FACTOR THE FUTURE -

the added value of Multi-Asset Factor Investing

A growing number of investors have begun using a factor-based investment approach when constructing their portfolios. Supported by academic research, factor-based investments can offer attractive returns and often carry lower fees. So far, many offerings limit themselves to one factor within a "long-only" investment strategy on single stocks. However, the underlying drivers of factors are universal so the factors are present in other asset classes as well. If one can successfully capture these factors, one can harvest attractive return sources that provide true diversification. Therefore we see Multi-Asset factor investing as a valuable addition to portfolios.

UNDERSTAND THE FUNDAMENTALS

Factor investing originates in the academic society, where in recent decades extensive research has been published showing the existence of factors and their attractive and diversifying returns.

The existence of factors can be explained by three distinct drivers:

(i) Compensation for risks that other investors want or need to transfer;

(ii) Behavioural biases of investors causing assets to be "mispriced";

(iii) Compensation for providing liquidity in case of a supply and demand imbalance.

By having a detailed understanding of these fundamental elements that drive returns, one can develop smart investment rules that capture these attractive return sources.

For instance, momentum (factor) can be attributed to the herding behaviour of investors (driver). This behavioural bias causes investors to become more positive on an investment if other investors are positive as well, which causes prices to continue to go up (and vice versa). One can benefit from this phenomenon by buying the winners, that is, the investments with a positive return, and selling the losers, or those with a negative return. This strategy has provided attractive returns over the long run.

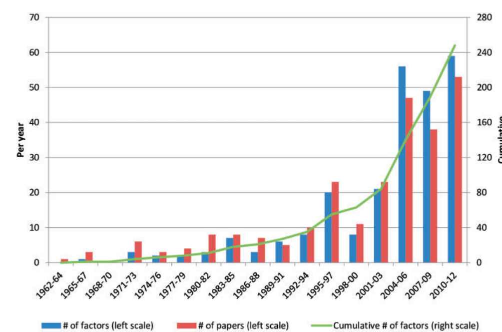
We expect factors to continue to have positive expected returns going forward as the above-mentioned drivers are not likely to evaporate. Investors always want to be compensated for taking a risk, human behaviour generally does not change, and investors' objectives and restrictions will continue to generate supply and demand imbalances.

AVOID PITFALLS

Due to the popularity of factor investing, the availability of data and strong growth in computing power, the number of documented factors have increased immensely. Harvey et al. (2015)[1] have shown that more than 240 factors have been identified.

We believe that most of these so-called factors are actually the result of data mining and will probably not generate attractive, out-of-sample returns after taking transaction costs into account. To avoid falling into this data-mining pitfall one should apply a robust investment process that enables to identify true factors and captures these factors efficiently.

Figure 1: Data mining? Factors identified in academics



Source: Harvey, C.R., Y., Liu, & H. Zhu, 2015, … and the Cross-Section of Expected Returns, Review of Financial Studies: 5-68.

Therefore it is important to apply strict criteria when it comes to factors. They should:

1) Be supported by a strong economic rationale;

2) Have proven themselves over the long run (in and out of sample, across markets);

3) Show positive expected returns after implementation costs.

In this article we limit ourselves to a selected set of factors (description in box) that meet these criteria.

FACTOR EXPLANATION

Momentum

Performance tends to persist, hence we go long the winners and short the losers.

Value

Benefits from perceived incorrect valuations, hence we go long undervalued assets and short overvalued assets.

Carry

Benefits from the tendency that instruments with higher yields outperform those with lower yields, hence we go long the instruments with a high yield and short those with a low yield.

Flow

Markets are subject to predictable and excessive buying and selling pressures in the short term, hence we go long excessive supply and short excessive demand.

Volatility

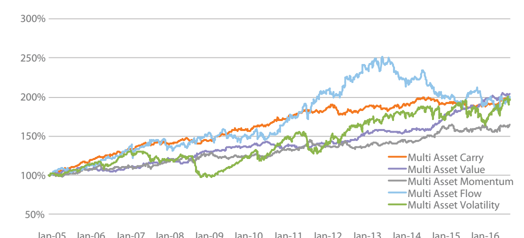
Implied volatilities are generally higher than realised volatilities because implied volatility is a compensation, not an expectation, of volatility. We pay realised volatility and receive implied volatility.

APPLY IT BROADLY

Most factor investing offerings limit themselves to one or a few factors within equities. This provides benefits but doesn't exploit the full benefits that factor investing offers. Once the drivers behind factors are well understood it is a logical step to apply them across multiple asset classes and markets. By doing so one can achieve attractive returns in all market conditions.

Figure 2 highlights this by showing the historical returns of the aforementioned factors, applied on four major asset classes (equity, fixed income, foreign exchange and commodities).

Figure 2: Historical performance of factors in a multi asset context



Source: NN IP Multi Asset, Bloomberg, Thomson Reuters. Based on in-house maintained backtest. Multi Asset Factors cover the asset classes equity, fixed income, FX and commodities from April 2005 to September 2016.

All so-called Multi-Asset factors have generated a positive return over more than 10 years.

ADDED VALUE IN A PORTFOLIO CONTEXT

Next to attractive return potential factors exhibit low pair-wise correlations, as can be seen in *Table 1*.

Combining these multi asset factors therefore can bring additional benefits as it facilitates the creation of an "all-weather" portfolio which has a low correlation with traditional asset classes. Adding such a Multi-Asset Multi-Factor portfolio to a balanced portfolio could generate significant benefits, both in expected return and in (drawdown) risk.

Having a robust portfolio construction process is crucial in this respect as it will help to avoid unintended (factor) concentration risk while controlling unrewarded turn-over. Although some portfolio construction techniques might historically have generated better risk-adjusted returns, we believe that a risk-parity approach is the most robust starting point for allocating to factors. This framework has a neu-

Table 1: Low pair-wise correlations between factors

	MA Carry	MA Value	MA Momentum	MA Flow	MA Volatility
MA Carry	100%	-7%	16%	11%	28%
MA Value	-7%	100%	-13%	-2%	4%
MA Momentum	16%	-13%	100%	6%	-3%
MA Flow	11%	-2%	6%	100%	12%
MA Volatility	28%	4%	-3%	12%	100%

April 2005 – Sep 2016. Source NN IP, weekly data.

Table 2: Higher risk-adjusted returns and lower drawdowns when added to traditional portfolio

Return Statistics	60/40 Mix Portolio	54/36/10 Mix Portolio
Annual Return	5.4%	6.1%
Volatility	10.6%	9.6%
Sharpe	50.4%	63.7%
Max Drawdown	36.4%	32.0%

Correlation	MSCI World	Barclays Global Agg	Model Portfolio
MSCI World	100%	39%	-4%
Barclays Global Agg		100%	8%
Model Portfolio			100%

Source: NN IP, Bloomberg. 2005-2016. Monthly data. Combination of MSCI World, Barclays Global Aggregate Bond Index and in-house maintained backtest.

tral view on returns and ensures proper balancing of risk. Deviations from risk-parity can be justified because the return of factors might have "fat tails" or because certain factors require substantial leverage. Such deviations historically might not have led to drawdowns but do represent a risk one might want to control.

FROM THEORY TO PRACTICE

The theory behind factors is rather simple and straightforward. Applying factor investing in practice is however more challenging. Naive factor strategies can for example exhibit significant turnover, thereby impacting their profitability. Consequently turnover and transaction costs should be taken into account when designing the factor. Furthermore, there can be reasons to deviate from a single, uniform factor definition across asset classes. For instance academics have measured momentum over twelve months, but also over shorter horizons like three and six months. A multi-dimensional approach can therefore help capture a factor more robustly.

Similar challenges arise when bundling factors in a portfolio. Here one needs to be able to rely on a robust framework that efficiently combines factors without exposure to unrewarded risks. In-house trading of all factors can create significant benefits as transactions can be netted, thereby further controlling transaction costs.

All these elements need to be assessed to optimally grasp the investment opportunities factor investing offers across asset classes. These assessments can be made in-house or in close cooperation with an experienced factor investing manager, thereby leveraging on existing processes and skills.

Regardless of the choices that need to be made, the conditions that favour factor investing are here to stay. A broad application of Multi-Asset factor investing strategies can offer attractive opportunities for investors of all sorts.

NN (L) MULTI ASSET FACTOR OPPORTUNITIES

Fund specific

The fund is the culmination of more than a decade of experience with factor investing within NN IP. It is a UCITS compliant fund aiming for capital growth. It follows a factor based investment approach aiming to capture non-traditional sources of return, also known as factors. Exposures are taken to factors such as value, carry, momentum, flow and volatility across all the major asset classes (equities, fixed income, fx and commodities). The fund aims to avoid structural long/short biases and strives for low correlation with traditional asset classes thereby offering diversification benefits.

Objective

The fund targets an annual return of 1 month US Libor + 6% (gross of fees) over any rolling 12 month horizon while targeting an ex-ante volatility of 10%.

KEY INFORMATION

Investment Universe	5 factors (Value, Momentum, Carry, Flow, Volatility) across 4 asset classes (equity, fixed income, currencies and commodities)
Return Objective	1 month US Libor + 6% (Gross) over any 12 month rolling period
Risk target / budget	Long term volatility target of 10%
Base currency	USD

Reference Performance for this strategy: NN (L) Multi Asset Opportunities (I Cap, USD), gross fees*

	1 Month	3 Months	6 Months	Since Inception (Ann.)
Portfolio Return	2.28	8.07	14.12	15.24
US LIBOR 1M	0.04	0.13	0.24	0.25
Relative Return	2.24	7.94	13.88	14.98

* Source: NNIP Performance Measurement. Returns are presented after all transaction costs, but before management fees. Returns include the reinvestment of income. Fund was launched on 23 March 2016. Past performance is no guarantee of future results and the possibility of loss does exist.

FOOTNOTE

1 Harvey, C.R., Y., Liu, & H. Zhu, 2015, … and the Cross-Section of Expected Returns, Review of Financial Studies: 5-68.

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