

QUANTITATIVE PROCESSES

MARKS OF A GOOD QUANT MANAGER

There's no mystery involved: computers have not taken over the investment process, and it still takes a creative and efficient human portfolio manager to make the most of quantitative data

Many imagine quantitative investment managers as rather mysterious boffins working under the direction of an all-powerful computer model. This “black-box” stereotype has little in common with reality and offers no insight into the factors that differentiate the best “quant” managers from the mediocre.

Leading quant managers are recognised for their process, which blends people and technology in a framework that rigorously assesses cost, risk and return, which sets them apart from the pack and dispels the “black-box” myth.

» USE OF MODELS

There is a huge variety of quant, or so-called quant managers. Moreover, with an increasing number of new entrants claiming to run quant funds, it is fair to say that it is even becoming fashionable. Yet, we believe you either are a quant manager or you're not. A true quant process demands the best people, as well as blending their insights with leading IT systems – all of which requires significant investment over time.

Generically speaking, quantitative asset managers use a model to identify specific sets of security characteristics. Securities can then be screened and investments are selected that reflect the manager's views. These models usually determine the investment decisions, effectively replacing the traditional portfolio manager's role.

This approach eliminates emotion and personal biases that can hinder effective portfolio management, while also allowing insights into market inefficiencies to be applied rapidly across a vast number of securities. Whole markets can be analysed daily for buy and sell signals at the security level, which allows portfolios to contain a larger number of securities and reduce risk through greater diversification.

» CHALLENGES

Many managers who claim to have developed a quant process simply have a few screens that they apply to their overall investment universe. A far greater level of sophistication and commitment is required to claim that funds are managed via a true quant process. Moreover, the development of a process that is portable and adds to performance consistently across various asset classes is a far greater challenge.



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Stuart Owen, Barclays Global Investors

While the insights used by top quant managers for assessing key areas may be similar to some of the key measures that traditional asset managers focus on, it is the disciplined way in which the quant managers apply these insights that differentiates their approach. In the end, all managers will be judged by the alpha (added performance over the benchmark return) that they are

able to generate and performance records speak for themselves.

An active quantitative investment approach must blend people’s insight and creativity with the efficiency and speed that technology can supply.

Investment performance is ultimately dependent on the quality, innovation and insight of research. Quant managers should be interested in all opportunities to outperform the benchmark return and suggestions for how this can be achieved will never come from a machine, but must always come from people.

The following example illustrates a key requirement before we initiate a research project aimed to develop the quant process – the candidate’s idea must be soundly based in financial, economic or behavioural theory, which only a person can explain.

» SIGNALS

A priority for our research over the past few years has been to identify “signals” from company reports and accounts that may be a proxy for earnings manipulation or over-statement. This strategy was suggested by our research team based on the observation that the market and investors were becoming almost obsessive in their focus on headline earnings per share as a measure of corporate performance.

This was tempting company directors to manage or manipulate that number via various accounting choices. Such earnings management cannot be continued forever, so the prior identification of companies that engaged in this practice gave us an opportunity to beat the market by avoiding stocks at risk of subsequent disappointment.

This differentiates such an approach from some quantitative fund managers who “let the data do the talking” by, for example, using computers to identify patterns and relationships in share prices. We are inherently sceptical of investment ideas that originate in a “black-box”. By working with theoretically sound investment themes identified and justified by people, performance will be more stable and repeatable into the future.

» OPTIMAL BALANCE

On paper, quantitative portfolio construction is about taking forecasts of individual stock returns, models of portfolio risk and estimates of transaction costs and then working out the optimal trade-off between these competing elements. This is indeed at the heart of what our portfolio managers do, however, there is a high degree of management and oversight around this.

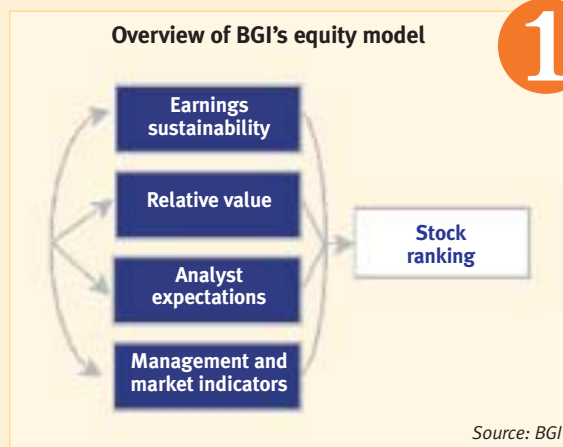
One of the key roles of the portfolio manager is to vet the information going into the creation of our stock return forecasts – “rubbish in, rubbish out” is all too true. For example, managers check large changes in earnings

Successful model

A successful active equity model should be based on four signals:

- **Earnings sustainability insights are used to distinguish companies with good versus poor earnings quality.**
- **Relative valuation criteria assess the value of companies versus their current market price, adjusted for size and other style risk factors.**
- **Analyst expectations criteria anticipate changes in investor expectations and stock prices by monitoring analysts’ earnings forecasts.**
- **The market and management indicators infer information about a company’s value from the behaviour of market participants and corporate management.**

Grading every company against these categories ranks stocks and this forms the foundation of our buy/sell discipline.

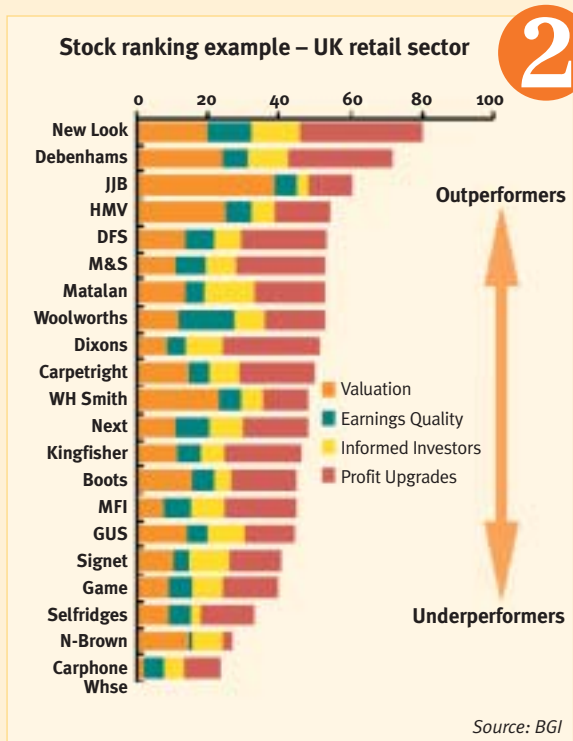


forecasts and examine extreme high and low valuations to make sure they truly reflect expected earnings, and are not some form of data error. (See Chart 1.)

Extreme events such as 11 September 2001 also illustrate why it is so important that people understand and have a deep insight into the intuitions behind a process, rather than operate with a mechanistic mentality.

This is illustrated by our actions in relation to, for example, the earnings expectations signal. This signal captures investors’ under-reaction to new information and allows us to buy/sell ahead of “the pack” by identifying the beginning of a sequence of rising or falling earnings forecasts. However, after 11 September 2001 we expected large discontinuities and one-off step changes in earnings forecasts that would temporarily invalidate the signal. As such, for the most affected stocks we suspended the use of this strategy until the data had stabilised.

Another factor that sets a true quantitative manager apart from the pack is the portability of the process and approach. Wealth managers and distributors should ask whether quant managers have had significant success in the active equity, fixed income, currency and market neutral asset classes. Such broad based success



- Second, has retrenchment by investment banks weakened the availability and reliability of analysts' earnings forecasts?
- Third, had the regulatory environment and the increasing scrutiny of analysts' roles changed the way companies and analysts behave?

We investigated each of these possibilities to ensure our process remained valid. If the outcome of such an investigation warrants an adjustment, the process should be amended accordingly. This evolution of process must be an integral part of any quant system if it is to remain suited to changing conditions.

» TRADING

Trading is another area of activity where it would be possible, but very dangerous, to build a quantitative process that was completely automated. Indeed trading is probably the area most obviously influenced by strong human elements – relationships, suspicion and “gaming”.

While we do not want to be mechanical in trading, equally we do not want to be driven by gut feeling. Managing the balance between pure judgement and systematic solutions is a key job for traders. A useful illustration of how this works in practice is use of principal programme trading, where a broker quotes a price to guarantee 100 per cent completion for a list of trades and executes those orders at current market prices. (See Chart 2.)

Models of expected cost are used to give a disciplined structure around assessing competing quotes from brokers. Equally, traders' choice of which brokers will be best suited to the trade is crucial.

“Man is a slow, sloppy and brilliant thinker; the machine is fast, accurate and stupid” (William M Kelly).

Successful and innovative quant managers must aim to take the best from both man and machine to produce a quantitative investment process that is fast, accurate and brilliant.

This approach defines a cutting edge quant process that delivers consistent outperformance and has the ability to adapt. In a fiercely competitive environment such as the stock market, this is a continual and evolving challenge.

*Stuart Owen, head of equities,
Barclays Global Investors*

demonstrates that the process a manager employs is adaptable and able to capture inefficiencies across different asset classes and in different markets.

Different insights and signals have been developed for different asset classes, as well as for different segments of markets. For example, signal types and weightings within a model must be altered for large and small cap equities. Equally, the basket of signals used in the currency markets will be unlike those used in the fixed income market.

» EVOLUTION

The only way to ensure quantitative strategies continue to perform well is through ongoing evolution and refinement. An example of this type of evolution has been the work we have done on the earnings expectations element of our strategy.

Recent developments led to a questioning of whether analysts' revisions remain a useful source of alpha. There were three particular concerns we focused on in validating our process:

- First, to what extent has the information contained in analysts' revisions been arbitrated away as market participants react more quickly?

» CORPORATE STATEMENT

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