QUANTIFEED

DESIGNING THEMATIC INDICES WITH A QUANTITATIVE FACTOR

STOCKS ARE INGREDIENTS TO AN INDEX AS SPICES ARE TO A MEAL

Stocks are ingredients to an index as spices are to a meal. At Quantifeed, we sometimes refer to our index construction rules as the recipe. In this article, we explain how we create improved risk-return profiles combining different investment strategies into one. Fusion cooking, so to say.

Two distinct approaches to building stock indices are currently in demand:

Thematic indices are based on an investment theme. The investment rationale is based on a forward-looking story. It can be the growth potential of a niche industry, such as cyber security or robotic engineering, or a long term economic trend encompassing several sectors, such as demographic change or water scarcity. The stock selection is based on how central the specific theme is to the stock's current and future earnings.

Factor indices are based on empirical research of past investment returns, underpinned by financial theory. Examples of factors that are commonly used by major index providers to build factor indices are dividend yield, value, size, momentum and quality. The stock selection is based on quantitative screens of observable metrics such as price history, fundamental ratios and market capitalisation.

AT QUANTIFEED, WE BELIEVE THAT THE RISK-RETURN PROFILES OF THEMATIC INDICES CAN BE ENHANCED BY COMBINING TRADITIONAL SELECTION WITH FACTORS AND OTHER QUANTITATIVE METRICS

TAKING A THEMATIC INDEX ONE STEP FURTHER

When designing a thematic index, the aim is to identify stocks that capture the economic dynamics of that theme. For example, the stock prices of social media companies are largely driven by the global growth of internet users, especially in emerging markets; the cost and availability of mobile devices and; finally, innovations and trends that make the technology more engaging and hence more valuable.

Of all the stocks that fit the profile of the theme, the traditional approach selects the stocks with the largest market cap to represent the sector. While this covers most of the theme in terms of market capitalisation, it ignores another aspect that is central to investors: risk-adjusted returns. At Quantifeed, we believe that the risk-return profiles of thematic indices can be enhanced by combining traditional selection with factors and other quantitative metrics.

One simple way of introducing a factor to a given index is to apply weights based on a factor. For example, low volatility stocks have been shown to outperform higher volatility stocks over extended periods of time. The enhancement of an existing stock selection with a low volatility factor can be easily achieved by assigning each stock a weight based on its volatility: the lower the volatility, the larger the weight of the stock in the index. We call it inverse volatility weighted.

Case study: US robotics – enhancing a thematic strategy using quantitative factors

To illustrate the effect that a factor can have on a thematic index, we look at the stocks of US companies who are mainly active in the area of automation and the design of robots.

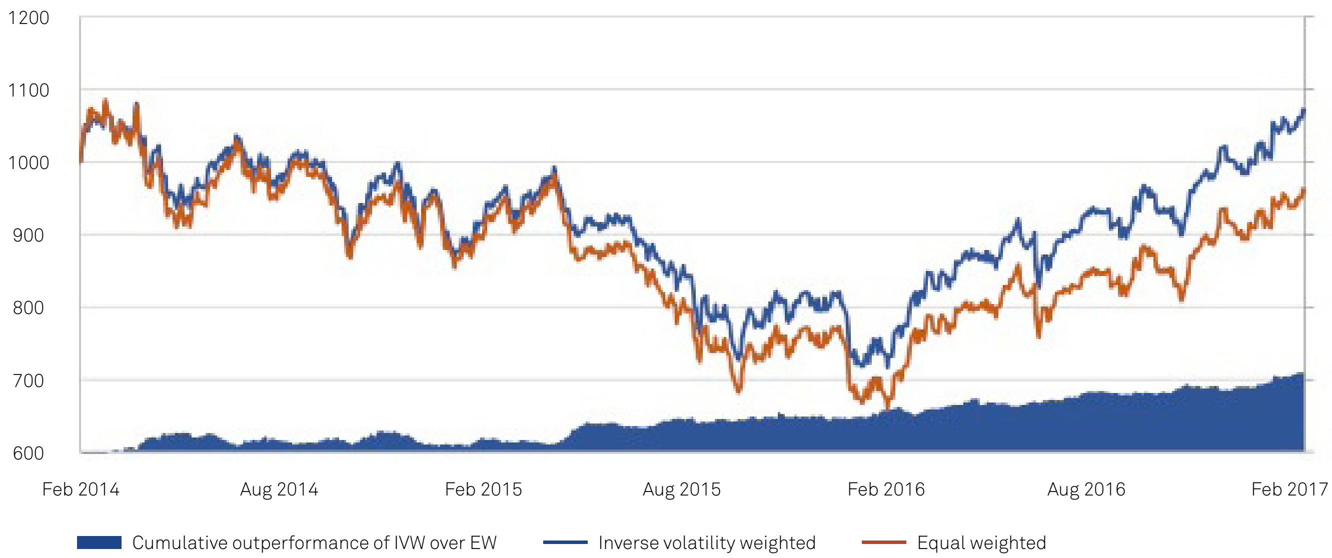

Chart 1: Performance of US Robotics strategies – inverse volatility weighting (IVW) outperforms equal weighting (EW).

Chart 1 shows the performance of a group of US robotics stocks over the past three years (Feb 2014 to Feb 2017). The same stocks are equal-weighted and inverse volatility weighted every 6 months. We observe that the factor-weighted group consistently generated alpha over the equal weighted group, outperforming by 11% over the whole period. The cumulative outperformance is shown in the lower section of the chart. Interestingly, alpha is generated in a falling as well as a rising market.

This outperformance is not a case of high beta in disguise and does not come at the price of higher risk. On the contrary, the annualised volatility of the factor-weighted index (17.4%) is lower than that of the equal weighted index (18.4%). Similarly, the risk measured by the maximum drawdown is more favourable for the factor-weighted index at -33% versus -39% for the equal weighted index.

A MORE POWERFUL APPLICATION OF FACTORS IS TO INTEGRATE THEM INTO THE STOCK SELECTION PROCESS

FULLY INTEGRATING QUANTITATIVE CRITERIA INTO THEMATIC INDICES

A more powerful application of factors is to integrate them into the stock selection process. Not only is the weighting affected but by introducing an additional screen, only stocks that pass certain quantitative criteria are included in the selection. Guided by fundamental analysis of the theme, we select an appropriate quantitative factor.

To stick to our example of robotics stocks: building robots typically requires large investments in factories or machinery. It is a capital-intense industry. Efficient use of this invested capital is likely to be a central indicator of a successful company in this space. We measure capital efficiency by return on invested capital (ROIC) – a traditional fundamental ratio employed by stock analysts. Our stock selection based on this approach not only includes companies that fit the robotics theme but also lead the group by ROIC.

Chart 2: Performance of US Robotics strategies – stock selection based on return-on-invested-capital leads to superior returns.

Chart 2 shows that the ROIC based selection outperforms the inverse volatility weighted selection. The quantitative selection produces an outperformance of 4% over the original selection with inverse volatility weighting. So, the new stock selection outperforms the original equal weighted index by 15%. The following table summarizes risk and return key measures for the three strategies.

STRATEGY	Equal weighted	Inverse volatility weighted	ROIC inverse volatility weighted
RETURN	-4%	7%	11%
ANNUALISED VOLATILITY	18%	17%	18%
ANNUALIZED RETURN / VOLATILITY	-0.08	0.13	0.21
MAXIMUM DRAW DOWN	-39%	-34%	-33%
RETURN / MAXIMUM DRAW DOWN	-0.10	0.21	0.34

Table 1: Risk and return key measures for the US Robotics strategies.

OUR NEW, COMBINED APPROACH OF INDEX DESIGN PRODUCES A MORE FOCUSED AND EXCLUSIVE EXPOSURE TO THE THEME

WE CAN IMAGINE HAVING A TRADITIONAL THEMATIC INDEX AND A FACTOR-ENHANCED INDEX ON THE SAME THEME SIDE-BY-SIDE

TRADITIONAL THEMATIC INDICES AND FACTOR-ENHANCED THEMATIC INDICES CAN COEXIST

Are quantitatively enhanced indices superior to traditional indices? No, they are different.

Traditionally designed indices are a comprehensive, inclusive representation of a theme. They offer unfiltered exposure. For some themes, the traditional index represents the best investment solution; for example, when the theme is represented by a very narrow selection.

Our new, combined approach of index design produces a more focused and exclusive exposure to the theme. Our aim is to refine the stock selection while preserving the original character of the theme. Crucially, the factor fits the theme from a fundamental perspective and supports the investment rationale of the theme. The quantitative factor does not alter the theme, but brings out a new quality. For example, themes that feed on rapidly developing new trends, such as social media, are best integrated with a factor that identifies momentum. Themes that can play out over a decade, like demographic change, are best integrated with factors like value or low volatility, which avoid speculative positions and instead favour stocks appropriate for the long run.

At Quantifeed, we continue to design both traditional and factor-enhanced thematic indices – as well as pure factor indices, without a thematic aspect, like high-yield strategies. We believe they all have their merits. We can imagine having a traditional thematic index and a factor-enhanced index on the same theme side-by-side. The two indices with different constituents and weights can offer alternative investment approaches to the same theme.

In the end, with thematic investing as well as with international cuisine, it is all a question of individual taste of whether to stick to the traditional fare or try fusion for a new experience.

ABOUT QUANTIFEED

Quantifeed's automated investment platform allows financial institutions to offer advisors and customers a digital wealth management experience under their own brand. Quantifeed's software and financial models provides banks, brokers and wealth planners with a configurable solution to suit their wealth management objectives. Firms can reach hundreds of thousands of consumers quickly and economically. The platform holds portfolios of stocks, funds and other asset classes across all major global markets. Investing solutions can be based on risk assessment, life goals and thematic ideas. Quantifeed offers a library of portfolios for asset allocation, thematic investments, and other trading strategies.

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