Scientific Beta
An EDHEC-Risk Institute Venture

Smart Beta Performance Report

December 2016

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Introduction

ERI Scientific Beta offers six smart factor indices that provide exposure to the six well known rewarded factors (Value, Mid Cap, Low Volatility, High Momentum, Low Investment, and High Profitability) and which, furthermore, are well diversified in order to reduce the specific risks. Performance for smart factor indices exposed to risk factors known to be well rewarded over long periods remains strong, with annual performance in excess of broad cap-weighted indices ranging from 2.03% to 2.95% since inception for the Developed universe. Over shorter periods, the strategies are exposed to fluctuations depending on variations in market conditions. Over the live period, all six smart factor indices post positive returns relative to both tilted cap-weighted and broad cap-weighted indices. This quarter, ending December 31, 2016, the best performing index in the Developed World universe among those smart factor indices is the SciBeta Developed Value Diversified Multi-Strategy index with a relative return of 1.56% compared to the broad cap-weighted index, while the SciBeta Developed High Momentum Diversified Multi-Strategy index posts the lowest relative return (-4.14%). In the year 2016, the best performing index in the Developed World universe is the SciBeta Developed Value Diversified Multi-Strategy index with a relative return of 4.26% compared to the broad cap-weighted index, while the SciBeta Developed High Momentum Diversified Multi-Strategy index posts the lowest relative return (-5.72%).

Scientific Beta Multi-Beta Multi-Strategy (MBMS) indices provide an allocation to well-rewarded smart factor indices. Over the past ten years, the SciBeta Developed Multi-Beta Multi-Strategy 4-Factor EW (Equal Weight) index, the SciBeta Developed Multi-Beta Multi-Strategy 6-Factor EW (Equal Weight) index and the SciBeta Developed Multi-Beta Multi-Strategy Quality index post strong annual relative returns of 1.43%, 1.90% and 2.86% respectively, compared to cap-weighted indices. This quarter, the SciBeta Developed Multi-Beta Multi-Strategy 4-Factor EW index, the SciBeta Developed Multi-Beta Multi-Strategy 6-Factor EW index and the SciBeta Developed Multi-Beta Multi-Strategy Quality index post relative returns of -1.91%, -1.85% and -1.63% respectively, compared to cap-weighted indices. Year-to-date, which in this quarter is also the 2016 full year performance, the relative returns of the SciBeta Developed Multi-Beta Multi-Strategy indices are -0.81%, -0.45% and 0.39% respectively.

The year 2016 was marked by a rare event in the investment world where, in the end, four out of the six traditional rewarded factors underperformed the CW reference. This situation, which cannot allow factor diversification to play its role, has been analysed over a long-term period within the framework of the design of the Scientific Beta indices and its probability of occurrence is less than 10% (9.55% in the table below).

Time period (31/12/1975-31/12/2015)	**US LTTR Factors (Cap/Hmom/Lvol/HProf) (Cap-Weighted)**	**US LTTR Factors (Cap/Hmom/Lvol/HProf) (Diversified Multi-Strategy indices)**
Prob. of all 4 factors underperforming (1-yr)	0.00%	9.55%
Prob. of any 3 factors underperforming (1-yr)	19.75%	16.56%
Prob. of any 2 factors underperforming (1-yr)	42.04%	18.47%
Prob. of any 1 factors underperforming (1-yr)	32.48%	17.83%
Prob. of no factor underperforming (1-yr)	5.73%	37.58%
Prob. of all 4 factors underperforming (3-yr)	0.67%	6.04%
Prob. of any 3 factors underperforming (3-yr)	14.09%	9.40%
Prob. of any 2 factors underperforming (3-yr)	36.24%	6.04%
Prob. of any 1 factors underperforming (3-yr)	38.26%	18.79%
Prob. of no factor underperforming (3-yr)	10.74%	59.73%

Time period (21/06/2002-31/12/2016)	Dev Factors (Cap/Hmom/Lvol/HProf) (Cap-Weighted)	Dev Factors (Cap/Hmom/Lvol/HProf) (Diversified Multi-Strategy indices)
Prob. of all 4 factors underperforming (1-yr)	1.82%	7.27%
Prob. of any 3 factors underperforming (1-yr)	16.36%	3.64%
Prob. of any 2 factors underperforming (1-yr)	34.55%	16.36%
Prob. of any 1 factors underperforming (1-yr)	34.55%	20.00%
Prob. of no factor underperforming (1-yr)	12.73%	52.73%
Prob. of all 4 factors underperforming (3-yr)	0.00%	0.00%
Prob. of any 3 factors underperforming (3-yr)	2.13%	0.00%
Prob. of any 2 factors underperforming (3-yr)	19.15%	4.26%
Prob. of any 1 factors underperforming (3-yr)	48.94%	10.64%
Prob. of no factor underperforming (3-yr)	29.79%	85.11%

We can observe that the 1-year underperformance probability is also low for the developed universe (7.27%), where we have a shorter historical track record.

Over a long-term period, we can also measure the usefulness of the diversification of the factor indices offered by our multi-strategy scheme, since the probability over one year of having only two factors that perform is 42% for the cap-weighted factor indices and 18.47% for multi-strategy factor indices.

In addition, for a 3-year horizon we observe that there is a 59.73% chance for US LTTR that none of the four multi-strategy smart factor indices will underperform, compared to only 10.74% for the cap-weighted equivalents of these indices. For developed, the results are of the same nature, with a probability of 85.11% for the Scientific Beta multi-strategy factor indices, compared to 29.79% for their cap-weighted equivalent.

Looking more precisely at the High Momentum factor, we can note that the 2016 performance was the worst performance for its CW version since the inception of the Scientific Beta single factor indices in June 2002. For its multi-strategy version, we were at 98% of the worst case scenario. Regarding the High Profitability factor, the 2016 performance was the worst performance for its multi-strategy version since June 2002.

The year 2016 was also marked by a certain number of non-factor elements, i.e. that are not part of the long-term dynamics, but that had a strong influence on the variability of performance in the short term. These were notably the election of Donald Trump and Brexit, which gave rise to strong sector arbitrage.

1. Smart Factor Indices

Performance Overview

Tables 1a and 1b display the performance of SciBeta Developed Diversified Multi-Strategy indices. The six tilts selected – book-to-market, size, volatility, momentum, investment and profitability – are the common tilts documented in the literature as liable to produce outperformance compared to cap-weighted indices. The tables present performance statistics for the six rewarded factor tilts. All these indices serve to create a diversified portfolio of the relevant stocks. In particular, they draw on different smart beta weighting schemes[1], which we refer to as a diversified multi-strategy index. In addition, these indices offer investable proxies for smart beta factor indices. These indices allow investors to be both exposed to a specific risk factor (beta) and to have good diversification of other risk factors, leading to an attractive Sharpe ratio associated with the factor tilt.

Table 1a: Short-Term Performance Overview for Smart Factor Indices for the Scientific Beta Developed Equity Universe

Diversified Multi-Strategy Index	Past Quarter (as of 31/12/2016)			Year to Date (as of 31/12/2016)		
	Absolute Return	Relative Return		Absolute Return	Relative Return	
		To Tilted Cap-Weighted	To Broad Cap-Weighted		To Tilted Cap-Weighted	To Broad Cap-Weighted
Value	3.52%	-3.05%	1.56%	11.95%	-0.11%	4.26%
Mid Cap	-0.70%	-0.83%	-2.65%	6.77%	0.47%	-0.92%
Low Volatility	-0.30%	-0.86%	-2.25%	7.25%	0.57%	-0.44%
High Momentum	-2.19%	-0.90%	-4.14%	1.97%	1.12%	-5.72%
Low Investment	2.41%	-0.92%	0.46%	10.32%	0.31%	2.63%
High Profitability	-1.80%	-0.38%	-3.75%	5.81%	-0.52%	-1.89%

The history of Scientific Beta indices considered here begins on 21/06/2002. The statistics are based on daily total return series (with dividends reinvested). The statistics reported in the table are not annualised. All results are in USD.

[1]Maximum Deconcentration, Diversified Risk Weighted, Maximum Decorrelation, Efficient Maximum Sharpe Ratio and Efficient Minimum Volatility.

Table 1b: Long-Term Performance Overview for Smart Factor Indices for the Scientific Beta Developed Equity Universe

Diversified Multi-Strategy Index	Since Inception: From 21/06/2002 to 31/12/2016							
	Absolute Return	**Relative Return compared to Tilted Cap-Weighted**	**Relative Return compared to Broad Cap-Weighted**	**Volatility**	**Sharpe Ratio**	**Maximum Relative Drawdown**	**Outperformance Probability (1Y)**	**Outperformance Probability (3Y)**
Value	10.03%	2.12%	2.49%	15.95%	0.55	5.79%	76.66%	87.23%
Mid Cap	10.06%	0.37%	2.52%	15.05%	0.59	6.77%	84.87%	92.21%
Low Volatility	10.09%	2.21%	2.55%	12.94%	0.68	9.20%	67.75%	95.52%
High Momentum	9.57%	1.74%	2.03%	14.78%	0.56	12.00%	78.22%	86.24%
Low Investment	10.50%	2.08%	2.95%	14.48%	0.64	6.69%	87.13%	100.00%
High Profitability	10.31%	1.54%	2.77%	14.53%	0.62	6.35%	87.41%	99.00%

The history of Scientific Beta indices' returns considered here begins on 21/06/2002. The statistics are based on daily total return series. All statistics are annualised and performance ratios that involve the average returns are based on the geometric average, which reliably reflects multiple holding period returns for investors. ERI Scientific Beta uses the yield on Secondary Market US Treasury Bills (3M) as a proxy for the risk-free rate in US Dollars. The tilted cap-weighted indices are obtained based on the same selection of assets as each of the smart factor indices. All results are in USD.

Since inception, all Diversified Multi-Strategy indices exhibit positive relative returns compared to cap-weighted indices, whether broad or tilted cap-weighted indices. The best performance relative to the broad cap-weighted index is posted by the SciBeta Developed Low Investment Diversified Multi-Strategy index (2.95%), closely followed by the SciBeta Developed High Profitability Diversified Multi-Strategy index (2.77%). Tilted cap-weighted indices are factor indices that use the same universe of assets as each smart factor index. The outperformance of smart factor indices compared to those indices is due to the difference in weighting scheme, which results in better diversification for smart factor indices compared to cap-weighted indices. Looking at year-to-date relative returns, which in this quarter is the 2016 full year performance, the best performing index among smart factor indices is the SciBeta Developed Value Diversified Multi-Strategy index with a relative return of 4.26%. Looking at past quarter relative returns, the best performing index among smart factor indices is the SciBeta Developed Value Diversified Multi-Strategy index with a relative return of 1.56%.

Live Performance

Table 1c reports the live performance of the six single factor smart factor indices for the Developed World universe. Value, Mid Cap, Low Volatility and High Momentum smart factor indices have live performance for more than four years, with a live date of December 21, 2012. The Low Investment and High Profitability smart factor indices are relatively new, with a live date of March 20, 2015. All six smart factor indices post positive returns relative to both tilted cap-weighted and broad cap-weighted indices. In absolute terms, all indices post positive returns over their respective live periods as of this quarter end. Consequently, their Sharpe ratios are quite high as well, ranging from 0.93 to 1.18.

Table 1c: Live Performance of Smart Factor Indices for the Scientific Beta Developed Equity Universe

Diversified Multi-Strategy Index	Live Performance (as of 31/12/2016)				
	Absolute Return	Relative Return		Volatility	Sharpe Ratio
		To Tilted Cap-Weighted	To Broad Cap-Weighted		
Value[1]	10.61%	1.75%	1.28%	11.14%	0.94
Mid Cap[1]	10.62%	0.47%	1.28%	10.67%	0.98
Low Volatility[1]	11.21%	1.88%	1.88%	9.44%	1.18
High Momentum[1]	10.00%	1.20%	0.67%	10.67%	0.93
Low Investment[2]	7.40%	2.21%	4.27%	N.S.	N.S.
High Profitability[2]	4.33%	0.12%	1.21%	N.S.	N.S.

The statistics are based on daily total return series (with dividends reinvested). The statistics reported in the table here are annualised when the live period is longer than two years. For indices with live period less than two years, the returns are non-annualised cumulative returns and no volatility and Sharpe ratio are reported for those indices. All results are in USD. [1]*The live date is 21 December, 2012.* [2]*The live date is 20 March, 2015.*

Long-Term Track Records

Table 1d displays the performance of long-term US data series based on the same factor selection and weighting scheme, the initial reference universe of these long-term US data series being the 500 largest market-cap US stocks.

Table 1d: Performance Overview for Long-Term US Data Series

Diversified Multi-Strategy Index	Long-Term US Track Records since 31/12/1975 (as of 31/12/2015): 40 years		
	Relative Return compared to Cap-Weighted	Volatility	Sharpe Ratio
Value	2.80%	15.77%	0.57
Mid Cap	2.70%	16.04%	0.55
Low Volatility	2.52%	13.53%	0.64
High Momentum	3.09%	16.51%	0.56
Low Investment	3.05%	14.80%	0.62
High Profitability	2.57%	16.15%	0.54

Long-Term US data series are style factor data series constructed from the 500 largest market cap US stocks. The statistics are based on daily total return series (with dividends reinvested) from December 31, 1975 to December 31, 2015 (40 years). All statistics are annualised and performance ratios that involve the average returns are based on the geometric average, which reliably reflects multiple holding period returns for investors. The yield on Secondary Market US Treasury Bills (3M) is used as a proxy for the risk-free rate in US Dollars. All results are in USD.

2. Multi Smart Factor Indices

Scientific Beta Multi-Beta Multi-Strategy (MBMS) indices are a combination of smart factor indices. The flagship Scientific Beta Multi-Beta Multi-Strategy 4-Factor indices provide allocations to several well-documented risk premia in equity markets (Value, Momentum, Size and Low Volatility), Scientific Beta Multi-Beta Multi-Strategy 6-Factor indices provide allocations to several well-documented risk premia in equity markets (Value, Momentum, Size, Low Volatility, Low Investment and High Profitability) and Scientific Beta Multi-Beta Multi-Strategy Quality indices provide allocations to the commonly known "Quality" factors (Low Investment and High Profitability). The individual smart factor indices follow different cycles, corresponding to well-rewarded factors as documented in the literature. Combining factor tilts in a multi-beta benchmark allows risk-adjusted performance to be improved and outperformance across market regimes to be smoothed, compared to the average result of component indices. All these indices equal weight the underlying single smart factor indices.

Performance Overview

Table 2a displays an overview of the relative and absolute performance of Scientific Beta Multi-Beta Multi Strategy indices for various regions and different time periods. Over the long term, all Scientific Beta Multi-Beta Multi-Strategy indices post positive excess return compared to broad cap-weighted indices. If we consider the 6-Factor EW allocation, the annualised excess return over the past ten years ranges from 1.53% for the SciBeta United Kingdom Multi-Beta Multi-Strategy 6-Factor EW index to 3.50% for the SciBeta Japan Multi-Beta Multi-Strategy 6-Factor EW index. If we consider the 4-Factor EW allocation, the annualised excess return over the past ten years ranges from 0.79% for the SciBeta United Kingdom Multi-Beta Multi-Strategy 4-Factor EW index to 3.24% for the SciBeta Japan Multi-Beta Multi-Strategy 4-Factor EW index. If we consider the Scientific Beta Multi-Beta Multi Strategy Quality indices, the annualised excess return over the past ten years ranges from 2.20% for the SciBeta Developed Asia Pacific ex Japan Multi-Beta Multi-Strategy Quality index to 4.03% for the SciBeta Japan Multi-Beta Multi-Strategy Quality index.

In the past quarter, if we consider the cumulative excess returns of the 6-factor EW allocation, the best performing index is the SciBeta United States Multi-Beta Multi-Strategy 6-Factor EW index with a relative return of -1.09%, while the worst performing index is the SciBeta United Kingdom Multi-Beta Multi-Strategy 6-Factor EW index with a relative return of -3.87%. If we consider the cumulative excess returns of the 4-factor EW allocation, the best performing index is the SciBeta United States Multi-Beta Multi-Strategy 4-Factor EW index with a relative return of -1.04%, while the worst performing index is the SciBeta United Kingdom Multi-Beta Multi-Strategy 6-Factor EW index with a relative return of -4.71%. If we consider the Scientific Beta Multi-Beta Multi Strategy Quality indices, the best performance is obtained by the SciBeta United States Multi-Beta Multi-Strategy Quality index with a relative return of -1.11%, while the worst performance is obtained by the SciBeta Japan Multi-Beta Multi-Strategy Quality index with a relative return of -2.83%.

Year-to-date, which in this quarter is also the 2016 full year performance, when we consider the 6-factor EW allocation, the best performance is obtained by the SciBeta Japan Multi-Beta Multi-Strategy 6-Factor EW index with a relative return of 2.53%, while the worst performance is obtained by the SciBeta United Kingdom Multi-Beta Multi-Strategy 6-Factor EW index with a relative return of -12.03%. If we consider the 4-factor EW allocation, the best performance is obtained by the SciBeta Japan Multi-Beta Multi-Strategy 4-Factor EW index with a relative return of 2.76%, while the worst performance is obtained by the SciBeta United Kingdom Multi-Beta Multi-Strategy 4-Factor EW index with a relative return of -13.47%. If we consider the Scientific Beta Multi-Beta Multi Strategy Quality indices, the best performance is obtained by the SciBeta Japan Multi-Beta Multi-Strategy Quality index with a relative return of 2.40%, while

the worst performance is obtained by the SciBeta United Kingdom Multi-Beta Multi-Strategy Quality index with a relative return of -8.69%. This poor performance is mainly due to Brexit, which has created a divide between exporting and domestic companies, with the latter having been heavily penalised by Brexit, as both the factor approach and diversification do not take into account this circumstantial dimension.

From table 2a, it also appears that the volatility of the Scientific Beta Multi-Beta Multi Strategy indices is significantly lower over the long term compared to the volatility of broad-cap weighted indices for all regions, with the highest differences being observed for the Developed Asia Pacific ex-Japan and Japan indices, with volatilities of 24.00% and 23.98% respectively for the broad cap-weighted indices, and volatilities of 19.86% and 20.16% respectively for the Scientific Beta Multi-Beta Multi Strategy 6-Factor EW allocation indices over the past ten years. As a result, we observe a considerable improvement in the Sharpe ratios for the Scientific Beta Multi-Beta Multi Strategy indices over the past ten years compared to the broad cap-weighted indices. Sharpe ratios range from 0.12 (Developed Europe ex UK) to 0.41 (United States) for the Scientific Beta Multi-Beta Multi Strategy 6-Factor EW allocation indices, compared to 0.02 (Japan) to 0.30 (United States) for the broad cap-weighted indices.

Table 2a: Relative and Absolute Performance of Scientific Beta Multi-Beta Multi-Strategy Indices across Regions as of 31/12/2016

Index	Multi-Beta Multi-Strategy	Nº of Constituents	Relative Return compared to Cap-Weighted				Information Ratio		Absolute Return		Volatility		Sharpe Ratio	
			1Q	YTD	1Y	10Y	1Y	10Y	1Y	10Y	1Y	10Y	1Y	10Y
Developed	4-Factor EW	1518	-1.91%	-0.81%	-0.81%	1.43%	-0.30	0.53	6.86%	5.83%	11.76%	15.94%	0.56	0.32
	6-Factor EW	1581	-1.85%	-0.45%	-0.45%	1.90%	-0.18	0.71	7.22%	6.30%	11.83%	15.85%	0.58	0.36
	Quality EW	1209	-1.63%	0.39%	0.38%	2.86%	0.18	0.98	8.05%	7.25%	12.03%	15.71%	0.64	0.42
SciBeta Global Developed CW		1600							7.66%	4.40%	12.71%	17.51%	0.58	0.21
Developed ex US	4-Factor EW	1043	-3.06%	-1.26%	-1.26%	1.80%	-0.34	0.49	1.54%	3.48%	15.05%	16.93%	0.08	0.17
	6-Factor EW	1084	-2.86%	-0.99%	-0.98%	2.24%	-0.28	0.62	1.81%	3.92%	15.11%	16.91%	0.10	0.19
	Quality EW	834	-2.32%	-0.26%	-0.25%	3.13%	-0.08	0.84	2.54%	4.82%	15.30%	16.91%	0.15	0.25
SciBeta Developed ex US CW		1100							2.80%	1.69%	16.49%	19.31%	0.15	0.05
United States	4-Factor EW	475	-1.04%	-0.46%	-0.46%	1.14%	-0.15	0.36	10.97%	8.11%	12.50%	19.60%	0.85	0.38
	6-Factor EW	497	-1.09%	-0.02%	-0.02%	1.61%	-0.01	0.52	11.41%	8.58%	12.56%	19.40%	0.88	0.41
	Quality EW	375	-1.11%	0.91%	0.91%	2.55%	0.39	0.71	12.34%	9.51%	12.80%	19.09%	0.94	0.46
SciBeta United States CW		500							11.43%	6.96%	13.07%	20.74%	0.85	0.30
Developed Europe ex UK	4-Factor EW	384	-3.20%	0.90%	0.90%	1.26%	0.21	0.27	1.08%	2.69%	18.71%	22.43%	0.04	0.09
	6-Factor EW	396	-2.99%	0.87%	0.86%	1.90%	0.21	0.41	1.04%	3.34%	18.87%	22.34%	0.04	0.12
	Quality EW	307	-2.46%	0.92%	0.92%	3.19%	0.24	0.66	1.10%	4.63%	19.24%	22.21%	0.04	0.18
SciBeta Europe ex UK CW		400							0.18%	1.43%	20.16%	25.06%	-0.01	0.03
United Kingdom	4-Factor EW	95	-4.71%	-13.47%	-13.42%	0.79%	-2.13	0.14	3.60%	6.23%	16.88%	18.22%	0.19	0.27
	6-Factor EW	99	-3.87%	-12.03%	-11.98%	1.53%	-2.21	0.27	5.04%	6.98%	16.66%	18.02%	0.28	0.31
	Quality EW	77	-1.91%	-8.69%	-8.66%	3.05%	-2.04	0.50	8.36%	8.49%	16.56%	17.79%	0.48	0.40
SciBeta United Kingdom CW		100							17.02%	5.45%	16.65%	20.06%	1.00	0.20
Dev. Asia Pacific ex Jp	4-Factor EW	188	-3.92%	-3.51%	-3.50%	1.90%	-0.52	0.29	4.83%	6.29%	12.40%	20.03%	0.36	0.28
	6-Factor EW	195	-3.45%	-2.84%	-2.82%	2.01%	-0.45	0.31	5.50%	6.40%	12.67%	19.86%	0.41	0.29
	Quality EW	147	-2.43%	-1.50%	-1.50%	2.20%	-0.27	0.33	6.83%	6.59%	13.34%	19.62%	0.49	0.30
SciBeta Dev. Asia Pacific ex JP. CW		200							8.33%	4.39%	16.65%	24.00%	0.48	0.15
Japan	4-Factor EW	283	-1.93%	2.76%	2.75%	3.24%	0.43	0.45	2.41%	3.95%	22.43%	20.08%	0.11	0.19
	6-Factor EW	294	-2.35%	2.53%	2.52%	3.50%	0.39	0.50	2.18%	4.21%	22.61%	20.16%	0.10	0.20
	Quality EW	230	-2.83%	2.40%	2.39%	4.03%	0.37	0.61	2.05%	4.75%	23.07%	20.40%	0.09	0.23
SciBeta Japan CW		300							-0.34%	0.71%	26.12%	23.98%	-0.01	0.02

Based on daily total returns in USD for Developed, Developed ex-US, US, Asia Pacific ex-Japan, and Dev. Europe ex-UK and in GBP for UK and JPY for Japan. Inception date is June 21, 2002 for Scientific Beta Multi-Beta Multi-Strategy 4-Factor EW indices, Scientific Beta Multi-Beta Multi-Strategy 6-Factor EW indices and Scientific Beta Multi-Beta Multi-Strategy Quality indices and December 19, 2003 for Scientific Beta Multi-Beta Multi-Strategy CW indices. The statistics other than for 1Q and YTD are annualised and performance ratios that involve the average returns are based on the geometric average, which reliably reflects multiple holding period returns for investors. The risk-free rates used are defined according to the regional universe of the index. The number of index constituents are as of the last quarterly rebalancing, i.e. December 16, 2016.

Long-Term Track Records

Table 2b displays the performance of long-term US data series, the initial reference universe being the 500 largest market-cap US stocks.

Table 2b: Performance Overview of Multi-Beta Multi-Strategy Indices for US Long-Term Data Series (40 years)

	Long-Term US Track Records since 31/12/1975 (as of 31/12/2015): 40 years								
	Relative Return compared to Cap-Weighted			**Volatility**			**Sharpe Ratio**		
	4-Factor EW	6-Factor EW	Quality	4-Factor EW	6-Factor EW	Quality	4-Factor EW	6-Factor EW	Quality
United States	2.86%	2.86%	2.85%	15.17%	15.18%	15.33%	0.59	0.59	0.59

Long-Term US data series are style factor data series constructed from the 500 largest market-cap US stocks. The statistics are based on daily total return series (with dividends reinvested). All statistics are annualised and performance ratios that involve the average returns are based on the geometric average, which reliably reflects multiple holding period returns for investors. The yield on Secondary Market US Treasury Bills (3M) is used as a proxy for the risk-free rate in US Dollars. All results are in USD.

About ERI Scientific Beta

ERI Scientific Beta aims to be the first provider of a smart beta platform to help investors understand and invest in advanced beta equity strategies. It has three principles:

Choice: A multitude of strategies are available allowing users to build their own benchmark, choosing the risks to which they wish, or do not wish, to be exposed. This approach, which makes investors responsible for their own risk choices, referred to as Smart Beta 2.0, is the core component of the index offerings proposed by ERI Scientific Beta.

Transparency: The rules for all of the Scientific Beta series are replicable and transparent. The track records of the Scientific Beta indices can be checked and justified through access to historical compositions.

Clarity: Exhaustive explanations of construction methodologies are provided, as well as detailed performance and risk analytics.

Established by EDHEC-Risk Institute, one of the very top academic institutions in the field of fundamental and applied research for the investment industry, ERI Scientific Beta shares the same concern for scientific rigour and veracity, which it applies to all the services that it offers investors and asset managers.

The ERI Scientific Beta offering covers three major services:

Scientific Beta Indices

Scientific Beta Indices are smart beta indices that aim to be the reference for the investment and analysis of alternative beta strategies. Scientific Beta Indices reflect the state-of-the-art in the construction of different alternative beta strategies and allow for a flexible choice among a wide range of options at each stage of their construction process. This choice enables users of the platform to construct their own benchmark, thus controlling the risks of investing in this new type of beta (Smart Beta 2.0).

Within the framework of Smart Beta 2.0 offerings, ERI Scientific Beta provides access to smart factor indices, which give exposure to risk factors that are well rewarded over the long term while at the same time diversifying away unrewarded specific risks. By combining these smart factor indices, one can design very high performance passive investment solutions.

Scientific Beta Analytics

Scientific Beta Analytics are detailed analytics and exhaustive information on its smart beta indices to allow investors to evaluate the advanced beta strategies in terms of risk and performance. The analytics capabilities include risk and performance assessments, factor and sector attribution, and relative risk assessment. Scientific Beta Analytics also allow the liquidity, turnover and diversification quality of the indices offered to be analysed. In the same way, analytics provide an evaluation of the probability of out-of-sample outperformance of the various strategies present on the platform.

We believe that it is important for investors to be able to conduct their own analyses, select their preferred time period and choose among a wide range of analytics in order to produce their own picture of strategy performance and risk.

Scientific Beta Fully-Customised Benchmarks and Smart Beta Solutions

Scientific Beta Fully-Customised Benchmarks and Smart Beta Solutions is a service proposed by ERI Scientific Beta, and its partners, in the context of an advisory relationship for the construction and implementation of benchmarks specially designed to meet the specific objectives and constraints of investors and asset managers. This service notably offers the possibility of determining specific combinations of factors, considering optimal combinations of smart beta strategies, defining a stock universe specific to the investor, and taking account of specific risk constraints during the benchmark construction process.

With a concern to provide worldwide client servicing, ERI Scientific Beta is present in Boston, London, Nice, Singapore and Tokyo. As of December 31, 2016, the Scientific Beta indices corresponded to USD 12.3bn in assets under replication.

ERI Scientific Beta has a dedicated team of 45 people who cover not only client support from Nice, Singapore and Boston, but also the development, production and promotion of its index offering.

Disclaimer

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