



## **MSCI Factor Indices Consultation**

- **Transition of MSCI Europe Factor Indices to the Barra EUE3S Model**
- **Launch of additional Factor Indices**

**November 2009**

# Overview

- The MSCI Europe Factor Indices will begin using the Barra Europe Equity Model, EUE3S, as of the close of January 31, 2010. MSCI proposes a transition plan for this change.
- MSCI also proposes to launch two additional Factor Indices :
  - MSCI Europe Barra Earnings Yield Index.
  - MSCI USA Barra Value Index.
- MSCI is seeking feedback on these proposals. Please note, this consultation may or may not lead to the adoption, in whole or in part, of the proposals described herein.

# Highlights of the Transition to the EUE3S Model

- MSCI Europe Factor Indices will transition to using the Europe Barra Equity Model, EUE3S, in one phase as of the close of January 31, 2010.
- MSCI proposes turnover and trade limit constraints in connection with the transition, with a goal to achieve a high factor exposure.
- A transition analysis for the MSCI Europe Barra Factor Indices, based on data as of August 2009, shows that:
  - All the factor indices achieved unit exposure to the target factors.
  - The realized one-off transition turnover was 20% for the Momentum, Value and Volatility factors and 10% for the Leverage factor.

# Highlights of the EUE3S Model

- Enhanced coverage of countries in Europe:
  - 16 Developed markets, 5 Emerging Markets and 8 Frontier Markets.
- 29 industry factors based on GICS classification.
- Refined set of 9 style factors :
  - Two separate factors in the EUE2S model, namely, Market Sensitivity and Volatility, are merged into the EUE3S Volatility factor, as they are highly collinear.
  - Two distinct factors in the EUE3S model that capture Value, namely, the Value factor and the Earnings Yield factor. The Earnings Yield factor incorporates forward looking earnings, significantly enhancing the explanatory power.
  - A new factor on Liquidity, not available in the EUE2S model.
- A redesigned specific risk model that uses daily specific returns and delivers more accurate forecasts than the EUE2S model.
- Calculation of daily factor returns with a robust multi-step regression scheme that curtails the influence of asset return outliers on factor return estimates.
- Detection and progressive trimming of outlier factor returns that improves the forecasting accuracy as it prevents past outliers from biasing current forecasts.

# Contrasting EUE2S and EUE3S

## Factor Comparisons : EUE3S vs. EUE2S

Factors	Interpretation	Descriptors	
		EUE3S	EUE2S
Momentum	Differentiates stocks based on relative price performance	Halphi, 6M, 12 M Price return	Halphi, 12 M Price return
Value	Differentiates stocks based on valuation relative to company fundamentals	Book to Price, Sales to Price	Book to Price, EY, Sales to Price
Earnings Yield	Differentiates stocks based on valuation relative to company earnings	Pred EY, Hist EY, ROE, Cash EY	-
Market Sensitivity	Differentiates stocks based on market beta	-	Historic Beta, Historic Beta times Historic sigma
Volatility	Differentiates stocks based on market and specific risk	Hbeta, Cum Range, Daily Std Dev	H Sigma, Cum Range, 1,2,3 month squared return
Leverage	Differentiates stocks based on balance sheet leverage	Book Leverage, Market Leverage	Debt to Assets, Debt to price

## Factor Characteristics

	EUE2S		EUE3S	
	Return	Risk	Return	Risk
Momentum	2.13%	4.36%	2.69%	3.76%
Value	1.79%	1.50%	0.87%	2.23%
Leverage	-1.05%	1.53%	-0.86%	1.32%
Volatility	-3.37%	2.53%	-1.60%	5.24%
Earnings Yield	-	-	1.10%	1.99%
Market Sensitivity	-0.10%	5.46%	-	-

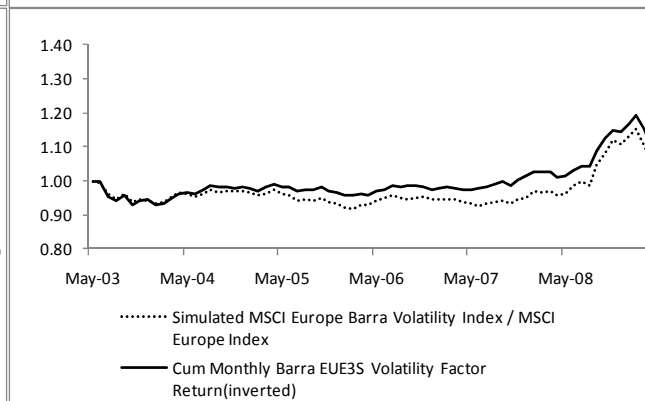
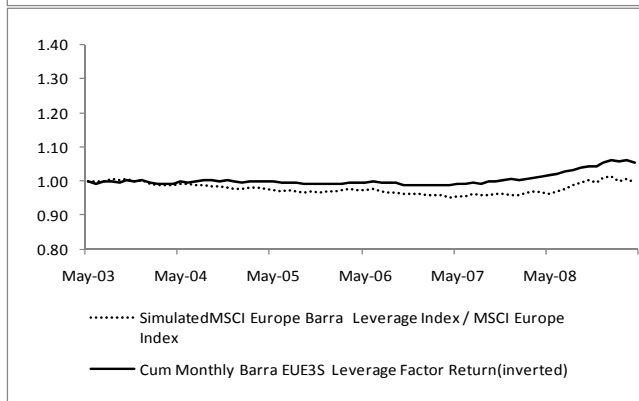
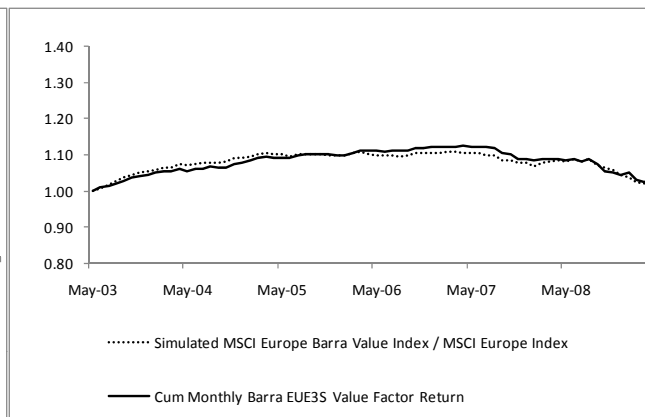
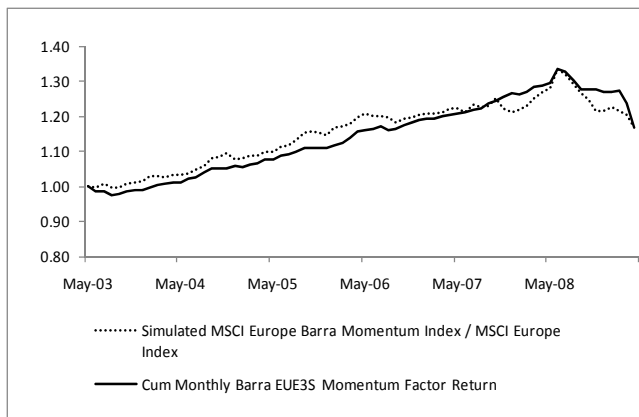
Annualized statistics from May 2003 - May 2009

# MSCI Europe Barra Factor Indices – Summary Results

	MSCI Europe	Momentum		Value		Leverage		Volatility	
		EUE2S	EUE3S	EUE2S	EUE3S	EUE2S	EUE3S	EUE2S	EUE3S
Return	4.45%	6.24%	7.17%	5.86%	5.25%	5.31%	4.33%	3.48%	4.22%
Risk	15.42%	15.56%	16.00%	16.18%	16.63%	15.10%	15.06%	13.80%	11.26%
Return/Risk	0.29	0.40	0.45	0.36	0.32	0.35	0.29	0.25	0.37
Active Return to Market		1.79%	2.71%	1.41%	0.80%	0.86%	-0.12%	-0.97%	-0.23%
Active Risk to Market		4.54%	4.13%	1.74%	2.04%	1.95%	1.70%	4.72%	6.17%
Active Return to Factor		-0.58%	-0.60%	-0.38%	-0.07%	-0.19%	-0.99%	-3.73%	-1.78%
Active Risk to Factor		2.91%	3.00%	1.42%	1.21%	1.45%	1.06%	3.75%	2.17%
Average Ex Ante Barra Tracking Error		3.41%	4.01%	1.70%	1.89%	1.53%	1.34%	3.57%	5.05%
Average Factor Exposure		0.97	0.92	1.00	1.00	-1.00	-1.00	-0.82	-0.99
Average Number of Long Stocks		273	253	284	290	302	324	259	247
Average Number of Short Stocks		126	146	116	110	98	76	141	148
Average Number of Total Stocks		400	399	400	400	400	400	400	395
Average Gross Leverage		1.60	1.60	1.51	1.54	1.57	1.51	1.99	1.99
Average One way Monthly Turnover		5.05%	5.13%	5.00%	5.00%	5.00%	5.07%	5.05%	5.08%

Annualized statistics from May 2003 - May 2009

# Performance of EUE3S based Simulated MSCI Europe Barra Factor Indices



Results based on MSCI Europe Index and Barra EUE3S model  
 Results based on simulations from May 2003 - May 2009

# Transition Analysis



# Proposal for Transition to the EUE3S Model

- MSCI Europe Factor Indices will transition to using the Barra Europe Equity Model, EUE3S, in one phase as of the close of January 31, 2010.
- MSCI proposes to use the following constraints, with a goal to achieve high target factor exposure during the transition:
  - Turnover constraint up to 20 % for Momentum, Value and Volatility factors and up to 10 % for Leverage factor.
  - Trade limit for each security at 50% of the security's Average Daily Traded Value.
  - Other constraints as per the existing MSCI Factor Indices methodology.
- MSCI also proposes to change the monthly rebalancing timeline of the MSCI Europe Factor Indices as below :
  - Target Model release date is the first calendar day after the last business day of the previous month.
  - The rebalancing date would be the second business day of the rebalancing month.
  - The announcement date, implementation date and the effective date would be the third, fourth and fifth business day of the rebalancing month respectively.

# Simulated Transition Analysis

## MSCI Europe Barra Factor Indices

	Momentum	Value	Leverage*	Volatility
Number of Stocks - Long	278	282	291	248
Number of Stocks - Short	122	118	109	152
Number of Stocks - Total	400	400	400	400
Gross Leverage	1.6	1.6	1.6	2.0
Active Factor Exposure	1	1	-1	-1
Turnover	20%	20%	10%	20%
Ex-Ante Tracking Error	5.79%	3.94%	3.40%	10.72%

Analysis as of August 2009

20% Turnover constraint and Trade limit at 50% of Average Daily Traded Value

\*10% Turnover constraint applied for Leverage factor

## MSCI Europe Factor Tilt Indices

	Momentum	Value
Number of Stocks - Long	152	123
Active Factor Exposure	0.52	0.91
Turnover	20%	20%
Ex-Ante Tracking Error	3.50%	4.14%

Analysis as of August 2009

20% Turnover constraint and Trade limit at 50% of Average Daily Traded Value



# Launch of additional Factor Indices

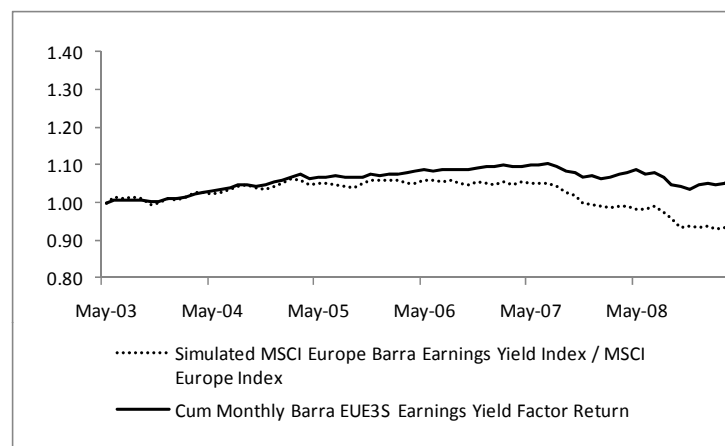
# Additional Factor Indices

- The Value factor in the EUE2S model is a composite of the Earnings Yield, Book Value/Price and Sales/Price descriptors.
- With the transition to the EUE3S model, there are two factors that capture Value :
  - Value factor - uses Book/Price and Sales/Price and represents a company's valuation with respect to its book value and historic revenues.
  - Earnings Yield factor - uses historic and forward Price / Earnings and represents a company's valuation with respect to its ability to generate positive earnings and cash flows.
- To better represent these two related yet distinct style factors, MSCI proposes to launch the MSCI Europe Barra Earnings Yield Index in addition to the existing MSCI Europe Barra Value Index.
- Furthermore, to retain consistency across Europe and USA, MSCI proposes to additionally launch the MSCI US Barra Value Factor index.
- In summary, MSCI proposes to launch two additional Factor Indices :
  - MSCI Europe Barra Earnings Yield Index.
  - MSCI USA Barra Value Index.
- These two indices would be constructed using the existing MSCI Factor Index methodology.

# Performance of Simulated MSCI Europe Barra Earnings Yield Index

	MSCI Europe Index	Simulated MSCI Europe Barra Earnings Yield Index
Return	4.45%	3.80%
Risk	15.42%	16.47%
Return/Risk	0.29	0.23
Active Return to Factor		-1.73%
Active Risk to Factor		2.05%
Average Ex Ante Barra Tracking Error		2.33%
Average Factor Exposure		0.98
Average Number of Long Stocks		287
Average Number of Short Stocks		113
Average Number of Total Stocks		400
Average Gross Leverage		1.60
Average One way Monthly Turnover		5.01%

Annualized statistics from May 2003- May 2009

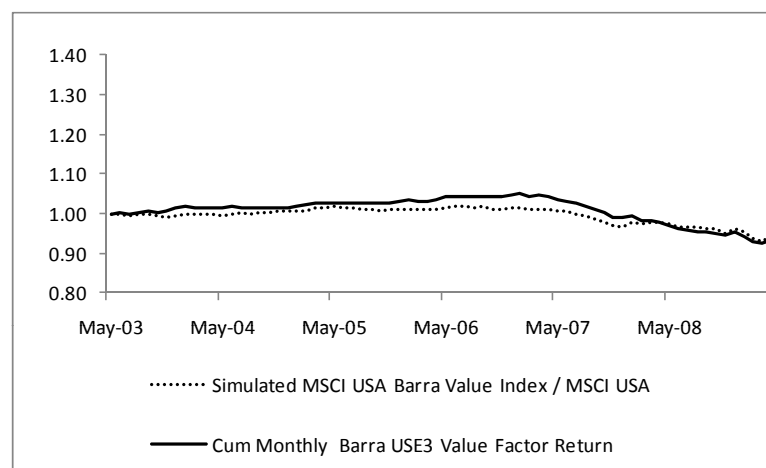


Results based on MSCI Europe Index and Barra EUE3S model  
Results based on simulations from May 2003 - May 2009

# Performance of Simulated MSCI USA Barra Value Index

	MSCI USA Index	Simulated MSCI USA Barra Value Index
Return	1.57%	0.72%
Risk	14.59%	15.23%
Return/Risk	0.11	0.05
Active Return to Factor		0.32%
Active Risk to Factor		1.20%
Average Ex Ante Barra Tracking Error		1.93%
Average Factor Exposure		1.00
Average Number of Long Stocks		311
Average Number of Short Stocks		89
Average Number of Total Stocks		400
Average Gross Value		1.47
Average One way Monthly Turnover		5.00%

Annualized statistics from May 2003- May 2009



Results based on MSCI USA Index and Barra USE3 model  
Results based on simulations from May 2003 - May 2009

# Discussion Points

- Is the proposed approach of transitioning the MSCI Europe Factor Indices to the EUE3S model appropriate ?
  - Is the application of the turnover constraint appropriate ?
  - Is the application of a trade limit of 50% of the security's Average Daily Traded value appropriate ?
  - Is the proposed change to the monthly rebalancing timeline acceptable ?
  
- Are the US Value factor and the Europe Earnings Yield factor relevant factors to be replicated through MSCI Factor Indices ?

# Appendix



# Transition Analysis – Summary

## MSCI Europe Barra Factor Indices

	Momentum		Value		Volatility		Leverage
<b>Turnover Constraint</b>	10%	20%	10%	20%	10%	20%	10%
<b>Trade Limit- % ADV</b>	50%	50%	50%	50%	50%	50%	50%
Number of Stocks - Long	256	278	289	282	239	248	291
Number of Stocks - Short	115	122	111	118	161	152	109
Number of Stocks - Total	371	400	400	400	400	400	400
Gross Leverage	1.6	1.6	1.6	1.6	2	2	1.6
Active Factor Exposure	0.96	1	0.92	1	-0.84	-1	-1
Turnover	10.0%	20.0%	10.0%	20.0%	12.8%	20.0%	10.0%
Ex-Ante Tracking Error	7.52%	5.79%	4.71%	3.94%	10.15%	10.72%	3.40%

Analysis as of August 2009

## MSCI Europe Factor Tilt Indices

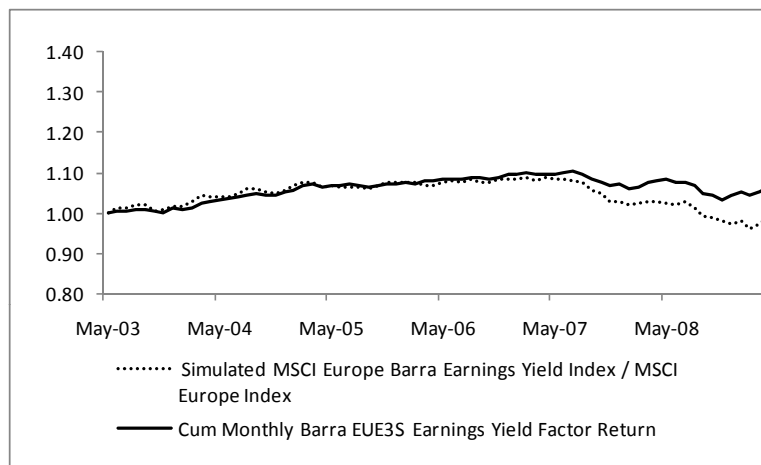
	Momentum		Value	
<b>Turnover Constraint</b>	10%	20%	10%	20%
<b>Trade Limit- % ADV</b>	50%	50%	50%	50%
Number of Stocks - Long	168	152	131	123
Active Factor Exposure	0.45	0.52	0.78	0.91
Turnover	10%	20%	10%	20%
Ex-Ante Tracking Error	3.30%	3.50%	4.08%	4.14%

Analysis as of August 2009

# Performance of Simulated MSCI Europe Barra Earnings Yield Index ( 10% Turnover )

	MSCI Europe Index	Simulated MSCI Europe Barra Earnings Yield Index
Return	4.45%	4.54%
Risk	15.42%	16.67%
Return/Risk	0.29	0.27
Active Return to Factor		-1.01%
Active Risk to Factor		1.88%
Average Ex Ante Barra Tracking Error		2.29%
Average Factor Exposure		1.00
Average Number of Long Stocks		287
Average Number of Short Stocks		112
Average Number of Total Stocks		399
Average Gross Leverage		1.60
Average One way Monthly Turnover		9.99%

Annualized statistics from May 2003- May 2009



Results based on MSCI Europe Index and Barra EUE3S model  
Results based on simulations from May 2003 - May 2009

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