

No news is bad news

How news analytics are being used to create a superior trading experience.

Bob Giffords*

As e-trading competition intensifies, traders are looking for ways to 'get smarter'. One way is to tap into a new range of automated news flows, mining the text for trading opportunities and threats. "Current algos are really flying blind if they just use market data," maintains Ryan Terpstra, director of global news feeds at Thomson Financial News.

Brokers are attacking the problem head on using a new generation of decision support tools that combine search engines with text analytics. "We are using text mining to structure our information resources according to our own competitive intelligence categories," says Valérie Savin-Abdelli from the economics research department at BNP Paribas. "By applying our own tags in terms of what interests us we can greatly

increase the relevance and recall of searches carried out." Besides searching a wide range of internal and external documents, users can also specify their own websites to monitor BNP's LEONard information portal.

Both 'push and pull' technologies are being used, but traders want to go further to drive their quant models directly with news and not just market data. An early adopter is JRC Capital Management Consultancy & Research in Berlin, a hedge fund that also distributes models for investment firms to plug into their trading systems. "A large German bank, for example, has created a certificate product using one model," says Petra Ristau, head of research and development at JRC. "To stay at the forefront we are investing heavily in natural language processing, together with several partners."

The hedge fund's management is very committed to text processing. "They have seen how fast markets can react and how extreme that can be for certain news and announcements," says Ristau. "Most technical quant models can't cope with large moves in volatility or market rises or falls."

JRC's aim is to get an early warning system that they can use alongside their technical and fundamental analysis.

Early results are promising, but sometimes surprising. Ravenpack, based in Spain, provides the artificial intelligence engine behind the Dow Jones News Analytics service, offering sentiment analysis of their news flow. They analysed and charted the Dow Jones 20-year news archive, classifying the stories as being S&P positive, negative or neutral. "What you get looks incredibly like the S&P 500 index," says Phil Gagner, CTO. "Is it exact? No, but strikingly similar."

Mining the flow

Natural language processing has matured greatly in the last few years, and the race to launch news flow products is now on. Investment firms can now either do this in-house using text analytic software or buy pre-processed data services from the vendors.

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"Traditional vendors like Dow Jones and Reuters have launched low latency news flow offerings with some annotation," says Michael Kearns, professor of computer and information science at the University of Pennsylvania, and head of a quant team at Banc of America Securities. "There are also new entrants like Relegence and Monitor 110, which mine the web and blog space, as well as local, less accessible or more specialist information sources," he observes.

Approaches differ. The basic services provide a stream of low latency metadata in XML format to categorise or tag the articles and extract some key facts like economic or corporate results or forecasts that trading algorithms can act on. "Current vendor offerings are focused mainly at the document level, classifying the overall intent of an article and pulling out a few facts," says Kearns. "It's most unlike-

ly this will ever match a specialist trader's experience and detailed understanding of the content. So traders will have to deploy the technology on a large scale, achieving slightly better than chance over thousands of stocks, some thinly traded. That implies a lot of heavy lifting." Kearns would like to see much more emphasis on fact extraction.

Some, like Dow Jones and Ravenpack, offer market sentiment indicators. Reuters has joined forces with Infonic, formerly Corpora, to offer a software product for measuring sentiment that can be applied to any data feed.

"Traditionally, this process had been performed by a human linguistic analyst in the PR/marketing industry, at about six articles per hour," says Richard Brown, business manager, Reuters NewsScope. "Our system is designed to score about 10 articles per second and can scale to handle even the highest news flow volume,

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which typically occurs during earnings season. This makes the analysis applicable to a wide array of use cases, including algorithmic trading.”

Gauging sentiment

Running sentiment analysis software in-house gives control. “The output of the sentiment engine is very robust and each client may interpret the results differently,” says Brown. “Weighting by news source, particular indicators, or combinations of indicators, as well as varying the lag times to market reactions and constructing proprietary trading baskets, are just a few ways the sentiment information can be highly personalised.”

Thomson Financial News is developing its own news flow together with a number of hedge funds and investment

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banks, and expects to launch it in the first quarter next year. “We are focusing on extracting facts rather than assigning our own view on sentiment,” says Terpstra at Thomson. “We’ve heard very different views on sentiment analysis. Our customers prefer to draw their own conclusions on sentiment, for example, by comparing an earnings per share announcement to our First Call estimates database.”

Fact extraction requires the software to carefully map out the linguistic structure of the document and use other information sources to confirm and improve the semantic interpretation. “We are integrating our news with Thomson’s Quantitative Analytics product suite,” says Terpstra, “to deliver news that is correlated and normalised to other content sets including fundamentals, estimates, ownership and historical tick data.” The platform will be data agnostic, so it will contain content from Thomson and third parties. Terpstra believes this is very important to quants that need to see a comprehensive view at any time.

All the vendors will provide a historical archive for back-testing and more or less integration with other data, including synchronisation of timestamps and symbology.

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Much more, of course, is promised. “An economic event such as a better-than-expected consumer confidence report can kick off a basket trade to purchase retail stocks and rotate out of other positions,” says Brown at Reuters. “It can be done within milliseconds, saving valuable basis points on the transactions.”

Kearns, who has been researching machine learning and computational finance for some years, agrees: “For algo trading, news flow can give tangible benefits by listening for key events or recognising market reactions to such events.”

Assessing the potential

HSBC is still in a research and development phase on news flow, reviewing vendor offerings and exploring use cases. “The real challenge will be assessing return versus investment,” says Kevin Bourne, global head of equities execution, HSBC CIBM. “Is this going to become just another

layer of complex IT engineering which does not deliver a clear net dollar benefit?" Such caution is widespread.

One investment bank ready to move forward is Citi. "We have just finished a due diligence, reviewing vendors of news flow analytics and the kinds of analysis we should apply to them," says Tom Middleton, head of European algorithmic trading at Citi. "We will now engage with one vendor and add this to our algorithmic trading offering in the coming months." There are three ways news analytics can affect customer trading strategies, explains Middleton: "[News analytics] can help an algorithm to get better behind the scenes, they can help the client filter the news and identify what is important, and help the client to select the right algorithm to use in the pre-trade assessment of market conditions."

While Bourne has still to be convinced of the economic benefits of what is currently on offer, Middleton clearly believes that at least one vendor's offering is good enough. "Rather than carry out the textual analysis ourselves," says Middleton, "we shall take the news vendor's text analytics and focus on the overlay level, integrating his data with

our own algorithms. For this we'll use different approaches from simple heuristics, which have a lot of merit, to complex neural nets and genetic searches to provide automated adaptive learning."

Meanwhile, the interest grows and third party OMS/EMS vendors are beginning to incorporate the feeds into their platforms. "In June we announced a dedicated adapter to allow users to integrate the Dow Jones 'elementised' news feed into the Apama trading platform," says Dr John Bates, founder and vice president, Apama Products, Progress Software. "Customers can now drive the news flow into their quant models directly without programming." Others will probably soon follow.

News flow algorithms

"There is a lot of experimentation and fiddling around with news flow," says Kearns, "but there are no reports of any serious or successful applications." It will take time to marshal the wide range of tools and skills needed to make news flow algorithms a reality.

"We are probably still a year away from production," says Ristau at JRC. "We have built an infrastructure to integrate the news and market sentiment with our quant models,



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including both technical and fractal analysis to deal with the high impact low probability events. Our current research starts with the numerical side, looking at trends, phases and turning points, and then pushes back into the text to identify signals that we could use to predict them."

Middleton at Citi is in no doubt about the challenge. "Because of the richness of the semantic content of news feeds," he says, "our models will become much more complex and we will need more bandwidth and hardware to handle it." It will take time to build the ontologies, the dictionaries used to interpret the text, to design and calibrate the models, and to assess what works and what does not. "Everything is happening faster," says Bates. "Natural language processing

News analytics



will only accelerate this trend, affecting all sorts of different instruments and adding to their volatility.”

Kearns reminds us to take a game theoretic view of markets. “What makes trading sense depends on what others are doing,” he says. “Alpha can only be generated in the context of one’s opponents. If everyone uses similar models, everyone loses, as we have seen with the recent credit squeeze.” So while some initial success stories may start appearing in the next six to 12 months, real change is likely to be measured in years. What is clear is that news flow algorithms are now a reality to be reckoned with. ■

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