

Meet the financial analyst of the future

How can we integrate big data analytics in the skillset of our analysts, investment teams and financial institutions?¹

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Big data is big business, also in the asset management industry. Since 2012, the sector has seen a 900%+² increase in the number of academic articles on big data and data analytics (Doshi, 2019). This growing interest can be attributed to the technological breakthroughs of the past couple of years, along with declining costs of data storage and the advent of commercial cloud solutions. In addition, industry specific trends explain the rapid advance, such as the growing demand for transparency from customers and regulators and fee pressure.



Efficiency and innovation are crucial for the future of the asset management industry. The tasks of individual financial analysts are changing, as is the composition of investment teams and investment departments as a whole (Cao, 2019). How can investment teams respond to these changes?

In this paper we describe our view on bottom-up driven innovation and outline the steps Kempen Capital Management (KCM) is taking to safeguard our investment thought-leadership in the long term.

DATA ANALYSIS IN THE INVESTMENT PROCESS

The Great Financial Crisis triggered an efficiency and innovation drive in the asset management industry. Automation of low-value added parts of the investment process and extraction of useful information from larger or alternative datasets, such as Google review data, has become ever more influential in the investment process as a result. These are not only (external) datasets to support the investment process, but also data generated by the investment process itself, such as performance data and positioning of the portfolio. Constant monitoring of investment decisions is crucial for continuous improvement of the investment process.

A solid data infrastructure is essential for successful incorporation of data-driven decisions into existing investment processes on a day-to-day basis (Blumberg, 2017; Connected Futures, 2018). Whilst a sound data foundation is a prerequisite for storing new data in a structural manner, methods for incorporating alternative data in order to improve fundamental analysis need to be examined as well. A data infrastructure which is fully-aligned with the investment process, makes the search for relevant alternative data more efficient and processing it for use in the investment process much simpler (see box).

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Conversion of data into relevant investment information also plays a major role in automating standard investment decisions. An investment process is a se-

The use of alternative data in investment processes

A good example of using alternative data in an investment process is demonstrated in real estate valuation analysis. Valuation of a (listed or private) property fund depends among other things on the value of the buildings the fund invests in. This value is partly determined by the initial yield and future rental growth. Long-term rental growth is, in turn, mainly determined by the quality of the property and its location. Alternative data can be a particularly useful tool for analysing the quality of the location.

Take, for instance, the location quality of an office building in AmsterdamZuid (the main financial centre in the Netherlands). In order to assess the location quality accurately, data is collected on the factors relevant to the office building's tenant. After all, these factors determine whether a tenant is prepared to pay the initial rent and subsequent annual rent increases.

- Factors for which data can be collected include:
1. Accessibility of the office for employees: proximity to motorways, public transport, airports, traffic congestion data, average commuting time to and from work etc.
 2. Availability of potential workforce in the surrounding area. What is the average level of education? What is the quality of nearby universities?
 3. Proximity of amenities for employees, such as cultural venues, restaurants, sports facilities etc.

With this approach, KCM quickly arrives at an average of 25 factors for determining the quality of an office building in AmsterdamZuid, or anywhere else in the world. Different factors are used for retail properties, apartments or logistics real estate.

Globally about 350,000 properties are owned by listed and non-listed real estate funds. Analysing the quality of all these buildings with the assistance of a data-driven investment process requires a structured collection, processing and storage of approximately 9 million data points. A sound data infrastructure in which raw, unformatted data can be converted effectively into investment decisions is indispensable.

ries of repetitive decisions based on a specific investment philosophy. Documenting investment decisions helps translate them into logical equations. These 'encoded' investment decisions are stored in the data infrastructure enabling automation of portfolio construction as an example.

Encoded investment decisions

An example of a coded investment decision is buying an equity when its dividend yield exceeds 4% while its debt ratio is below 30%. Another example is to increase the relative overweight position in a company to 3% when the discount to NAV (the difference between the share price and the intrinsic value) is above 15%.

We deliberately avoid the term 'quantitative investment process' here, because qualitative decisions play an important role as well. The investment process and the knowledge possessed by the individual investment team are leading to determine the balance between quantitative and qualitative decisions.

bottom-up innovation

Ultimately, data could be visualised in order to support fundamental analysis or updates for clients. This naturally provides additional insight into the investment process, such as the added value of individual underlying investment components. More transparency and insight are hugely beneficial to both clients and the investment team.

COMPOSITION OF INVESTMENT TEAMS

KCM believes that bottom-up innovation is key in order to successfully incorporate data analysis into a team's investment approach. After all, the investment team holds the knowledge of the investment process and investment philosophy needed for innovation. The investment team's composition has to facilitate this new modus operandi in order to enable bottom-up innovation.

At KCM, we stand by our conviction that teamwork in compact, efficient and complementary teams yields the best

results. Therefore, investment teams are comprised of five to six members on average. Within a team we distinguish the following roles: junior, medior and senior portfolio managers. In an investment team of six members we attempt to ensure that at least one team member focuses on the development and maintenance of the data infrastructure, but shared responsibilities are possible too. It makes sense to split this task 50-50 between two members in order to safeguard knowledge and quality control within the team.

When other team members also work structurally on data analysis, this stimulates the development and transfer of knowledge within the investment team. Moreover, it creates a mindset for continuously seeking out new datasets and analysis aimed at improved investment decisions. Within the team everyone works - at their own level - on developing or applying new data analysis techniques. Ware (Ware, 2006) describes this as one of the seven behavioural characteristics which high performing investment teams require.

INDIVIDUAL SKILLS

Depending on the current level of data-analysis skills (descriptive, diagnostic, predictive or prescriptive) within an investment team, team members should first acquire enough technical competence. At Kempen we found that adding a data-savvy analyst to a team with experienced investment professionals can provide the technical knowledge needed to make the team future-proof. In our experience, an analyst with quantitative skills can quickly improve the investment process by automating repetitive tasks.

Active investing in credits

Active investing in credits usually requires an enormous amount of manual work. Investors do not only examine the prevailing and expected market climate, but also the historical changes in the relative value of two credits. An investment universe of 2,000 credits will therefore require analysis of 4 million possible combinations. This process needs to be repeated daily. It is not practical to conduct this analysis manually - the solution lies in an automated process that identifies outliers (in terms of relative value). However, analysing 4 million combinations is too complex for a standard (Excel) solution. Technical skills to programme this in R, Python or Alteryx are therefore required.

It is obvious that enhanced automation is essential in order to remain competitive as an asset manager. Without automation, business costs increase too sharply, new product innovations take too long, scale of investment solutions remain suboptimal and competition is lost versus peers. Yet the strength of a financial analyst of the future does not just lie in knowledge of automation methods. Significant added value lies in the skill to creatively, efficiently and rapidly quantify alpha potential of alternative datasets. Alternative data potentially holds great value like we noted in the above real estate offices example. Vice versa, it may be that a dataset contains little or no alpha potential or that the signal is already available via more regular channels.

Alternative datasets

Take, for example, this alternative dataset: the satellite images of all harbour areas in China. The analyst can use this data to assess stock levels in China. Yet from a forward-looking asset allocation perspective, this dataset offers little added value compared to a freely available new orders indicator. For investments made in equities within the logistics or real estate/infrastructure sector, however, this dataset could indeed provide the additional insight needed for a successful investment.

The analyst has to assess the context of a given dataset within a short space of time. He or she needs to possess a mix of skills in order to strike the right balance: alongside investment knowledge, the analyst needs to be proficient in

Natural language processing

A sentiment algorithm (natural language processing) classifies a news article as positive or negative in a fraction of the time it would take to read it. Given the relationship between news and market movements, there is a growing demand within the asset management industry for solutions that analyse news sentiment using this type of algorithm. An increasing number of providers of such solutions (AI Applied, Prattle, Alexandria, Bloomberg etc.) is a further proof of this trend.

It is the analyst's job to assess the value of individual providers in terms of required application. For tactical asset allocation purposes, for instance, the signal given needs to have predictive value for the next one to six months. Moreover, the analyst needs to assess the dataset used to optimise the algorithm as well as the algorithm itself: which attributes (e.g. corporate earnings, war) are present in the dataset? Is the dataset stable over time? Ultimately, the analyst also needs to assess the algorithm used and backtest it.

leading programming languages, visualisation software (Tableau, Power BI) and fully up to speed with all trends in the principal data science fields (text sentiment analysis, pattern recognition etc.).

Yet it is not strictly essential for the analyst to be a pure specialist in all these techniques. At KCM we tailor the type of data analysis, the use of alternative data and the construction of specific visualisations to the investment team's requirements. During the prototype development phase the analyst can work together with an internal team of data scientists that is available to the whole Van Lanschot Kempen group.

EMBEDDING IN THE INVESTMENT DEPARTMENT

One potential disadvantage of the bottom-up innovation approach described above is that each investment team accrues specific data knowledge and skills that they do not necessarily share with other investment teams. It is very important, therefore, that the teams exchange knowledge and experience with each other in order to encourage ongoing innovation.

Continuously seeking out new datasets

KCM has deliberately introduced virtual teams to enable individual investment teams to share their knowledge and experience. KCM-wide data projects are coordinated within these virtual teams. Training sessions and joint problem-

solving are also on the agenda. Each investment team delegates individuals to the virtual teams where three roles are distinguished: connectors, leaders and students (Morgan Asaftei, 2018).

- × The connector role typically has a more senior investment profile with fewer quantitative skills. This role should monitor the relevance of data projects within investment processes at all times. The connector prevents the development of applications that may be interesting from a data perspective but have no function in the investment process.
- × The leader role is assigned to the person with the most advanced data skill set is typically an investment analyst or portfolio manager who has acquired a large number of data skills over time or who, for instance, studied a technical discipline before entering the investment industry. The leader heads and coordinates the data projects and assists students when they face a programming challenge.
- × The students within virtual teams possess relatively few data skills but do have the intrinsic motivation to be trained in these. Via self-learning on internet forums, assistance from leaders and courses, these students can often make significant progress within a relatively short period of time. Young people derive a great deal of energy from learning in this manner. The students ultimately grow into leaders.

Weekly collaboration between connectors, leaders and students in virtual teams creates broad support for innovation and knowledge-sharing in the investment department. It is critical for safeguarding progress in data analysis at KCM in the long term, now and in the future.

Each day, our financial analysts are busy making data comprehensible in order to facilitate the analysis of companies, sectors or economies. An increasing amount of time is spent on innovative ways of identifying the most appropriate investments for clients. Effective cooperation within and between teams can ensure that each individual investment team is ready for the future in its specialist field. As always, we can conclude that there is one essential precondition for success: infinite curiosity.

1 *Written from the investment department's perspective at Kempen Capital Management (KCM)*

2 *Google Scholar search results for the search terms 'big data', 'data analytics' and 'asset management' (as of 30 August 2019)*

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