Q&A

The Role of Artificial Intelligence in Global Evolution's Research

April 2021

Conning's Head of Consultant Relations, David Motill, caught up with Ole Jorgensen from Global Evolution to learn more about how the firm is using Artificial Intelligence (AI) to provide deeper insights into their analysis of emerging market credit opportunities.

Implementation of AI

1. **David:** *How has Global Evolution implemented AI in the research process and how has that improved your process?*

    Ole: AI has provided us with some unique capabilities in a few areas; one is to create data that we never had before, the other is to create models allowing us to detect patterns that we have never been able to see before. Let me elaborate on the first one: with AI, we have been able to measure themes that we were never able to measure before, specifically through natural language processing, or NLP. For example, we are now able to measure political risk in the countries that we invest in by measuring the positive or negative sentiment toward political risk. In short, we are now able to "measure the unmeasurable."

    As part of our investment process, we have historically been using fair-value models that were a bit simple. Therefore, we need non-linear ways of thinking and estimating what prices should be in the future.

    AI helps us see "hidden" patterns that we as humans are not able to see. These are also called "neural net" models as they replicate how neurons in our brains search for patterns. An example is the facial recognition feature on our iPhones but at Global Evolution we do not use the technology on images like a face but on numbers in big data sets.

    > *"AI helps us see 'hidden' patterns that we as humans are not able to see."*
    >
    > *- Ole Jorgensen*

    A key AI research "enabler" is better computing power and systems that can process big data sets. Our NLP program analyzes more than 60 million news articles with thousands of words in each of them. We now have a Nvidia® Tesla® server that can analyze this data much quicker than was previously possible. This has not only allowed us to measure the sentiment toward themes that we have never been able to measure before, but also forecast prices with much greater accuracy. This is helping us build a more solid understanding of what drives price dynamics over time.

2. *What parts of Global Evolution's NLP algorithm are proprietary and how can Global Evolution utilize this data to offer a differentiated approach?*

    The news articles that we buy from the different newspapers in the world are sourced through a Dow Jones database, so they are not proprietary. However, the way that we process and measure the news through our algorithms is proprietary.
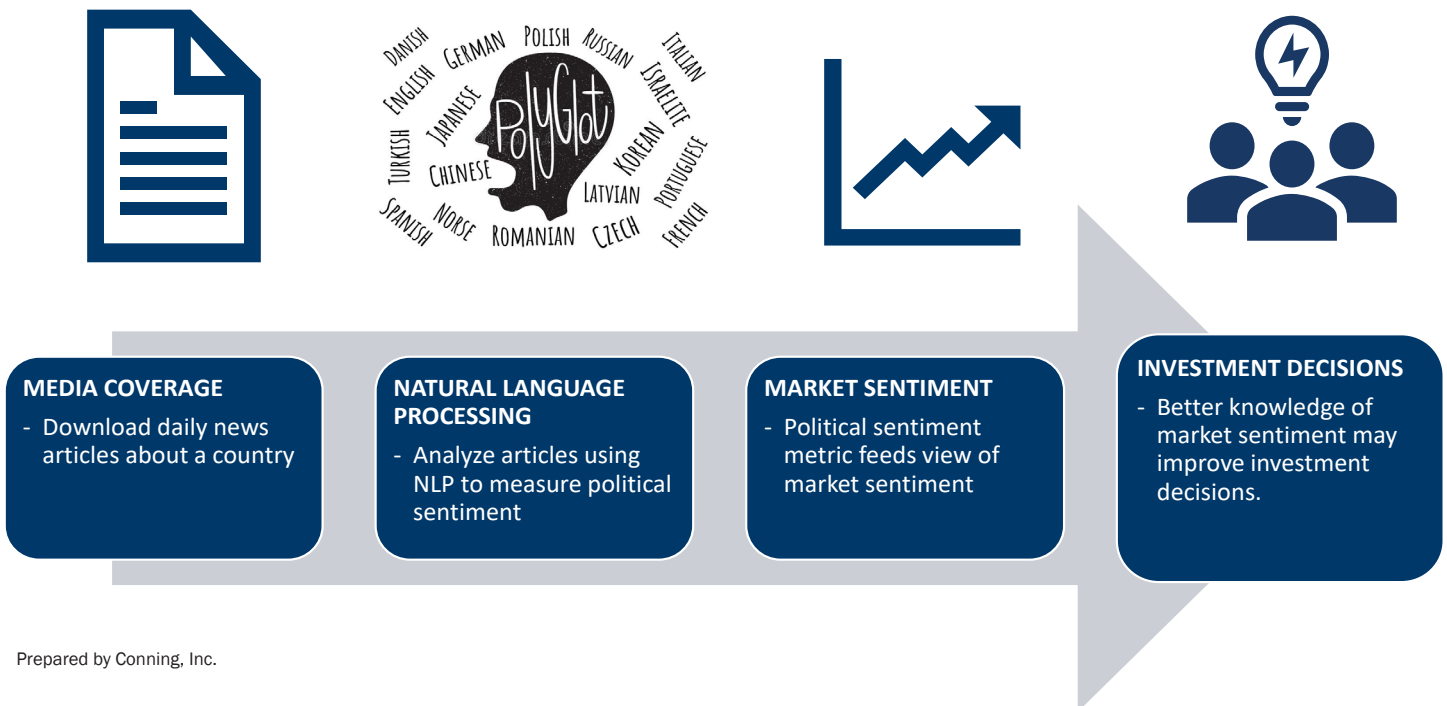
There are other asset managers that have similar algorithms, but rather than focusing on emerging markets they focus instead on investment grade corporates or U.S. equities. Currently, we may be the only asset manager that is doing this for our asset class. For example, there are high-frequency hedge funds that do this for U.S. equities, but our asset class is a little bit more esoteric and analysts for our asset class focus more on fundamentals and conduct more qualitative analysis.

> *"Currently, we may be the only asset manager that is doing this for our asset class."*
>
> *- Ole Jorgensen*

We currently utilize our AI algorithm to follow 41 emerging market countries, which is about half of our investible universe, and we also do this for the United States as an important global driver of economies and prices. AI offers a huge efficiency boost in this work: you would need thousands of analysts to review 60 million articles. In addition, we can analyze news articles for the last 20 years which allows us to create an index on a daily basis to measure changes in political risk. It is not a perfect predictor of political risk, but it can provide a warning signal if risk may be increasing (see Figure 1).

Figure 1 - How AI Can Help Improve Investment Decisions

MEDIA COVERAGE
- Download daily news articles about a country

NATURAL LANGUAGE PROCESSING
- Analyze articles using NLP to measure political sentiment

MARKET SENTIMENT
- Political sentiment metric feeds view of market sentiment

INVESTMENT DECISIONS
- Better knowledge of market sentiment may improve investment decisions.

Prepared by Conning, Inc.

3. *How do you define NLP? What does it really mean?*

It's not a finance term but one that is based in linguistics. NLP analyzes a language to categorize words and phrases in a whole sentence and make sense of whether those words are positively or negatively biased. For example, if you have a sentence like "The US is in recession," that's considered a negative sentence. But "The US is not in recession" is a different sentence by only one word yet it may give you more optimism. However, the word 'recession' is still in both of them. We need technologies that can understand that and take a sentence or whole paragraph and understand its meaning and tell us whether it's positively or negatively biased by looking at the order of the words and how they interact. NLP can process any language, not just English. We are benefitting from more and better information at our disposal and we have models that are more sophisticated so we can have more accurate trade signals, helping us in our investment process.

Identifying Risks

4. *Can you identify political risks before they become apparent in the market?*

Yes, very often, because our algorithm can identify leading indicators to identify political risks. Portfolio managers are used to analyzing different indicators as, for example, the VIX index, commodity prices, U.S. rates, the S&P 500 Index, and the political risk coming out of the U.S. However, for all of these things I just mentioned, they always had the data except for political risk. Market sentiment is an important leading indicator, but portfolio managers have never had this data to consider. This is possible now with this new AI technology. We didn't come up with the technologies, but we adopted the technologies and applied them to our asset class with proprietary algorithms.

Regional Differences

5. *What different key words have you developed for each country? I would imagine there are different key words for Brazil versus an emerging market in Asia or Africa?*

Our model is built on a framework that includes a combination of words that came out of the Harvard University's *Quarterly Journal of Economics* in 2017. Some academics developed a perspective on the question: "how do I define political risk?" This was done in English for the U.S.

We then made edits to this analysis and arrived at a framework that we currently use for emerging markets. We have not created separate frameworks for different countries because that would make it difficult to compare countries in terms of relative value. However, we have created algorithms that analyze various languages.

We're also looking to analyze market sentiment across different themes, such as election risk in the U.S. or political risks generally, geopolitical risks, or trade-war risk with China, and then expand that to other asset classes that Conning manages, not just emerging markets.

ESG Factors

6. *How is the analysis of environmental, social and governance (ESG) factors improved through this AI process?*

Political risk is a governance theme, or the "G" in ESG. Other ESG themes could include sentiment toward human rights, government stability, freedom of speech, political issues in Belarus, Venezuela, Brazil, China, Taiwan or other countries. In addition, we can look at sentiment on pollution and climate change. AI can help measure these sentiments about ESG indicators in a more data-driven way, with greater frequency. With the increasing importance of ESG in the investment process, we can assess and respond to information more quickly using these new tools.

"With the increasing importance of ESG in the investment process, we can assess and respond to information more quickly using these new tools."

- Ole Jorgensen

Ole Jorgensen is Director of Research for Global Evolution, responsible for quantitative emerging markets research and integrating ESG into the firm's investment process. Previously he was with the World Bank for several years in a variety of capacities, including as a country economist and team leader responsible for seven frontier market countries. Mr. Jorgensen, a former professor of economics, has a Ph.D. and an M.Sc. in international macroeconomics from the University of Southern Denmark. He has conducted research at several major U.S. universities including Harvard, Stanford, and Brown and recently completed a strategic artificial intelligence course at the Massachusetts Institute of Technology. He was also chair of the PRI Advisory Committee on ESG in Credit Ratings.

David D. Motill is a Managing Director and Head of Consultant Relations at Conning. Prior to joining the firm in 2010, Mr. Motill was a partner and chief marketing officer at Alpha Equity Management. He previously headed consultant relations groups with Fischer Francis Trees & Watts, Citigroup Asset Management and GE Asset Management. Mr. Motill earned a degree from Temple University and an MBA from the University of Notre Dame and holds Series 7 and 63 licenses.

ABOUT CONNING

Conning (www.conning.com) is a leading investment management firm with a long history of serving the insurance industry. Conning supports institutional investors, including insurers and pension plans, with investment solutions, risk modeling software, and industry research. Founded in 1912, Conning has investment centers in Asia, Europe and North America.

Conning, Inc., Goodwin Capital Advisers, Inc., Conning Investment Products, Inc., a FINRA-registered broker-dealer, Conning Asset Management Limited, Conning Asia Pacific Limited, Octagon Credit Investors, LLC and Global Evolution Holding ApS and its group of companies are all direct or indirect subsidiaries of Conning Holdings Limited (collectively "Conning") which is one of the family of companies owned by Cathay Financial Holding Co., Ltd. a Taiwan-based company.

Global Evolution Fondsmæglerselskab A/S ("Global Evolution DK") is incorporated in Denmark and authorized and regulated by the Finanstilsynets of Denmark (the "Danish FSA"). Global Evolution DK is located at Buen 11, 2nd floor 6000 Kolding, Denmark. In the United States, investment advisory services are offered through Global Evolution USA, LLC ('Global Evolution USA"), an SEC registered investment advisor. Registration with the SEC does not imply any specific qualification or any level of skill or expertise. Global Evolution USA is located at: 250 Park Avenue, 19th floor, New York, NY. Global Evolution USA is an wholly-owned subsidiary of Global Evolution DK. Global Evolution DK is exempt from SEC registration as a "participating affiliate" of Global Evolution USA as that term is used in relief granted by the staff of the SEC allowing U.S. registered investment advisers to use investment advisory resources of non-U.S. investment adviser affiliates subject to the regulatory supervision of the U.S. registered investment adviser. Prior to making any investment, an investor should read all disclosure and other documents associated with such investment including Global Evolution's Form ADV which can be found at https://adviserinfo.sec.gov.

C: 12683505A