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ASSET MANAGEMENT

MAN VS. MACHINE

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Man vs. Machine

By Aman Kalsi, Portfolio Manager and Bo Knudsen, Managing Director and Portfolio Manager

Is the fund manager of the future a machine?

We live in an amazing technological era. Robotic equipment attached to the body can detect signals from the brain and help previously wheelchair-confined persons to walk. Software programs can assist police in selective cities to reduce burglaries and violent crimes significantly by informing the police where crimes are expected to occur within a 150-meter radius. Technology has come a long way!

The increasingly digitized world has created massive amounts of data and given rise to the concept of Big Data. This is also the case in the fund management industry. As a result, some experts are becoming increasingly vocal regarding the need for fund managers to employ sophisticated data analytics to improve their investment process and performance.

> **Fund managers should focus on continuous collection of real-time data and embrace data analytics even further to gain a competitive advantage over their peers or risk facing obsolescence! .**

In fact, recently, in a Financial Times opinion piece, it was argued that much like Formula 1 teams, which continuously collect data to optimize performance, fund managers should similarly focus on continuous collection of real-time data and embrace data analytics even further to gain a competitive advantage over their peers or risk facing obsolescence!

Today, with large amounts of data and improved data analytics tools, it is tempting, at first glance, to conclude that continuously collecting real-time data and allowing a machine in a matter of milliseconds to execute the trading decisions is the panacea in the fund management industry. A challenging yet important question therefore arises: is the fund manager of the future a machine?

We have a significant belief that technology and robotics represent a growing part of the future in many industries.

> **With foresight and ability to dynamically prioritize relevant data, man will beat the machine in fund management for decades to come.**

However, in fund management, we do not see a winner-takes-all battle to the death between man and machine. Rather than becoming the future ruler, the machine will likely remain relevant for specific rules-based investment decision strategies. With foresight and ability to dynamically prioritize relevant data, man will beat the machine in fund management for decades to come.

Data analytics leads to an increased interest in the machine

In fund management, there are obviously different strategies and schools of thought to identify investment opportunities, ranging in broad terms from the fully passive (indexing) to the fully active (traditional fundamental managers) as figure 1 below shows.

Index-based, smart beta and active quant strategies are rules-based investment decision strategies. By that, we mean that the strategies follow certain pre-defined decision rules – often set up through mathematical and statistical models – with no subsequent human input once the model is set up.

These strategies are thus carried out by "the machine".

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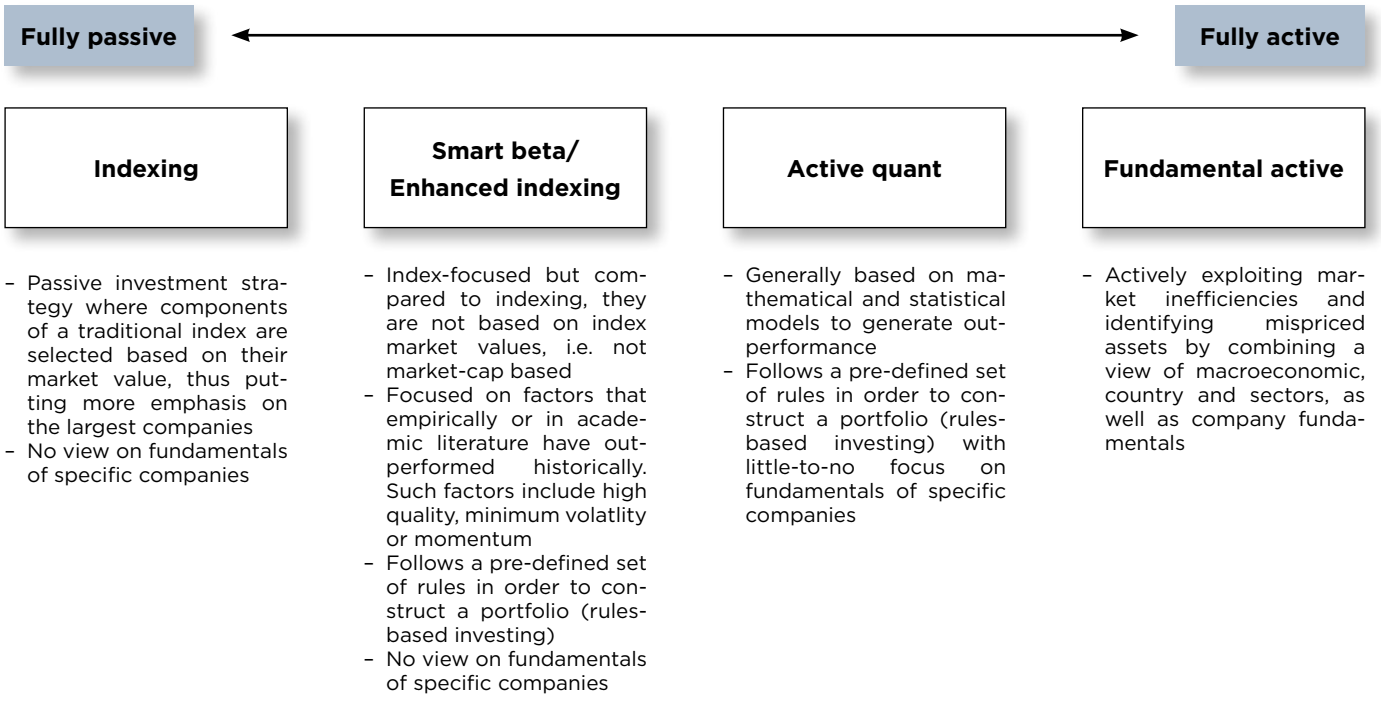
Investor interest in the machine has grown significantly in recent years. The growth of Big Data, the improvement in data analytics, and machines that can take decisions in a matter of milliseconds

Figure 1



– coupled with more cost-conscious investors, and a growing criticism that fundamental active managers on average do not outperform the market after fees – have contributed to this.

We have previously written about the error of drawing conclusions based on the average fund manager. Fund managers are not all created equal; some fund managers have long successful records of accomplishment and will likely continue producing strong results. Others have not done so and are not expected to do so going forward. In fund management, we believe that the average machine is likely to beat the average man. However, we are convinced that great fund managers have the skills and the mindset, and will successfully employ tools to consistently outperform even great machines.

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In Formula 1, all teams utilize data analytics significantly by equipping their cars with thousands of sensors and continuously analyzing data to optimize results. Nevertheless, the gap between Mercedes and McLaren has not narrowed over the past couple of seasons; in fact it has widened.

Downsides of an overreliance on data analytics and the machine

In fund management, excessive reliance on data analytics tools and the machine to execute automated trading decisions based on certain pre-defined rules and patterns may have downsides:

Data mining:
Sifting through large amounts of data with the goal of finding patterns to exploit, there is a risk of data mining, over-fitting and placing emphasis on relationships that either are weak or do not exist (spurious correlation). If this were to happen, the output and the subsequent trading decisions of the machine would be based on faulty inputs. Many quant models are based on human views/inputs on what will generate outperformance and which rules the machine must follow. These inputs are potentially fraught with error. In essence, garbage in – garbage out!

Easy to replicate:
If a fund manager has a robust quant model that generates outperformance, it is likely only a matter of time before a competing fund manager employs similar data analytics and models to level the playing field. Outperformance on the margin would thus be reduced.

> **The value-add would lie in a dynamic creative process of discovering future trading rules or patterns that are systematically exploitable as a result of investors' consistent underestimation of the potential impact.**

Goldman Sachs' revered Global Alpha quant fund is a prime example. For many years, it was dubbed the 'Cadillac of hedge funds', delivering outstanding performance. Other quant funds subsequently began to employ a similar model and trading strategies. In 2007, Global Alpha incurred significant losses when it as well as other quant funds were caught on the same side of trades and losses cascaded as these funds tried to exit the positions simultaneously. Following significant losses again in 2011, the fund was forced to shut down operations.

The value-add would therefore lie in a dynamic creative process of discovering future trading rules or patterns that are systematically exploitable as a result of investors' consistent underestimation of the potential impact.

Constantly changing environment:
While Formula 1 teams have to consider various factors, such as the weather, the surface, etc., these ultimately represent a finite number of factors; despite its complexities, the Shanghai racetrack is the same every year. Similarly, in a game of chess, despite the many possible moves, there are ultimately a finite number of moves. In these environments, data analytics and the machine are highly relevant.

On the other hand, fund management operates in an environment that is constantly changing. There is a much greater number of potential outcomes and variables to consider. As a result, an overreliance on, for example, historical data as a predictor could lead to a poor prediction of current and future developments. Many studies have shown that there has been an instability in correlations of stock returns over time. In fact, given the lack of historical data in their models on environments of financial repression, many quant funds have underperformed the market in recent years.

In general, Black Swan events – a term popularized by Nassim Nicholas Taleb in his book, "The Black Swan", which refers to events that are highly unlikely to occur and difficult to predict and that contributed to the demise of the famous quant hedge fund, Long Term Capital Management – are similarly often disregarded or underestimated in data analytics models. Therefore, the machine's decision-making ability is fraught with risk during these periods. In recent years, these "Black Swan" events have actually been occurring more frequently than statistics would predict (e.g. 9/11, the Enron scandal, Lehman Brothers bankruptcy, money market funds "breaking the buck" in 2008, and the flash crash of 2010), thereby further reducing the strength of the machine's predictive ability.

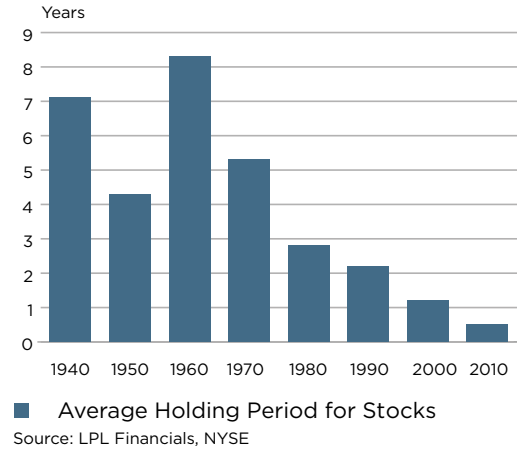
> **An understanding of history is obviously important, but this needs to be combined with a continuously forward-looking approach and an assessment of long-term impacts of current developments; in essence, an understanding of structural changes.**

There are possible risks of relying solely on potentially complex financial models that are often centered on historical data in order to predict future developments. An understanding of history is obviously important, but this needs to be combined with a continuously forward-looking approach and an assessment of long-term impacts of current developments; in essence, an understanding of structural changes.

Short-term focus:
Given the constantly changing environment, the constant stream of new data might provide continuously updated trade signals. Having more data and employing data analytics could therefore result in more frequent trading and an increasingly short-term investment horizon – a development which has been occurring for many years, as can be seen in figure 2 below. Data analytics therefore risks catering to and exacerbating investors' natural behavioral biases of short-termism and the desire for instant gratification, as well as increasing the likelihood of crowd behavior.

Figure 2

Investor' focus has become short term



Source: LPL Financials, NYSE

More frequent trading also results in elevated trading costs, which negatively affects performance.

For many years, exorbitant sums of money and brainpower have been dedicated to incorporating new data in order to identify attractive investment opportunities. Therefore, the risk is that an increased use of data analytics will not yield significant benefits for practitioners on a short-term basis.

Data is vital to generate strong performance

Despite the above-mentioned risks, it is important to highlight that even successful fundamental fund managers rely on data to generate strong performance. However, an overreliance on numbers and data can give a false sense of security. In our view, the competitive advantage and the ability to remain ahead do not lie

in the ability to crunch and analyze increasing amounts of data at speed; it lies elsewhere. How you filter through, prioritize and use the data dynamically over time is most important!

> **Understanding qualitative data and taking a holistic view of the available data is essential for success as a fund manager, and it is man who can employ this holistic view with much greater precision than a machine.**

In particular, the key is to sift through the massive amount of data, remove the "noise", which inevitably arises with increasing amounts of information, and focus on the data that provides an indication of where long-term investment opportunities are available on a consistent basis. Data comprises not only quantitative data but also qualitative data, including such factors as the source and sustainability of competitive advantages, management capabilities, and structural change in and across sectors!

Understanding qualitative data and taking a holistic view of the available data is essential for success as a fund manager, and it is man who can employ this holistic view with much greater precision than a machine.

Opportunities for the long-term focused fund manager

Having a short-term investment horizon is an inherent human bias and will likely be increased by a constant flow of news and data. Machines in fund management may also to an increasing extent be designed to focus on and identify the short-term opportunities. The risk is a 'battle royale' amongst the machines, with potentially more frequent and severe flash crashes, as these machines may follow similar rules and simultaneously attempt to exit similar positions (as we saw in the case of Goldman Sachs' Global Alpha quant fund).

As this short-term focus increases, an increasing number of attractive opportunities arise for independent-thinking fund managers, who are:

(i) long-term focused, unfazed by crowd behavior, and dare to stand alone for extended periods
(ii) forward-looking, as opposed to the many machines that rely on historical data

The successful fund managers will be those who use the available technology, including data analytics, only as a tool in the investment process to treat the growing amounts of quantitative and qualitative data. Successful fund managers must also position themselves correctly in terms of country allocation, thematic opportunities, and the subset of the equities universe that presents most value in the long term. The key is, in essence, to adopt a "dynamic smart beta" strategy with a long-term focus, which must be combined with stock-picking in order to identify the clear long-term winners.

In terms of designing its current engine, Mercedes was foresightful and took a long-term view. At the same time, they were sufficiently bold to go against conventional engine design and designed a revolutionary engine that has provided them with their current massive advantage, which appears to be increasing for every passing race.

> **The key is, in essence, to adopt a "dynamic smart beta" strategy with a long-term focus, which must be combined with stock-picking in order to identify the clear long-term winners.**

Today, across many industries, man has been displaced by the machine. In fund management, with an ability to prioritize data collection and apply a holistic approach to gathering and interpreting data, while employing a dynamic and long-term view to identify winners, man will be irreplaceable.


IT IS NOT ONLY
AN AMBITION
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PASSION

C WORLDWIDE ASSET MANAGEMENT FONDSMÆGLERSELSKAB A/S
Dampfærgevej 26 · DK-2100 Copenhagen
Tel: +45 35 46 35 00 · Fax: +45 35 46 36 00
cworldwide.com