# Gyroscope Capital Management Group

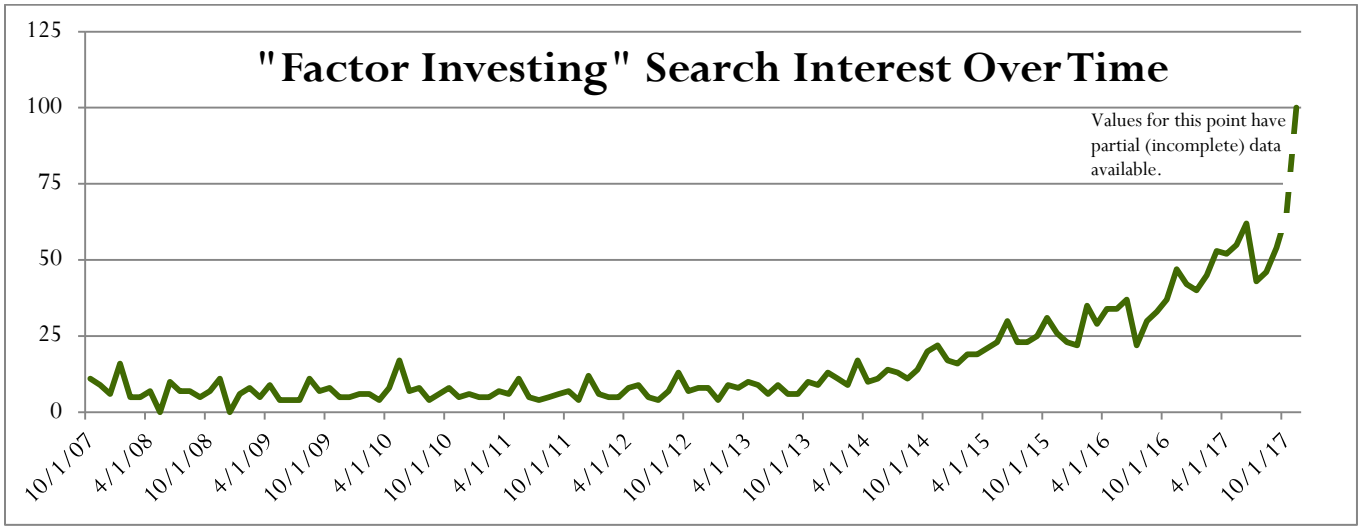
**Tuesday, November 14, 2017**

## *Quarterly Review and Commentary*

We previously described the rise of "quant strategies" over the past four years in our last quarterly letter. Expanding upon on our discussion, we would like to focus on factor investing which is one such strategy that our team at Gyroscope Capital employs.

For generations, professional stock picking has been viewed as more of an art than a science. Undoubtedly, some investors still perceive old-school money managers as those who don green eyeshades and scour balance sheets, dial into earnings calls, and scan regulatory filings in an attempt to gain an edge. While some managers today may still fit this profile, they are becoming fewer and further in between. A shift is occurring and a new breed of stock picker has emerged. Many managers now employ an approach that is as much science as it is art. These managers leverage the fusion of statistical processes and big data to assist in identifying attractive stock investments. One such process, "factor investing using multifactor models", involves identifying investment opportunities by evaluating and ranking all stocks in a given investment universe based on their company-specific characteristics.

The chart below visually depicts the search timing and frequency of the term "factor investing" relative to its total historic search volume.




Source: Google Trends. Accessed 11-7-17

The Google Trends data clearly indicates that, beginning around the start of 2014, general awareness of factor investing began increasing and search volume began accelerating in 2017.

### WHAT ARE THE DIFFERENCES BETWEEN THE FUNDAMENTAL AND FACTOR MODEL APPROACHES?

The differences between these two approaches can be best illustrated using a comparison borrowed from baseball scouting. The fundamental analysis manager is akin to the traditional scout who would tour high schools and colleges to discover the next big star. Conversely, the factor model approach does not attempt to identify "the next big star" but instead seeks to identify those stocks that can comprise "winning teams". In this way, the factor models process is more like Billy Beane's *Moneyball* approach. *Moneyball* is a statistical approach used to evaluate players based on performance statistics that have historical explanatory power in achieving wins in order to assemble winning teams. Similarly, multifactor models can be used to identify those stocks which display characteristics which have historical explanatory power in generating abnormal returns (alpha).

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**HOW WERE MUTIFACTOR MODELS DEVELOPED?**

Multifactor models attempt to answer the age old question, "How can I predict the future performance of a stock?"

Starting with Harry Markowitz's quantitative framework for constructing efficient portfolios in 1952, methods for evaluating future stock performance have become increasingly more sophisticated. This includes William Sharpe's creation of the single factor capital asset pricing model (CAPM) and Stephen Ross' Arbitrage Pricing Theory, which first suggested multifactor models provide a more complete pricing estimate for expected returns. In recent years, use of multi-factor models has become more commonplace with improvements in processing power and greater accessibility of financial data providers.

Today, companies have unprecedented access to historical financial data and widely available computing programs can swiftly make calculations that might have taken weeks in 1952.

**WHAT IS A MULTIFACTOR MODEL?**

A multifactor model is a financial asset pricing model which separates stock returns into exposures of several systematic factors and asset specific sources of return. There a three types of multifactor models:

| Statistical Factor Models | Economic Factor Models | Fundamental Factor Models |
|---|---|---|
| • Use factor analysis procedures (e.g., principal component) on cross-sectional and time-series samples to develop unobservable factors from asset returns | • Use time series of observable economic variables such as inflation, employment, and interest rates to estimate an asset's specific sensitivity to each economic factor | • Use observable characteristics such as dividend yield, asset turnover, and sector classification to create factors to explain a proportion of asset returns |

While the three types of models are very different in terms of inputs, estimation and outputs, all involve time-series regression or cross-sectional regression or both. Despite the fact that these models have different applications, they can theoretically yield the same results.

As mentioned above, fundamental factors use observable company-specific characteristics to estimate future asset returns. For each factor, a factor sensitivity or factor "beta" is determined through a statistical process called cross-sectional multiple regression. Each factor beta represents the expected change in a stock's price given a change in a factor after accounting for the interaction effects of the factors amongst one another. Once a factor model has been appropriately specified and developed, the results can be used to rank stocks according to observable characteristics based upon standardized (or "normalized") scores.

For strategies that invest in stocks with similar characteristics, such as our Dividend Income, Growth, or Low Volatility Strategies, the value that a factor model can provide at the individual stock level is amplified at the portfolio level as diversification reduces the relative importance of company-specific details. As portfolios become more diversified, pervasive (or systematic) factors play an increasingly important role in portfolio risk and return since common factors tend to dominate at the portfolio level. For many money managers today, managing these sources of risk and return is an essential part of the investment process.

As always, we welcome your questions/comments and are available at your convenience to discuss the Strategies.

**Thank you for investing with us!**

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