



## **Global Asset Allocation Limited**

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To all investors, advisors, supporters and friends

### **Confirmation of addition of new multi-model 'quant' trading strategy to existing 'Q' model**

The GAA USD Global 'Q' Fund has enjoyed long term success since its launch in May 2004. Up until 2011, the Fund was running at an average annualised return of more than 14% per year.

However, 2011 saw unprecedented market trading conditions caused primarily by European country debt issues which created uncertainty amongst investors and made stock selection even more difficult than usual. This prompted GAA to take a proactive approach to its own 'quant' fund management process and in early 2011 the company began the task of researching and testing additional complimentary 'quant' strategies. This research has now resulted in the implementation of enhancements to our existing 'quant' trading methodology.

It is important to note that GAA will continue to employ its current 'quant' trading methodology, the features of which are as follows:

1. The Fund analyzes ALL available data from the entire universe of more than 38,000 stocks
2. Stocks are selected from the analysis of data drawn from across 52 global stock markets
3. The Fund is rigorously reweighted ONCE a month EVERY month - NO stock is ever automatically held over to the next month unless it is reselected
4. Only mid to large cap stocks are considered, with counters typically capitalised at more than US\$100 million, and often at more than US\$ 1 billion, which makes the Fund a truly global blue chip Fund
5. The Fund employs an extensively researched and tested proprietary Quant model
6. No single stock will constitute more than 5% of the portfolio
7. No market will ever offer up more than 30% of the stocks selected in any given month, other than the US and Japan which could offer up to 50% of the stocks selected due the capitalisation of those particular markets
8. Typically a new set of 120 - 150 stocks are purchased each and every month being those drawn from the list of 38,000 which demonstrate the most likely ability to appreciate over the following 30 days only
9. Typically the Fund holds stocks from between 20 - 30 of the 52 markets considered each month
10. A dynamic hedging facility is used to help protect the portfolio against sudden downturns in the market each month

As can be seen, in times of market uncertainty created by stocks reacting to market sentiment as opposed to recognised fundamentals, GAA's monthly stock selection process and hedging mechanism may sometimes turn in results which under perform actual markets themselves.

To that end, on 1 February 2012 GAA implemented the overlay of an additional multi-model quant strategy to help bolster its existing stock selection process.

### **Long – short stock trading**

The first major enhancement that GAA has added to its stock trading methodology is the ability to short stocks as well as markets. Certain stock markets do not actively allow the shorting of stocks, so the additional trading strategies have only be implemented in those that do, namely in certain markets in Europe, in the US and in Japan.

In total almost 600 stocks across 15 European markets are now being considered in this manner alongside a further 1,000 stocks in the US and 500 stocks in Japan.

### **Additional ‘quant’ trading methodologies**

In addition to being able to short stocks as well as markets where appropriate, GAA has now introduced and added a new evolutionary multi-model quant trading strategy to its existing tried and tested quant strategy. This new trading strategy has been designed to enhance GAA’s ability to identify winning stocks for the following reasons:

1. GAA’s existing strategy has worked extremely well in trending markets, be they consistently moving in either one direction or another. Trending markets allow GAA’s algorithmic model to successfully predict which stocks to purchase each month and which markets to short. However sudden reversals in market sentiment cannot be easily predicted by this model in ways that shorter-term complimentary models can.
2. The new quantitative strategy is based on a collection of models that have been designed to systematically identify short-term market inefficiencies, construct forecasts using statistical and mathematical techniques and exploit short-term predictability across a set of global liquid assets. By combining probabilistic return forecasts with appropriate transactional cost models, the strategies are designed to generate stock positions in order to maximise profitability and minimise risk.

### **The new evolutionary multi-model quant strategy in more detail**

Having identified the markets in which new models could be applied, and having established that new models could be traded daily or even intra daily as opposed to monthly, the overall strategy to forming and deploying models in a systematic manner was established and implemented as follows:

#### **The multi-model quant strategy in development**

- a. **Research:** During the research and development period, a rigorous and systematic research methodology was used to identify new trading opportunities. This was achieved by reviewing academic literature, investment websites and blogs in order to assess financial trading ideas based on both theoretical and empirical investigations. A strong emphasis was placed on ensuring a rich diversity of ideas, which translated into a collection of models that are today supported by different variables and therefore reduce the overall volatility of the combined ‘quant’ strategy.
- b. **Evaluation:** Once a theoretical concept that could lead to statistical arbitrage had been identified, appropriate data sets were collected and a quantitative model was constructed. The empirical evaluation consisted of first measuring the level of predictability of future returns using appropriate forecast performance metrics. Suitable benchmarks and statistical null hypothesis tests were employed to measure the significance of each result. Finally the ability to convert this predictability into profitability was tested by including the effects of transaction costs. Profitability was measured using a range of trading performance metrics

such as the return, volatility, maximum drawdown and various risk-adjusted measures such as the Sharpe and Sortino ratios.

### **The multi-model quant strategy in practice**

1. **Application:** The four additional models now employed can be broadly described as belonging to the class of statistical arbitrage, with the objective of identifying statistical mispricing in one or more securities. Further additional models remain in development. The analysis of mispricing variables is used to detect episodes of short-term predictability and gives rise to the potential for mean-reversion, which can be traded profitably by carefully managing transaction costs and risk exposure. "Pairs trading mean-reversion" is one such methodology employed, where the price and movement of a given stock is compared to that of a close competitor. Should one of the stocks in an identified pair appreciate, this can be taken as a 'buy' signal for its partner and a 'sell' signal for the stock which has appreciated, and visa versa. For this reason, the utilisation of a number of statistical arbitrage models simultaneously gives rise to potentially profitable long/short equity strategies which, when combined, result in approximately market neutral exposure.
2. **Evolutionary Learning:** Each model is driven by a variety of predictive variables. Over time the performance of each predictor is assessed and its influence on the combined strategy is modified. In this way the overall strategy learns through an evolutionary process. By combining a range of models supported by different predictive signals, it is possible to increase returns and reduce risk. This unique evolutionary multi-model approach is key to obtaining a truly diversified portfolio both in terms of the constituent securities and the wide range of ideas and signals that give rise to the portfolio positions.
3. **Risk Management:** Carefully chosen metrics, such as the portfolio Sharpe ratio and maximum draw downs experienced, are monitored on an ongoing basis in order to manage risk. The models themselves are designed to be cash neutral and many of the constituent models are cash neutral across sectors. The combined multi-model strategy follows a number of risk mitigation rules such as limiting the maximum position size for any individual asset as a percentage of the overall portfolio and as a percentage of its average trading volume, with the aim of maximising diversification. Furthermore the overall portfolio targets both market and cash neutrality through the ability to go long or short on any of the stocks traded.

### **The Multi-Model Quant Strategy Investment Advisory Team**

GAA's 'quant' Investment Advisory team has now been expanded to include a University of Cambridge graduate who holds an MA in Engineering and Computer Science, and a University of Oxford graduate who holds a PhD in Mathematics as well as a first class honours BA in Theoretical Physics and an MSc in Engineering from Trinity College Dublin.

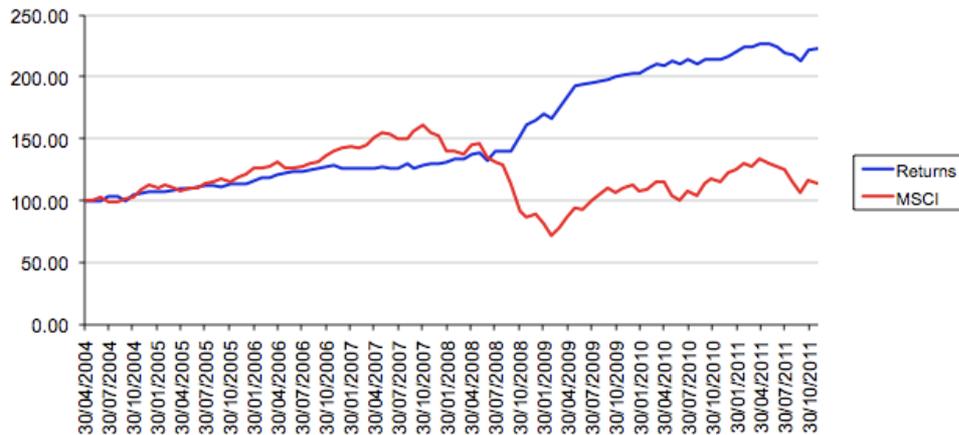
Individually they have held positions at (or have provided quantitative trading consultancy to) companies including Deutsche Bank London, Indosuez Capital Securities, Nomura, Winton Capital Management and CIBC Financial Products. Their own individual proprietary software development projects have resulted in the personal management of over USD200 billion in global equity market volume.

The portfolio of research projects developed by the PhD holder (who is also a Senior Research Fellow at Oxford University, a Fellow of the Royal Statistical Society, a Senior Member of the IEEE and a Member of the International Institute of Forecasters) are today supported by a number of UK research councils, Her Majesty's Government and the European Union. With over 20 years' experience working on time series analysis, signal processing, predictive analytics, machine learning and systems modeling, he continues to

teach on the MSc in Mathematics and Computational Finance at Oxford and has published over 70 peer reviewed papers and 2 books.

### The result?

#### Performance of complimentary GAA 'quant' strategies 1 May 2004 - 1 November 2011: 14.9% pa



Back tested from May 2004 to the end of 2011, the new multi-model strategy demonstrates consistent long term absolute returns of more than 14.9% pa in both rising and falling markets as well as significant outperformance of the MSCI World Index, whilst ideally complimenting GAA's existing quant programme.

Should you have any specific questions concerning the above, please do not hesitate to contact GAA at the following address: [fundadmin@gaafunds.com](mailto:fundadmin@gaafunds.com)

In the meantime I would like to take this opportunity to personally thank you for your continued support of GAA funds and to assure you that GAA continues to take every step to ensure that 2012 will be a profitable year for everyone.

Yours sincerely

**JEREMY SMEETON**  
MANAGING DIRECTOR