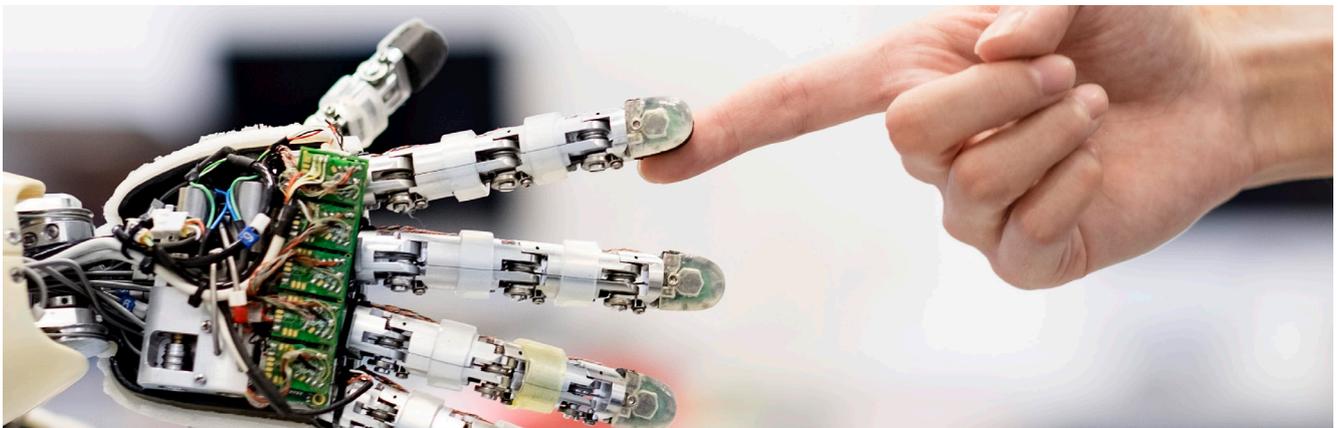


Chances and challenges

Investing based on big data **analytics**

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Recently, keywords like “machine learning (ML)” or “artificial intelligence (AI)” have become more and more popular. According to various press releases, many asset managers have looked for ways to generate alpha systematically with these methods applied to data lakes.¹ Typically, the analysis of big data with above mentioned methods is labelled as “big data analytics.” Since this is a rather broad term, it might be difficult to understand what precisely lies behind such data and methods.

Examples of big data

Popular examples for big data include satellite pictures from parking lots in front of big shopping malls. Using such data, investors can glean how sales figures of retail stores are developing in real time. Another example is to analyze revenues of millions of credit cards in order to predict sales figures of retailers based on these data patterns.

Nowadays, every investor is confronted with the challenge of tackling an ever growing news flow. Such news can include corporate results, rating changes, central bank actions, macroeconomic indicator releases or geopolitical events.

Compared to hard data such as satellite images or credit card sales, news needs to be read and interpreted. Such analyses have become even harder in recent years, as one cannot solely consider traditional news media, but also increasingly popular social news media such as tweets from President Donald Trump.

The meaning of news

News sentiment analytics actually came into existence over a decade ago. This sub-field of behavioral finance deals with the machine-based interpretation of news texts and their impact on financial markets. One of the first studies in this field examined a column in the Wall Street Journal for negative words over a longer time horizon.² It showed that the number of negative words could predict falling stock prices. Various other studies followed, which analyzed the sentiment of news. They often used complex methods based on machine learning in order to systematically predict equity price movements. Some studies proved that by identifying longer-term cycles in news sentiment, it is possible to generate alpha with tactical equity investments.³ This might suggest that analyzing big data innovatively is an opportunity for active asset management.

¹ Large pools of unstructured big data.

² See Tetlock, P. (2007) “Giving Content to Investor Sentiment: The Role of Media in the Stock Market.” *Journal of Finance*, Vol. 62 (3), 1139-1168.

³ See Uhl, M.W., Pedersen, M. and O. Malitius. (2015) “What’s in the News? Using News Sentiment Momentum for Tactical Asset Allocation.” *Journal of Portfolio Management*, Vol. 41 (2), 100-112 & Heston, S.L. and N.R. Sinha (2017) “News vs. Sentiment: Predicting Stock Returns from News Stories.” *Financial Analysts Journal*, Vol. 73 (3), 67-83.

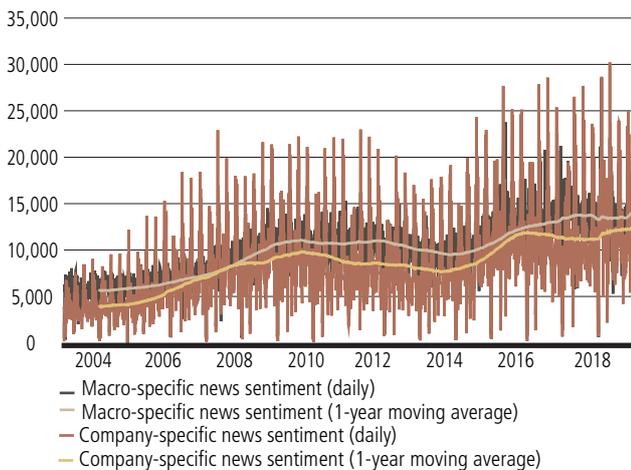
News sentiment as market-timing indicator

In general, news can be grouped into two broad categories, company- and macro-specific. The former category has a bottom-up view on the particular news group and the latter gives a top-down view. *Figure 1* shows the increasing number of news in these two categories over the last 15 years. *Figure 2* shows the development of the news sentiment derived signal versus a global equity index. The rate of return of such a systematic strategy based on big data analytics (we are examining up to 50,000 news articles per day) would have exceeded the equity market's return over that period, according to the published studies.

Increasing news flow

Figure 1 shows the amount of company- and macro-specific news articles from 2003 to 2018, which were published globally via the Thomson Reuters news network. One can see that the amount of news has significantly increased since 2005, which coincides with the introduction of machine-based news analysis. The amount of macro-specific news is generally higher than company-specific news. The seasonal spikes in company-specific news are based on the quarterly earnings release cycle of companies. Recently, the amount of news has reached a peak versus its own history for both news categories.

Figure 1: Number of news articles (absolute and 1-year moving average of company-specific and macro-specific news)

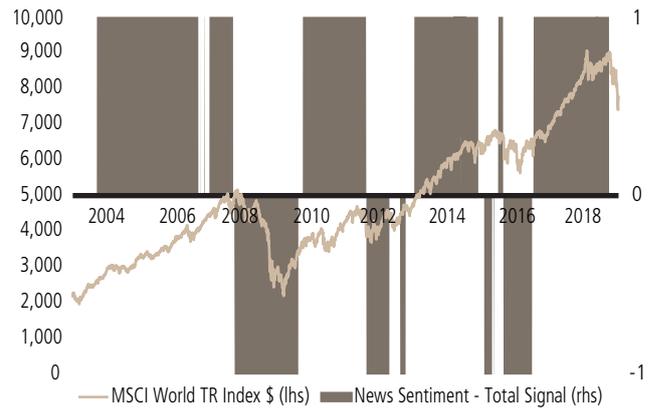


Sources: Thomson Reuters News Analytics, UBS Asset Management

Sentiment signal as market-timing tool

Figure 2 displays an indicator based on a longer-term trend (positive, neutral or negative) in both company- and macro-specific news sentiment from 2003 to 2018. In order to generate this signal, up to 50,000 news articles are processed and analyzed for sentiment per day, which are published globally via Thomson Reuters. That way, it is determined whether these news, on average, contain positive or negative sentiment. Based on that, tactical asset allocation decisions can be made.

Figure 2: Global news sentiment signal and MSCI World TR Index (USD)



Sources: Thomson Reuters News Analytics, Datastream, UBS Asset Management

Final thoughts

Institutional investors who follow a fundamental or macroeconomic investment process take into account earnings results and macroeconomic indicators as well as more traditional factors like value, growth or momentum. A news sentiment based analysis as described above gives additional insights on financial markets, and can be used in conjunction with specific factor-based investment styles. Additionally, investors are able to process and analyze large amounts of data. This might lead to a competitive advantage over other investors and opens up for additional potential alpha sources.

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