine will receive a combination of salary, bonus and equity incentive compensation. Bonuses and equity participation are expected to be determined annually based upon the overall success of DoubleLine and the contribution of each individual to such success. The principals of DoubleLine firmly believe that each employee of the firm should have equity or an equity-like interest in the firm. Senior management is currently in the process of determining the initial allocation of such interests (direct and indirect) among all employees.

8. **What is the firm's employee trading policy? Are employees required to invest in the fund or can they trade for their personal accounts?**

DoubleLine's Code of Ethics permits various types of personal trading, including a de minimis exception for equity trades. Generally, because DoubleLine is a fixed income manager, all trades of bonds (except for US Government Securities, which are excluded by rule) require pre-approval, as do any trades involving any funds managed by DoubleLine (including the DoubleLine Funds).

DoubleLine employees are not required to invest in the DoubleLine Funds, however, many employees including portfolio managers Jeffrey Gundlach, Philip Barach and Luz Padilla, have chosen to do so.

9. **Please describe the level of investment in the fund on the part of the investment team.**

As mentioned above, portfolio managers Jeffrey Gundlach, Philip Barach, and Luz Padilla have made significant investments in the DoubleLine Funds, as have many DoubleLine employees.

▶ Meeting Notes Excerpt

MORNINGSTAR® MANAGED PORTFOLIOS

MANAGER VISIT

Mutual Funds:	DoubleLine Total Return (DBTLX and DLTNX), DoubleLine Emerging Markets Income (DBLEX and DLENX)
Location of Visit:	Los Angeles, CA
Date:	September 28, 2010
Fund Company Attendees:	Jeffrey Gundlach, Luz Padilla, Ron Redell, and Jeffrey Sherman
MIS Attendees:	Bill Harding
Notes written by:	Bill Harding
Purpose of Meeting:	Update on firm, Total Return positioning, introduction to Core Fixed Income and Emerging Markets Income

Firm Update:

- Firm AUM: $5.2 billion, about $3 billion of which is in the fund. Emerging Markets Income has about $300 million in assets, with the bulk of the remainder in the Total Return strategy.
- Lawsuit update: There is a merits presentation scheduled for October 22 in which both sides will present their case to the judge. TCW had been fighting this, so Gundlach thinks this will be a positive development for the case. Gundlach doesn't appear to be concerned at all about the lawsuit, he says the firm is making money now so there isn't any pressure in the firm to have to settle and he thinks that eventually TCW will realize they don't have a strong case and will drop it or try to settle.
- Oaktree partnership: Oaktree was vital to getting the shop up and running in a short time period in the first half of 2010. Gundlach estimates that Oaktree saved DoubleLine about 6 months of time and that was important because he would not have been able to support 50 employees with no revenues and the inability to pay salaries. Now that they have been set up, Oaktree is more of a passive minority owner.
- Retention: In setting up his own shop, Gundlach wanted to prevent the mistakes that TCW made in employee retention. Gundlach thinks the key is employee ownership. 78% of the firm is owned by employees about 90% of the staff has an

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Manager Due Diligence
Notes Management

▶ Share notes with colleagues

Note Manager

Action | New Note | Export | Print | Edit View | Note Settings | Filter: All Notes | Modify Filter

	Title	Created By	Category	Date Created	Related To
116	Artisan International Value Qualitative Review 112012	Marta Norton	Qualitative Revi	11/27/2012 9:41:00 AM	Artisan International Val
117	Artisan Intl Small Cap Q2 PM Commentary	William Harding	Commentary	7/31/2012 11:26:00 AM	Artisan International Sm
118	Artisan Intl Value Q2 PM Commentary	William Harding	Commentary	7/31/2012 11:26:00 AM	Artisan International Val
119	Artisan Manager Meeting	Venus Phillips	Manager Meetin	5/25/2012 4:18:00 PM	Multiple...
120	Artisan Mid Cap Q2 PM Commentary	William Harding	Commentary	7/31/2012 11:30:00 AM	Artisan Mid Cap Fund
121	Artisan Mid Value Commentary	William Harding	Commentary	1/27/2012 2:05:00 PM	Artisan Mid Cap Value Fi
122	Artisan Mid Value Q2	William Harding	Commentary	7/31/2012 11:24:00 AM	Artisan Mid Cap Value Fi
123	Artisan Partners US Value 6.21.12 Notes	John Thompson	Manager Meetin	7/10/2012 10:41:00 AM	Artisan Value Fund
124	Artisan Q1 2012 Attribution	Sean Hynes	Attribution	4/12/2012 3:29:00 PM	Multiple...
125	Artisan Q3 2011 Commentary	Adrian Kurniadjaja	Commentary	11/1/2011 1:49:00 PM	Artisan Global Value Fur
126	Artisan Small Cap Q2 PM Commentary	William Harding	Commentary	7/31/2012 11:30:00 AM	Artisan Small Cap Fund
127	Artisan Value Q2	William Harding	Commentary	7/31/2012 11:24:00 AM	Artisan Value Fund
128	Ashfield Insights - Aug 2012	Gail Berman	Commentary	9/14/2012 10:03:00 AM	Ashfield & Co. - Balance
129	Aston appoints Anchor as new subadvisor for MS SASS Enhanced E	William Harding	General Note	7/5/2012 4:04:00 PM	ASTON/Anchor Capital E
130	Aston Cornerstone LCV Fact Sheet	William Harding	Fact Sheet	2/28/2012 9:13:00 AM	Transamerica Developin
131	Aston Montag & Caldwell Mid Growth materials	Gail Berman	Pitchbook	4/12/2012 2:45:00 PM	Multiple...
132	Aston Research Symposium: Alternatives Panel	William Harding	Manager Meetin	5/4/2012 1:35:00 PM	Multiple...
133	Aston Research Symposium: Cornerstone	William Harding	Manager Meetin	5/4/2012 11:03:00 AM	Multiple...
134	Aston Research Symposium: Coversation with Ron Canakaris	William Harding	Manager Meetin	5/4/2012 3:09:00 PM	ASTON/Montag & Caldw
135	Aston Research Symposium: DoubleLine markets update	William Harding	Manager Meetin	5/4/2012 2:41:00 PM	Multiple...

Source: Morningstar Direct. For illustrative purposes only.

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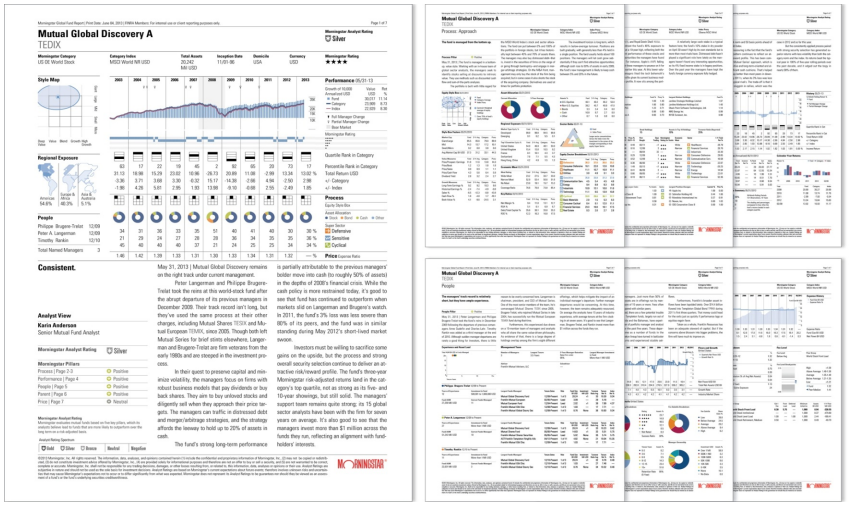
Manager Due Diligence
Manager Research Analyst Team

- Formerly Fund Research
- 25 U.S. analysts
- Independent research and ratings

In Search of Skill: A Consultant's Point of View on Manager Selection

Manager Due Diligence
Global Fund Reports



Source: Morningstar Direct. For illustrative purposes only.

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Manager Due Diligence
Moving Beyond Past Performance

"Achievement" Test

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Manager Due Diligence
Moving Beyond Past Performance

"Aptitude" Test

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A Consultant's Point of View on Manager Selection

Manager Due Diligence
The Analyst Ratings Spectrum

Gold | Silver | Bronze | Neutral | Negative

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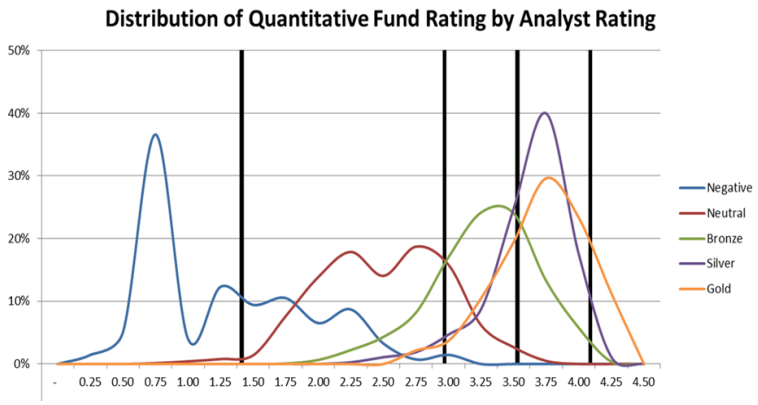
Manager Due Diligence
New Directions



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Manager Selection
The Process

Quantitative Screening

- Selection Screening
- Manager Review Screening

Fundamental Analysis

- Morningstar core competence
- Managers' histories
- Style nuances
- Risks
- Risk Factor Analysis
- Reliability (Perf Consistency)
- Organizational strength

Lineup / Portfolio Fit

- Determine the role of manager in lineup
- Evaluate how managers complement one another

In Search of Skill:
A Consultant's Point of View on Manager Selection

Manager Selection

- Determine the role each fund meant to serve in lineup or portfolio
  - Holdings-Based and Returns Based Style Analysis
    - to understand fund exposures
  - Common Holdings, Overlap, and Correlations
    - to examine interaction of funds
  - Risk Exposure
    - to monitor risk characteristics of portfolio and contribution by each fund
  - Optimization Techniques
    - to put together funds with attributes that maximizes the portfolio's return for given level of risk
- Construct the Portfolio

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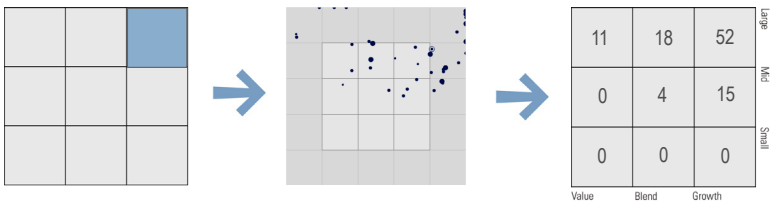
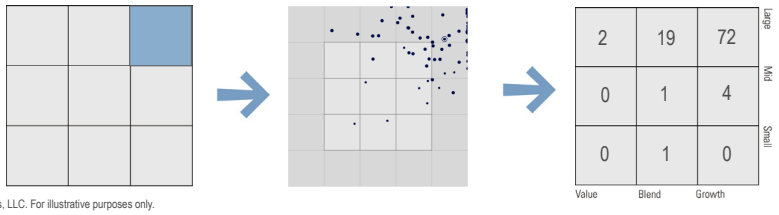
Manager Selection
Holdings-Based Style Analysis

- No fund is style pure
- Each fund contributes to multiple style box allocations

Large-Cap Growth Fund A



Large-Cap Growth Fund B



Source: Morningstar Associates, LLC. For illustrative purposes only.

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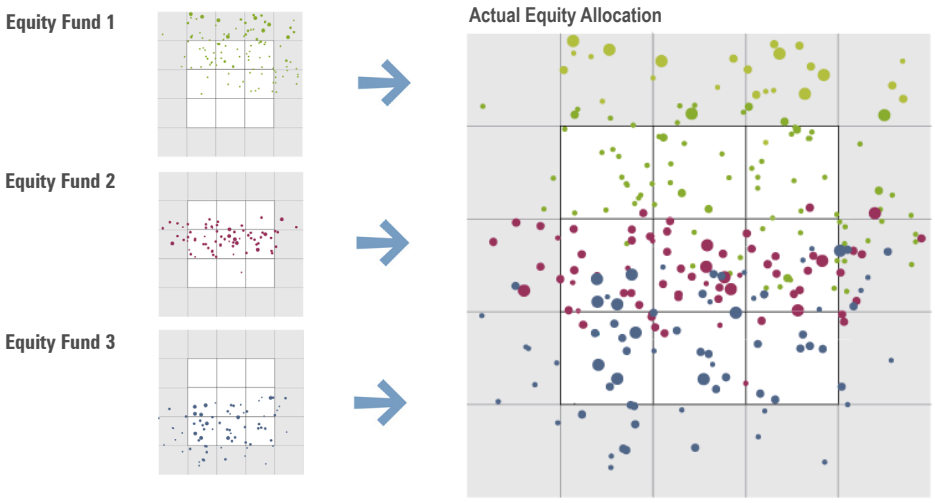
Manager Selection

Holdings-Based Style Analysis



Source: Morningstar Associates, LLC. For illustrative purposes only.

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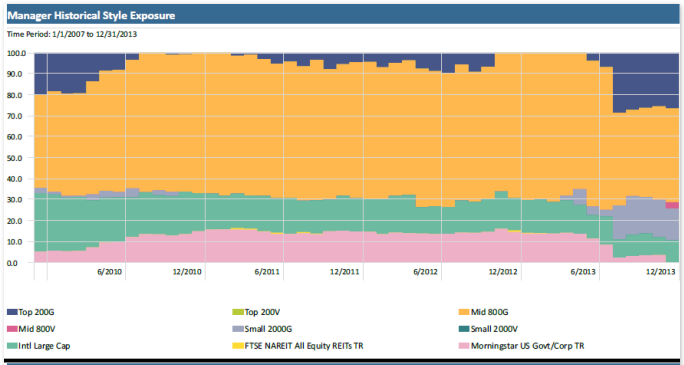
In Search of Skill: A Consultant's Point of View on Manager Selection

Manager Selection
Returns-Based Style Analysis



Returns-Based Style Allocation

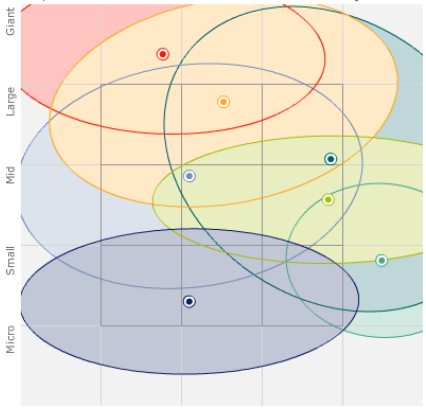
Time Period: 1/1/2009 to 12/31/2013

	Top 200G	Top 200V	Mid 800G	Mid 800V	Small 2000G	Small 2000V	Intl Large Cap	FTSE NAREIT All Equity REITs TR	Morningstar US Govt/Corp TR
Eagle Small Cap Growth A	0.00	0.00	31.41	0.00	67.61	0.98	0.00	0.00	0.00
Fidelity Advisor® New Insights I	62.84	0.00	7.28	0.00	12.58	0.00	4.72	0.00	12.57
Perkins Mid Cap Value T	0.00	17.50	39.86	17.26	4.18	0.72	5.55	0.00	14.92
Northern Small Cap Value	3.34	0.00	0.00	0.00	1.17	92.79	0.00	0.00	2.70

Source: Morningstar Direct. For illustrative purposes only.

Manager Selection
Common Holdings / Overlap

Holdings-Based Style Map



Common Holdings

		1	2	3	4	5	6	7
1	ASTON/River Road Small Cap Valu...		0.01	0.00	0.00	0.02	0.02	0.00
2	Champlain Mid Cap Adv	0.01		0.02	0.00	0.06	0.03	0.04
3	FMI Large Cap	0.00	0.02		0.10	0.04	0.04	0.00
4	MainStay ICAP Select Equity A	0.00	0.00	0.10		0.04	0.07	0.00
5	Perkins Mid Cap Value T	0.02	0.06	0.04	0.04		0.07	0.01
6	PRIMECAP Odyssey Growth	0.02	0.03	0.04	0.07	0.07		0.01
7	Wasatch Small Cap Growth	0.00	0.04	0.00	0.00	0.01	0.01	

Holding Analysis

	Common Holdings Count	Common Holdings %	All Stock Holdings Count	All Stock Holdings %
Champlain Mid Cap Adv	9	12.36	75	98.96
Perkins Mid Cap Value T	9	5.52	147	86.98

Top 20 Shared Stock Holdings (Portfolio 1)

	Sector	Style Box	Port1 %	Port2 %
Life Technologies Corp			2.04	1.03
Molson Coors Brewing Company			1.83	1.31
Laboratory Corporation of America Holdings			1.65	0.69
Whiting Petroleum Corporation			1.50	0.53
Myriad Genetics, Inc.			1.14	0.28
Pall Corporation			1.11	0.34
St Jude Medical, Inc.			1.10	0.44
Zimmer Holdings Inc			1.06	0.63
NetApp, Inc.			0.93	0.28

Source: Morningstar Direct. For illustrative purposes only; indexes are unmanaged and not available for direct investment; past performance is not indicative of future results.

Manager Selection
Correlation

Time Range: 1 Year | Jan, 2013 - Dec, 2013 | Currency: US Dollar | Frequency: Monthly
Source Data: Default | Period: All | Benchmark: | Thr

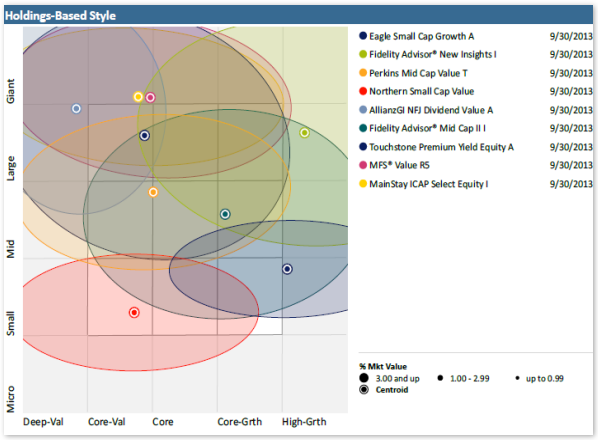
		1	2	3	4	5	6	7	8	9	10	11
1	DoubleLine Total Return Bond I											
2	ASTON/River Road Independent Valu...	0.02										
3	Arbitrage I	-0.24	0.26									
4	Calamos Market Neutral Income I	0.54	0.76	0.23								
5	Absolute Strategies I	-0.01	-0.17	-0.46	-0.37							
6	FPA New Income	0.94	-0.08	-0.33	0.41	0.13						
7	IVA Worldwide A	0.71	0.47	-0.07	0.86	-0.29	0.53					
8	Driehaus Active Income	0.50	0.51	0.01	0.70	-0.05	0.37	0.58				
9	PIMCO Commodity Real Ret Strat Instl	0.44	0.48	-0.27	0.55	-0.19	0.25	0.60	0.43			

Source: Morningstar Direct. For illustrative purposes only.

In Search of Skill:
A Consultant's Point of View on Manager Selection

Portfolio Construction
Multi-Manager Portfolios

- Fitting the pieces together



Source: Morningstar Direct. For illustrative purposes only.

Portfolio Construction
Optimization Techniques

- Determine Efficient Portfolio

Source: Morningstar Direct. For illustrative purposes only.

Portfolio Construction
Portfolio Positioning

	Conservative		Moderate		Moderate Growth		Growth	
Asset Category	Target %	Current %	Target %	Current %	Target %	Current %	Target %	Current %
Domestic Equity	**23.50**	**24.50**	**32.00**	**34.00**	**43.50**	**46.35**	**60.00**	**64.60**
Large-Cap	16.50	16.00	22.50	22.00	29.50	30.60	40.00	42.60
Small-/Mid-Cap	7.00	8.50	9.50	12.00	14.00	15.75	20.00	22.00
International Equity	**9.50**	**7.75**	**15.00**	**12.00**	**21.50**	**17.60**	**33.00**	**25.40**
Developed	7.50	5.65	11.50	8.50	16.00	12.00	23.00	17.40
Emerging	2.00	2.10	3.50	3.50	5.50	5.60	10.00	8.00
REITs	**1.00**	**1.50**	**2.00**	**2.70**	**4.00**	**4.15**	**5.50**	**5.90**
Alternatives*	**2.00**	**2.00**	**2.00**	**1.70**	**2.00**	**2.00**	**1.50**	**1.60**
Domestic Fixed-Income	**54.00**	**55.80**	**41.00**	**42.35**	**21.50**	**23.10**	—	**2.50**
Investment Grade	27.00	21.90	20.00	16.20	12.50	8.60	—	—
Inflation Adjusted	8.00	7.90	7.00	6.25	3.75	3.10	—	—
High Yield	5.00	10.00	5.00	8.50	3.75	4.40	—	—
Short-Term Bond (incl cash)	14.00	16.00	9.00	11.40	1.50	7.00	—	2.50
International Bond	**10.00**	**8.20**	**8.00**	**7.20**	**7.50**	**6.80**	—	—
Developed	8.00	3.50	6.00	3.70	6.00	4.40	—	—
Emerging	2.00	4.70	2.00	3.50	1.50	2.40	—	—

Source: Morningstar Associates, LLC. Target allocations for illustration purposes and are subject to change without notice.

In Search of Skill:
A Consultant's Point of View on Manager Selection

Ongoing Monitoring
Reasons to Replace a Manager

- Manager/investment team changes
- Organizational disruptions or concerns
- Strategy and/or style drift
- Changing portfolio or risk characteristics
- Asset bloat
- Performance doesn't meet expectations

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Ongoing Monitoring
Investment Thesis

- Reviewing a fund for removal
  - Each fund has investment thesis
  - Performance/process/impairment issues trigger review
  - Open review—Evaluate in context of investment thesis
    - May set observation period and conditions necessary to retain
    - Make decision at end of period
    - Vetted by style team

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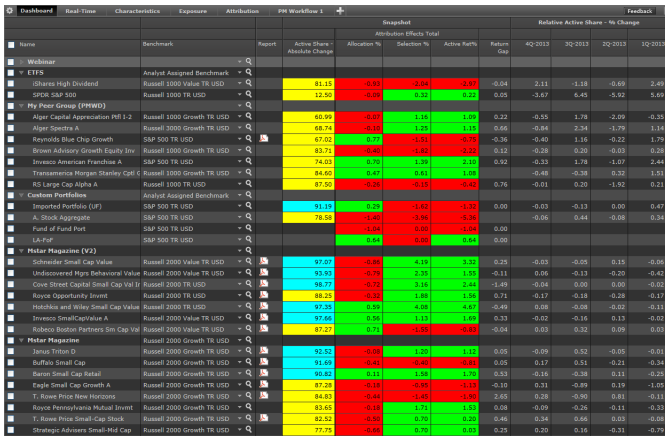
Ongoing Monitoring
Toolkit

- Qualitative research
- Performance analysis and attribution
- Characteristics
- Holdings-based style analysis and fund assets
- Returns-based style analysis
- Active Share and Alpha
- Investment Scorecard

In Search of Skill:
A Consultant's Point of View on Manager Selection

Ongoing Monitoring
Performance Analysis & Attribution

- Multiple Manager Comparison



Source: Morningstar Direct. For illustrative purposes only.

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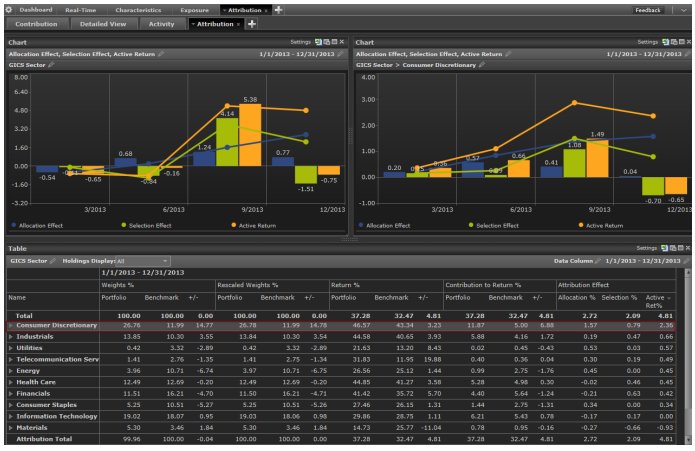
Ongoing Monitoring
Performance Analysis & Attribution

- Single Manager Evaluation and Impact from Specific Sector



Source: Morningstar Direct. For illustrative purposes only.

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Ongoing Monitoring
Characteristics

- Scatter Plot and Factor Exposure

Source: Morningstar Direct. For illustrative purposes only.

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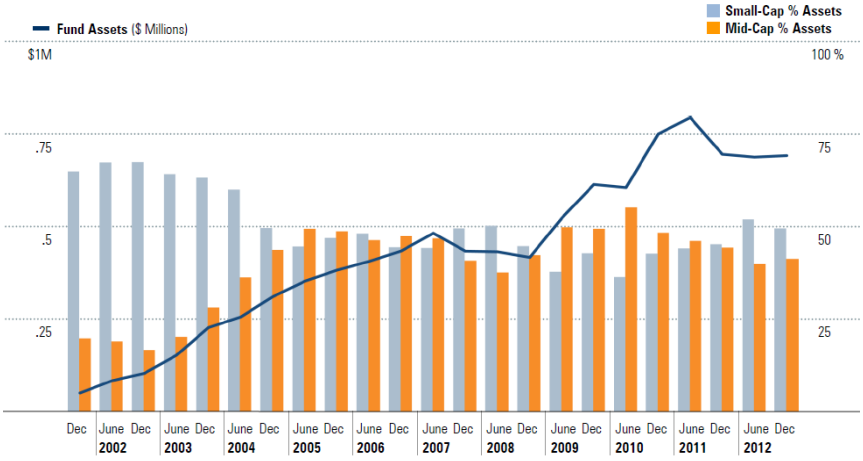
In Search of Skill:
A Consultant's Point of View on Manager Selection

Ongoing Monitoring
Holdings Based Style Analysis and Fund Assets



Source: Morningstar Direct. For illustrative purposes only. Indexes are unmanaged and not available for direct investment; past performance is not indicative of future results.

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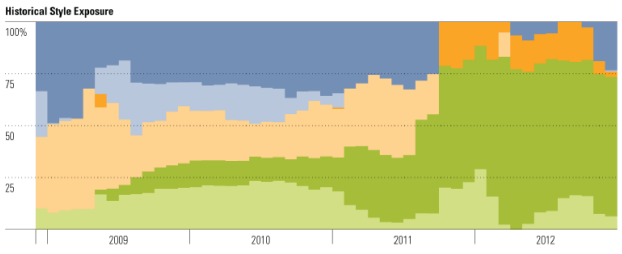
Ongoing Monitoring
Returns Based Style Analysis

- Correlations to Specific Indexes, historical style exposure



Summary of Historical Exposures	Most Recent	Average	Std Dev	Min	Max
MSCI ACWI Growth NR USD	23.35	23.24	14.00	0.00	48.84
MSCI ACWI Value NR USD	0.61	6.67	8.41	0.00	28.37
MSCI World Small Growth NR USD	2.66	4.58	7.44	0.00	22.30
MSCI World Small Value NR USD	0.00	20.06	15.31	0.00	58.02
MSCI EM NR USD	66.99	30.93	26.66	0.00	80.84
S&P Developed Property TR USD	6.40	14.53	7.10	0.00	29.21

Source: Morningstar Direct. For illustrative purposes only. Indexes are unmanaged and not available for direct investment; past performance is not indicative of future results.

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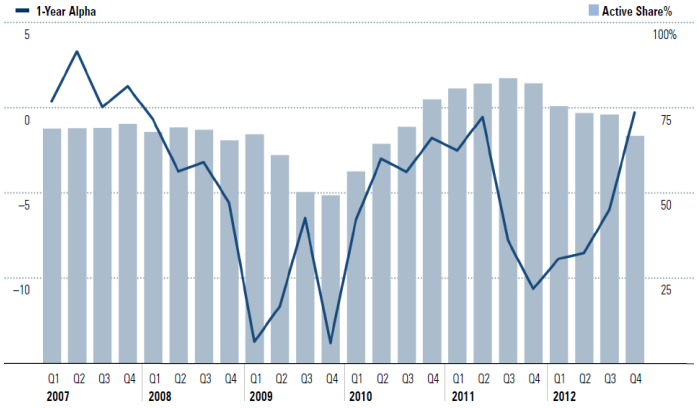
Ongoing Monitoring—Discuss
Active Share and Alpha

- Relationship between Alpha and Active Share



Active share and alpha measured against the MSCI ACWI ex US Index
Source: Morningstar Direct. For illustrative purposes only. Indexes are unmanaged and not available for direct investment; past performance is not indicative of future results.

In Search of Skill: A Consultant's Point of View on Manager Selection

Ongoing Monitoring
Investment Scorecard

- Screen specific results

	Ticker	Name Report Currency: Base Currency	1 Year 1/1/2013 - 12/31/2013 Time Period Score (20%)	3 Years 1/1/2011 - 12/31/2013 Time Period Score (30%)	5 Years 1/1/2009 - 12/31/2013 Time Period Score (50%)	Total Score
1		**US OE Large Blend**				
2	SMGIX	Columbia Contrarian Core Z	4.00	4.00	4.00	Keep
3	FALHX	Fidelity Advisor Large Cap B	4.00	4.00	4.00	Keep
4	FDESX	Fidelity Advisor® Diversified Stock O	3.00	4.00	4.00	Keep
5	FLCSX	Fidelity Large Cap Stock	4.00	4.00	4.00	Keep
6	FSTMX	Fidelity Spartan Total Market Index Inv	3.00	4.00	4.00	Keep
7	PIXAX	PIMCO Fundamental IndexPLUS AR A	4.00	4.00	4.00	Keep
8	BMCAX	BlackRock Flexible Equity Investor A	1.00	1.00	2.00	Drop
9	DGAGX	Dreyfus Appreciation Investor	1.00	1.00	1.00	Drop
10	FEVAX	First Eagle US Value A	1.00	1.00	1.00	Drop
11	CHTRX	Invesco Charter A	1.00	2.00	1.00	Drop
12	JILAX	JHancock Lifestyle Aggressive 1	1.00	1.00	2.00	Drop
13	ONGAX	JPMorgan Investor Growth A	1.00	1.00	1.00	Drop
14	OARDX	Oppenheimer Rising Dividends A	1.00	2.00	1.00	Drop
15	AMANX	Amana Income Investor	2.00	2.00	1.00	Watch
16	ANCFX	American Funds Fundamental Invs A	2.00	2.00	3.00	Watch
17	AIVSX	American Funds Invmt Co of Amer A	3.00	2.00	2.00	Watch
18	BBTEX	BBH Core Select N	1.00	4.00	3.00	Watch
19	WFSPX	BlackRock S&P 500 Stock K	3.00	4.00	3.00	Watch

Source: Morningstar Direct. For illustrative purposes only.

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