"Value stocks behave like Long Call options…"

and **"value returns depend on market states"**. These are two main findings of a recently released paper by Cibane and Ouzan (available on SSRN). Using US-data, the authors show, that **(excess-) returns of value stocks are highest during market rebounds** in times of distressed markets, leading the authors to conclude, that **"Value stocks behave like Long Call options"**. On the contrary, underperformance of Momentum as a factor is most pronounced during the similar timeframes – "**episodes of extreme value profits mirror Momentum crashes**". According to Cibane and Ouzan, the main explanation seems to be Lakonishok´s behavioural finance-based explanation, where "positive feedback traders are trading against contrarian investors" (Lakonishok/1999).

But apart from a behavioural-based explanation, the excess return-profile of value and growth can be explained using fundamental drivers by looking at the business- or profit cycle, changing equity/debt-composition and thus riskiness of balance sheets. As for the market in general, the **most important driver of (excess-) returns of value stocks is earnings growth**. The growth rate in corporate earnings is typically highest in early stages of a business cycle. **If earnings are abundant and valuations are cheap, value stocks offer more "bang for the buck".**
The notion that equities behave like a call option is well-known since Black, Scholes, Merton´s work on options and corporate finance **("all corporate liabilities can be viewed as combination of options"; Black,Merton/1973)**. In this sense, **equities can be replicated with a long call option, debt with a short put option** – both with an exercise price on book value. Both options replicate a Delta 1-exposure on the asset side of a balance sheet as assets have to equal liabilities. During an earnings recovery, the pressure on balance sheets, book value and gearing (and thus risk) eases as earnings and the value of equity (and the enterprise as a whole) rise – typically faster than expected by market participants. **As the prices of value stocks are near, at or even below book value, the stock itself represents an "out of the money-call".** And as the out of the money profile is more pronounced in value stocks compared to the overall market at the end of an economic and market downturn, value stocks behave like Long Call options on the market during a recovery.

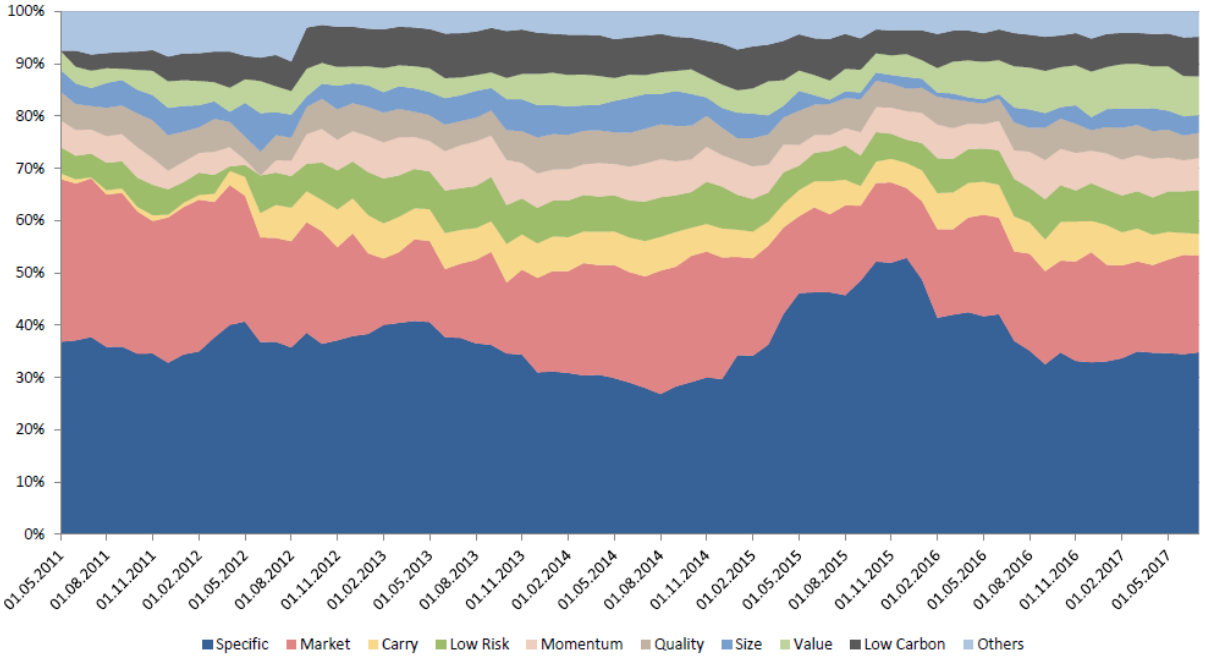
Cross-sectional Momentum (CS) shows a different payoff-profile compared to time-series momentum (trend-following/TS). Most of the profits of TS-momentum occur during strong declines or gains – the time, when CS-momentum typically exhibits drawdowns. At the end of an uptrend, market breath typically declines – a situation, in which it is extremely difficult to discriminate between winners and losers and recent winners morph into losers quite fast. In many cases, negative earnings surprises are a reason. **At the end of a bear market, most momentum portfolios are overweight defensive stocks with a lower beta**.

As the market rises – quite often in a V-shaped style – low beta stocks underperform, leading to **"Momentum crashes"** (Daniel, Moskowitz/2013). As with value and momentum, there should always be out- and underperformance across equity factor families vs. the market over the business cycle.

So far about theory, but as "Jogi" Berra, the former NY-Yankees baseball player and well-known for his famous quotes, once stated: **"In theory there is no difference between theory and practice. In practice there is."** This leads us to the performance of the iSTOXX Europe factor family over the last twelve months. **Except Low Risk, all European indices registered underperformance YoY vs. the broader market, Ytd only Quality outperformed.** This is a significant difference to developments within the iSTOXX US factor family, where Carry, Momentum and Low Risk outperformed YoY – and in combination with Size Ytd.

Excess Return vs. Benchmark	iSTOXX Europe Indices		iSTOXX USA Indices	
	YoY	Ytd	YoY	ytd
Value	-8,30%	-5,03%	-6,29%	-2,31%
Carry	-2,30%	-2,07%	1,02%	2,47%
Quality	-1,72%	1,58%	-1,58%	-0,74%
Momentum	-8,17%	-4,23%	2,29%	3,64%
Low Risk	0,06%	-1,51%	4,32%	1,62%
Size	-8,01%	-5,26%	-1,53%	1,71%

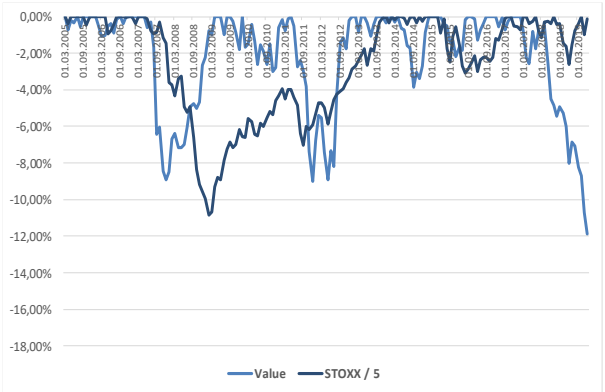
On a first look, the **performance within both factor families is basically in line with the overall economic situation**. Value and Size underperformed more "defensive" factors. Nevertheless, the fact that five out of six factors underperformed the market in Europe is quite unusual by historical standards, but can´t be ruled out in the short term. Investors should always remember, that **factors don´t span the whole market** – in contrast to sectors, countries and currencies in Europe. The weighted sum of all stocks across factors doesn´t add up to benchmark weights whereas countries or currencies always do. Looking at a risk decomposition of a typical stock (Daimler in this case), **the market is still a risk factor on its own** despite large factor exposures. By the way – the graph reveals another interesting point: **climate change developed into a contributor to risk exposures of stocks during recent years**.

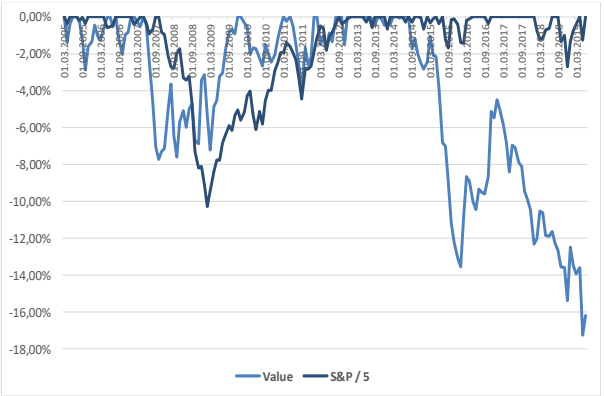


Apart from the fact per se, that value and size registered underperformance, which is in line with economic fundamentals, **the extend of value´s decline is astonishing on both sides of the Atlantic**, as the **drawdown in relative terms is larger than during the run up to the financial crisis** 10 years ago or during the Euro crisis. **Either Value as a factor is extremely under-priced or equity markets in general are still on elevated levels.**

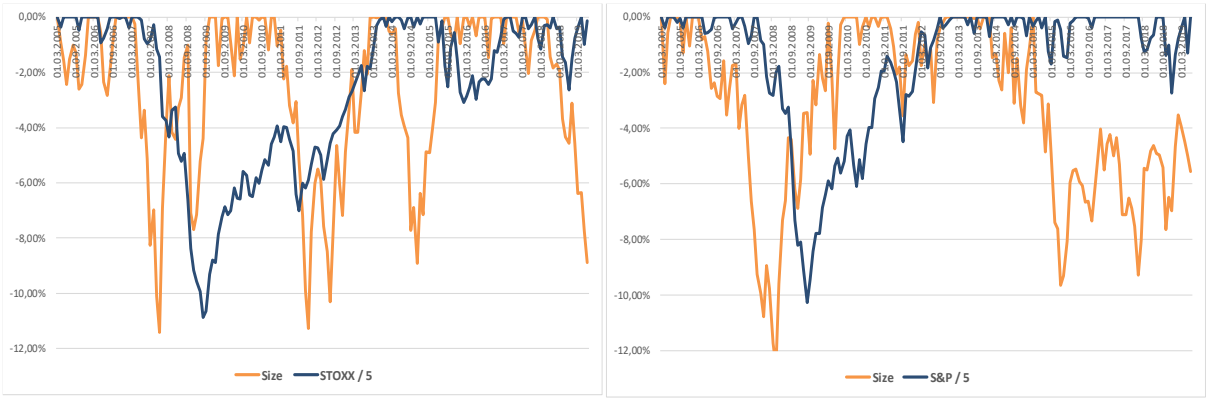
A lot has been written about the weaker performance of Value over the last several years but using the iSTOXX families in Europe and US, a simple comparison in local currency terms shows, that both recorded similar total returns of ~ 230 % since 2004, outperformed during economic expansions and gave up performance during downturns. The only difference is, that US Value lost its advantage during the last 18 months, while **European Value is still 80% ahead of the market- despite recent underperformance**.

The graphs show relative drawdowns of value on both sides of the Atlantic compared to drawdowns in broader benchmark aggregates. Benchmark drawdowns are risk adjusted on the tracking error (3%) of the factor indices. As long-term volatility of benchmark indices is around 15%, we divided market drawdowns by 5.





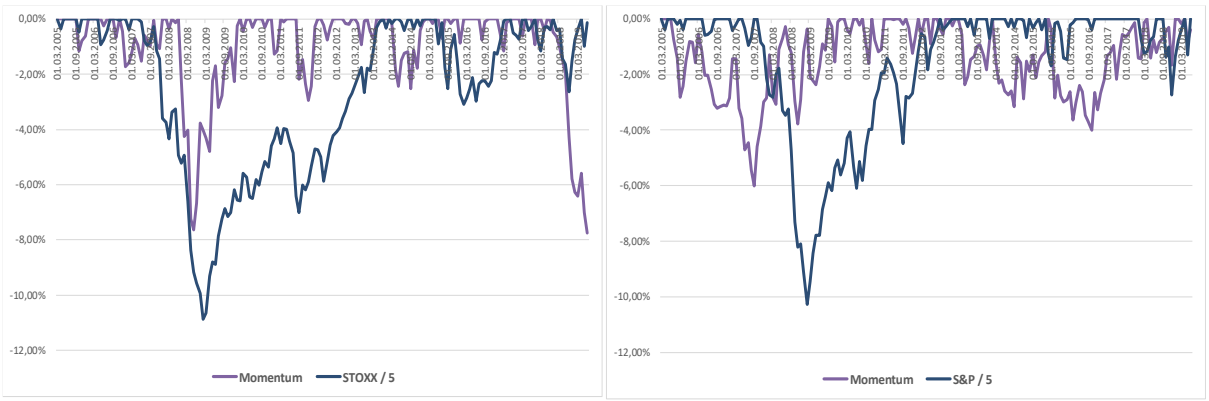
Relative drawdowns of size are of similar magnitude compared to drawdowns in economic downturn scenarios over the last 10 years at around -10%.



Especially the **weak performance of Momentum over the last 12 months in Europe** is in stark contrast to developments in US, where Momentum outperformed**.** As the first stage of underperformance may be explainable by late cycle problems to discriminate, it is more difficult to explain the later stages.

The V-shaped market performance during Q4/2018 and Q1/2019 might be one explanation as it is more typical for a final stage of a downtrend (sell-off and subsequent market recovery) than at a top of a longer uptrend. Given the typical developments, **Momentum exhibited its worst phases of relative performance back to back within a few weeks.**

Comparing developments in Europe and US, the structure of advances and declines has been different since 2017. While US exhibited longer phases of rising markets and short-lived drops, developments in Europe show ups and downs lasting only 2-3 month.

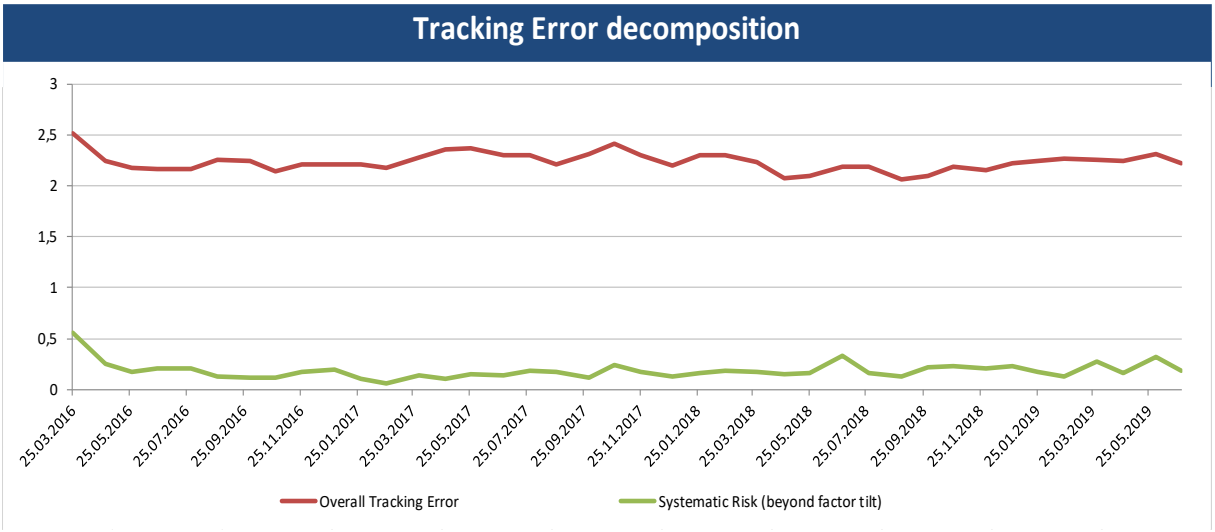


Apart from fundamental or market microstructure explanations, a more aligned development of typically low or negative correlated (excess-) returns raises questions. And as always, several explanations come to mind like **Brexit, Italy, unintended deviations in country, currency or market cap weights, undetected risk exposures etc.**

Independently from regular monitoring procedures, we checked **factor loads** and ex ante-**risk exposures** over time using two different risk models (mid-term and short-term calibration) as well as **positioning and performance contribution** for every factor index and every monthly index portfolio over the last 18 months across industry groups, sectors, countries, currencies, market cap- and trading liquidity-buckets.

Findings on Risk

Using **mid-term risk models**, analytical results show, that risk constraints haven´t been violated. Systematic risk impacts on tracking error beyond the factor tilt have been in line with portfolio construction rules. The graph shows iSTOXX Multi Factor data since 2016.

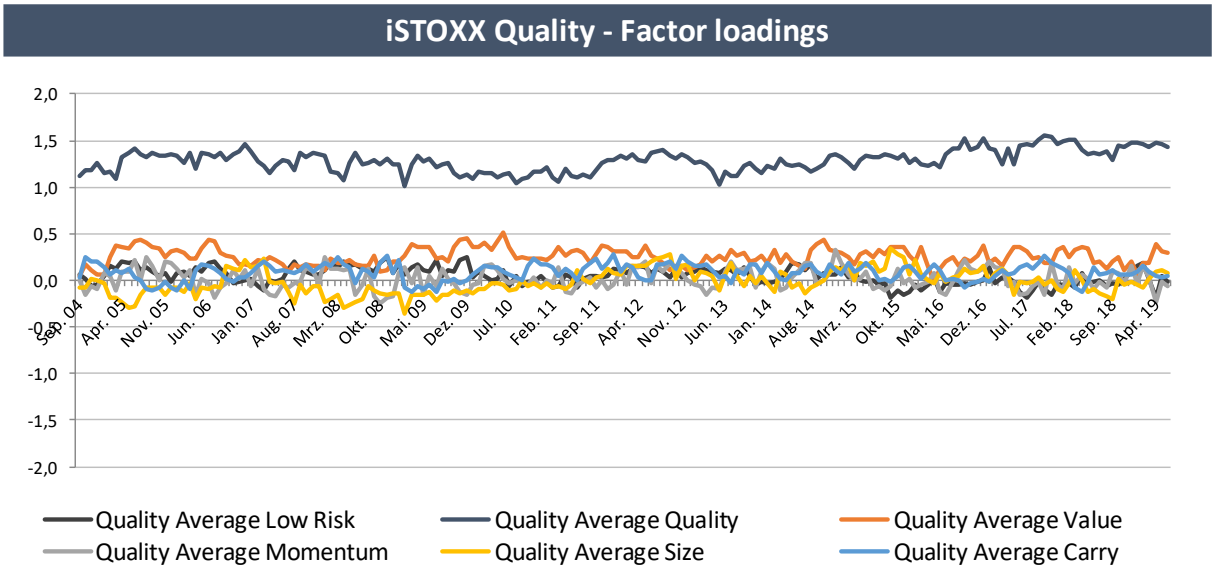


The picture changes by looking at risk impacts using **higher frequency risk models**, but that´s quite normal as the performance deviation of a Long Only factor index compared to benchmark typically is a process of small increments over time, leaving the day to day price fluctuation in terms of total volatility highly correlated with overall market developments. A closer look into the drivers of tracking error didn´t reveal any noticeable problems or contributions.

Findings on factor-load

We regularly check factor-loadings – that is by **how much an index loads on scores of other single factors**. In a working paper titled "Score based Portfolio Choice", released in February 2019, the author highlights: "*The advantage of the score-based portfolio choice is that scores represent direct snapshots of balance sheet items and can therefore solve the problem of noisy factor sensitivity estimates in portfolio construction" and " These excess returns can be attributed to the well-known risk factors of the factor investing literature*".

The graph shows factor-loadings of iSTOXX Quality on the Quality score itself as well as on all other factors and is **a confirmation of our approach to deliver factors "as pure as possible"**.



Findings on Positioning

As **deviations in sector weights** are explicitly constraint, **average** over- and underweights across all indices are within +0,8%/-1% with extremes at +1,4%/-1,6%. Except Low Risk, all factors exhibited underperformance in Consumer Services.

Digging deeper into **supersector level**, active positions are mostly within +1,5%/-1,3% bands except for banks, where all indices registered larger underweights of -3,3% on average and except Momentum, all factors realized positive excess returns in banks.

Our third analytical level is on **country positioning** and here our ex ante estimate has been, that the indices might have suffered from positioning across or within countries, **especially in UK or Italy.** Active country deviations across factors in UK have been neutral during the last 18 months with an average performance contribution of -12 Bp´s, which is a non-event. In contrast to UK, Italy has seen a material overweight in all factors - +4,68% on average except Low Risk - and performance contribution has been positive with 89 Bp´s.
Major losses on country level came from positions in France, Germany, Netherlands and Spain, but the performance can´t be explained by effects across countries and seems to be driven by developments and positions within those countries. As an example – an underweight across factors in Germany, which recorded the weakest performance among those four countries mentioned, produced a negative contribution of -106 Bp´s overall.

In a next step, we analysed **currency effects** and as in countries, UK hasn´t been a problem. Negative contributions are concentrated within the Eurozone.

Finally, we investigated **Market Cap and Trading Volume** by sorting all stocks along deciles. Except Low Risk, all other indices have been **underweighted in mega caps** (10% largest and most liquid) which **implies a persistent and systematic size tilt** across all factors.

For a systematic impact of a size factor the excess returns of iSTOXX Size should be highly correlated with negative contributions from underweights in the market cap- and trading liquidity deciles of all factor indices – which is **not supported by the numbers**. Despite the fact of negative return contributions from mega caps over time, excess returns of the iSTOXX Size factor index are mostly uncorrelated with return contributions from underweights in large caps. The table shows correlations of 10th decile market cap excess returns vs. excess returns of iSTOXX Size.

Carry 10	Low Risk 10	Momentum 10	Multi 10	Quality 10	Size 10	Value 10
- 0,09	0,08	- 0,24	- 0,17	- 0,12	- 0,08	- 0,19

Nevertheless, there´s a **difference between weights and return-contributions across and within deciles** and it seems to be the case, that **the negative contribution of higher market cap deciles is a problem of constantly isolating factor returns out of a small group of large cap stocks**. This group of stocks is typically highly correlated and mostly driven by the market factor (see Daimlers risk decomposition), which can be described as "Large Cap-Momentum". The fact, that Low Risk has been neutral on average in Large Caps and registered outperformance in these positions might be a confirmation of our argument.

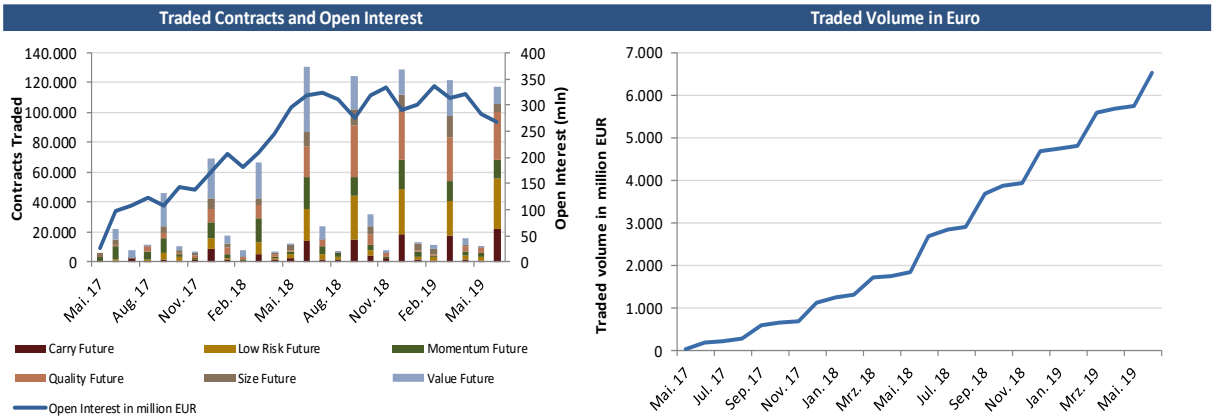
Conclusion

Performance within **both factor families** in Europe and US show, that excess returns are in line with what to expect during an economic-, profit- and market cycle like this one over the last 12 months – except Momentum in Europe.

The fact, that five out of six factors underperformed the broader in Europe **is an extremely rare event**, **but can´t be ruled out in general** as the market itself is a priced and paid risk factor. Investors, who run factor rotation models **should consider trading the factors directly (i.e. Long Value/Short Quality) than trading their best ideas vs. the market**. As all factors are build using the same tracking error target of 3%, they can easily be traded in the same 1:1 setup as the vs. the STOXX 600.

EUREX Futures

Open interest is still oscillating between 250 and 350 mln Euros since May 2018. The tables show developments in traded contracts, open interest and overall traded volumes since introduction in May 2017.



Alpha Centauri Indexing - Data as of 30.06.2019

Description:

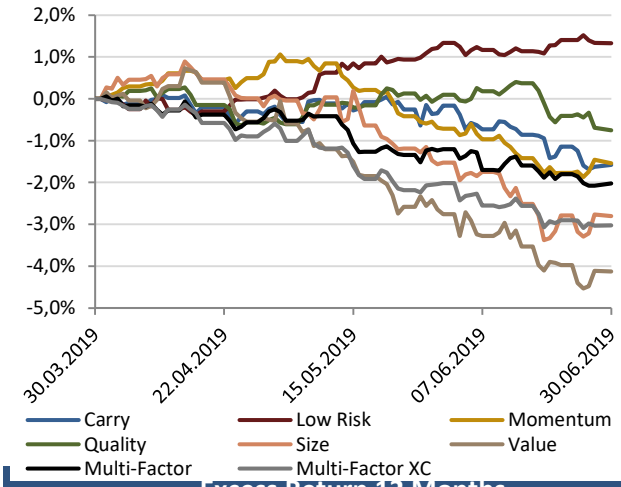
The iSTOXX Europe Single Factor index family developed by STOXX in collaboration with Alpha Centauri offers investors a unique and very innovative way to target and capture premia.
It consists of six single factors that aim to capture well-known risk premia and one multi-factor that aims at simultaneously capturing premia from the aggregate of all single factors rather than from just one source of risk alone.
All indices are constructed to maximize the exposure to their particular factor and minimize unwanted risks. While constructing the final indices the FIS APT risk model is used to measure and restrict risk.

For more information go to **www.alpha-centauri.com** or **www.stoxx.com**

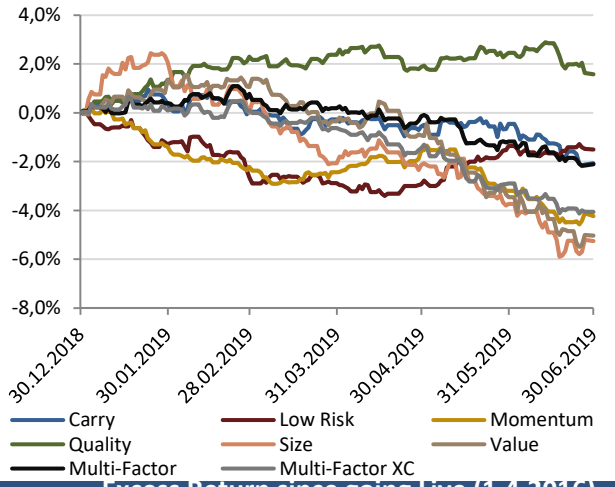
Performance and Volatility Breakdown

Name	Ticker	Return 3 Months	Return 6 Months	Return 12 Months	Return Live (1.4.)	Vola pa	Vola pa Live (1.4.)
Carry	ISECFER Index	1,5%	14,9%	2,0%	38,9%	14,1%	12,9%
Low Risk	ISERRER Index	4,4%	15,4%	4,3%	35,4%	12,9%	11,9%
Momentum	ISEMFER Index	1,5%	12,7%	-3,9%	25,6%	13,8%	12,6%
Quality	ISEQFER Index	2,3%	18,5%	2,6%	26,7%	13,9%	12,8%
Size	ISEZFER Index	0,2%	11,7%	-3,7%	27,5%	14,2%	13,1%
Value	ISEVFER Index	-1,1%	11,9%	-4,0%	19,9%	14,7%	13,4%
Multi-Factor	ISEXFER Index	1,0%	14,8%	-1,0%	20,8%	13,5%	12,3%
Multi-Factor XC	ISEXFCR Index	0,0%	12,9%	-3,0%	23,3%	13,6%	12,4%
Benchmark	SXXR Index	3,0%	17,0%	4,3%	27,5%	14,0%	12,7%

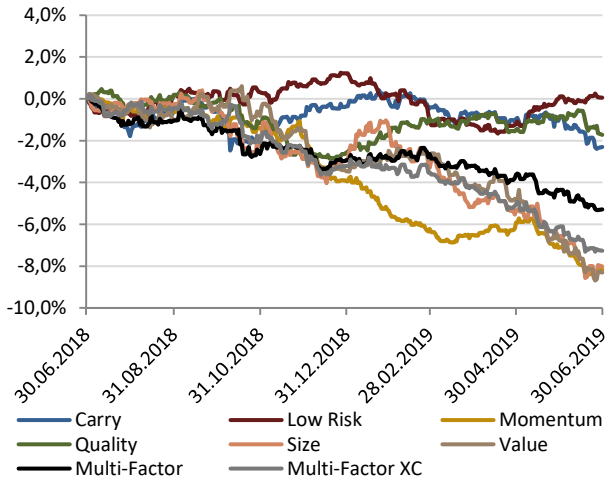
Excess Return 3 Months



Excess Return 6 Months



Excess Return 12 Months



Excess Return since going Live (1.4.2016)