STRATEGIC EXCHANGE

MAN VERSUS MACHINE

THE RISE OF QUANTITATIVE INVESTING

The rivalry between fundamental and quantitative (quant) investment managers has made for lively comparisons, such as man versus machine. "Buttoned-down" fundamental managers research and analyze unique aspects of individual firms to identify which stocks to buy or sell, whereas "mathy" quant managers develop computer-driven research models to sift through reams of data searching for metrics to predict both returns and risk. While diverse in their approaches, the differences may actually provide an optimal style offset when developing multi-manager portfolios.

Process Evolution

Considered an art, fundamental investing places enormous reliance on instinct or "gut" honed by personal experience. As investors placed greater importance on risk management and not just added value over a benchmark, the fundamental approach has evolved to incorporate more quant analysis in portfolio construction. This risk management focus has also led the way for the "pure" quant approach's growth in popularity.

A 2005 study by Casey, Quirk & Associates titled *"The Geeks Shall Inherit the Earth"* predicted substantial growth in quant investing and legitimized the role of quant as being cool in contrast to the "mathy" label often associated with it. The popularity of quant investing has somewhat lived up to this prediction, but the extent to which it does varies depending on which part of the Earth you consider.

Chart 1 – Percentage Using Quantitative Approach

Source: eVestment

International equity has seen a significant increase in its share of assets managed on a quant basis (with MSCI EAFE Index a typical benchmark), with quant assets representing approximately 42% at June 30, 2016. The trend toward investing foreign equity assets through a global mandate has also witnessed strong growth in quantitatively managed assets, representing around 20% of assets at the end of June 2016. In emerging markets, assets managed on a quant basis have fluctuated from 25% to 20% of the total asset level. One area where an active quant approach has made little headway is in US equities.

Common Attributes

While it is well understood a fundamental approach involves human judgment, quant insights are playing an increasing role. Fundamental managers undertake detailed financial analysis comparing ratios between companies, such as relative evaluations or relative growth rates, which are quantitative insights. Therefore, it is not surprising that fundamental managers have increased the use of quant analysis in their research process, providing an additional lens to view portfolios and allowing for objective checks to their subjective insights.

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It is important to appreciate that human judgment is also present in the quant approach. Quant managers use their judgment in developing analytical models and overseeing their application in portfolio construction. The research process objective is the same for both quant and fundamental styles, which is to understand the potential returns and the associated risks when constructing a portfolio of stocks.

How the two management styles achieve this objective differs at key stages of the investment management process: research, forecasting methodology and portfolio construction. There is often a temptation to analyze the relative merits of a fundamental approach versus a quant approach to try and determine which is better; however, incorporating both approaches can be beneficial in multi-manager portfolios. Understanding the differences and how they can complement each other provides useful insights when developing multi-manager portfolios.

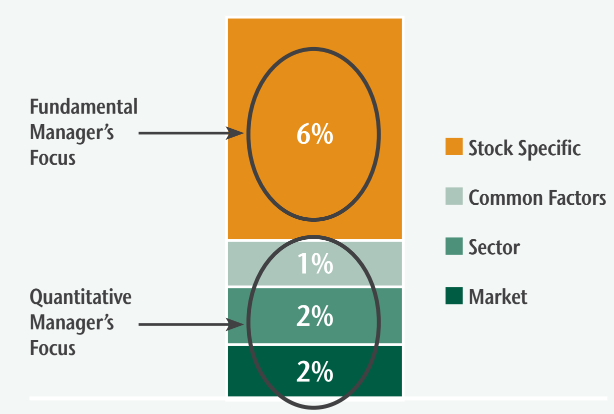
	Fundamental	Quant
Research	**Evaluate individual ideas** Research generally implies identifying individual stock opportunities to include in a portfolio. The research is often based on the outlook for one stock compared to another.	**Develop investment models** Not focused on evaluating a single stock but looking for ways to enhance models or developing new models that are applied to a broad universe of stocks. The goal is to enhance the overall process rather than individual stock contributions.
	Deep understanding of hard and soft data Assess not only hard data like income statements and market prices, but also "soft" information, such as the strength of the management team or the level of excitement a management team may have about a new project. The analysis aims for a deeper understanding of a stock.	**Broad look at only quantifiable hard data** Effectively incorporate only information that can be quantified, and therefore have less depth of knowledge about any one stock. There is a breadth of understanding of not just the portfolio, but also the benchmark universe of potential stocks (as well as out of benchmark stocks).
Forecasting	**Subjective: based on observations and experience** Gut intuition leads to research forecasting conclusions, which is inherently subjective in nature.	**Objective: based on models** Forecasts are made based on models that examine ratios and equations, making the process more objective in nature.
	Varied: special situations Intensely focused on understanding the impact of market events, such as the decline in oil prices on individual stocks and the sector, as well as the broader market impact. Over time, the focus switches to the next special situation on the horizon.	**Constant: models** Focused on a regular flow of data. A set of models are developed over time and are applied, regardless of the market's shifting attention, from one area to another.
Portfolio Construction	**Implicit assessment of risk/return trade-off** The portfolio construction assessment of risk and return is typically implemented intuitively and implicitly in the analysis.	**Explicit assessment of risk/return trade-off** Under a quantitative process, the portfolio construction assessment of risk and return is explicit in the analysis.
	Adaptable and flexible Portfolio construction is adaptable and flexible, such as responding to the dramatic decline in oil prices.	**Consistent and historically based** Portfolio construction is consistently applied, albeit historically based. The historical perspective can raise concerns that the process relies too much on gazing in the rear view mirror.
	Frequent emotional interference The flip side of being adaptable is frequent emotional interference.	**Infrequent emotional interference** The flip side and strength of the historically based perspective is much less emotional interference.

Optimal Offset

Looking at the stock Oracle, a US technology company, provides a window into how the two approaches can benefit a portfolio despite having different perspectives.

Oracle was up 11% on a day that it reported earnings. On that same day the US equity market was up 2% and the technology sector was up another 2%, which explained performance and characteristics that were not exclusive to Oracle. Other common factors such as large capitalization stocks and level of profitability that were also applicable to more than Oracle accounted for another 1% of additional performance.

Figure 1 – Oracle: Components of Return*



Source: CC&L Investment Management and Thomson Reuters.
* December 18, 2014

Therefore 5% of Oracle's return was effectively attributable to common characteristics (market and sector) and factors that also applied to many other stocks. As a consequence, there was a 6% stock specific contribution from Oracle.

The majority of a fundamental manager's portfolio is focused on stock specific opportunities. For a quant approach the focus is to identify factors and common characteristics expected to outperform and to structure a portfolio that has appropriate exposure to those characteristics.

Since the two approaches' focus is inherently different, they are inclined to have differing risk characteristics as well. Fundamental portfolios are likely to be dominated by stock specific information, while quant portfolios diversify away stock-specific risk which may result in more stocks being held in portfolios. Consequently, the two approaches are structurally uncorrelated.

Connor, Clark and Lunn Investment Management Ltd. manages both quant and fundamental Canadian equity strategies. Over the last ten years both approaches have added value over the representative index by 1.5% per annum and 2.7% per annum, respectively.[1] The correlation of added value for the two strategies was 0.26, which has provided an excellent style offset. The outcome is not by luck, but because each portfolio is structurally different.

The benefit of combining quant and fundamental styles also holds true for international, emerging market and global equity portfolios. Based on analysis of the eVestment universe of quant and fundamental managers, the correlation of added value for international equity and emerging markets for the past ten years ended June 30, 2016 was 0.58, and for global equity was 0.33.[2]

Man and Machine

Investors are tempted to analyze the relative merits of a fundamental versus a quant approach to determine which is better. While very different in their respective approaches to investing, the differences can provide an optimal style offset when developing multi-manager portfolios. Therefore, there is a benefit from focusing less on man versus machine and, instead, embrace the merits of incorporating man and machine into multi-manager portfolios.

[1] Added value over the S&P/TSX Composite Index for the 10-year period ended June 30, 2016.

[2] The analysis was based on the median returns from eVestment universes that use the Primary Investment Approach as the filtration criteria for quantitative or fundamental approach. The indices used for calculating the added value were the MSCI EAFE Index for international equities, MSCI EM Index for emerging market equities and the MSCI ACWI Index for global equities. The analysis was based on Canadian dollar performance for all strategies and index performance.

For more information on fundamental versus quantitative investment approaches contact:

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