



# Artificial Intelligence at NDR

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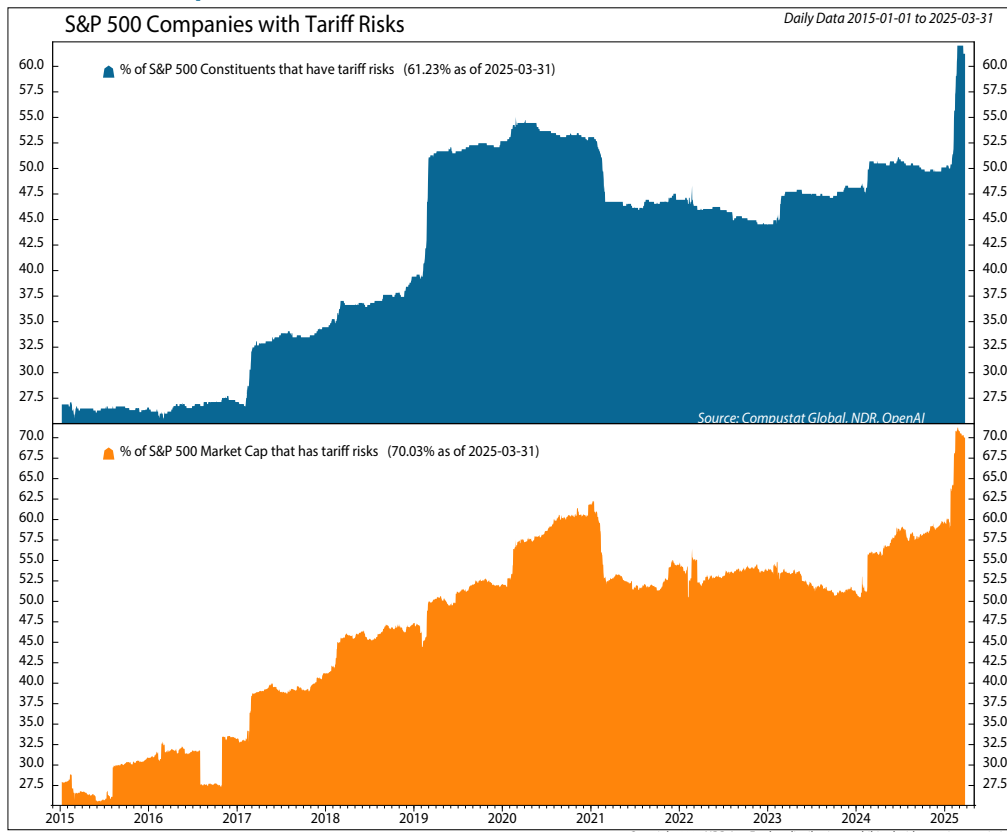
Welcome to the 4th edition of NDR's *Integrated Analyst*, a quarterly publication showcasing the wide-ranging capabilities of NDR's Custom Research Solutions (CRS) group.

Looking to settle a debate from your internal team meetings, increase the productivity of your organization, launch a new product suite, or quickly respond to an in-depth customer question? CRS can serve as an extension of your research team to assist with projects large or small. We build tailored solutions through direct engagement.

This issue of *Integrated Analyst* demonstrates how CRS incorporates artificial intelligence (AI) into NDR's data-driven and objective research process.

**Q: Can NDR identify which S&P 500 companies could be impacted by tariffs on Canada and Mexico?**

### S&P 500 Exposure to Tariff Risks



A: At NDR we have a wide range of analysis tools and data at our disposal. We can use our AI Large Language Model (LLM) to query our database of 10-K SEC filings, dating back to 1994, to comb through management discussion about the risk of tariffs impacting S&P 500 companies. Our skillfully crafted prompt directs our LLM to search each company's 10-K text and determine if the company identifies tariffs specifically on Mexico and Canada as potential risks to their business. We then turn the LLM's response into a binary time series of ones, indicating tariff risk, and zeros, indicating no risk, to estimate the aggregate exposure of S&P 500 companies to "Tariff Risk," as plotted in the chart at left.



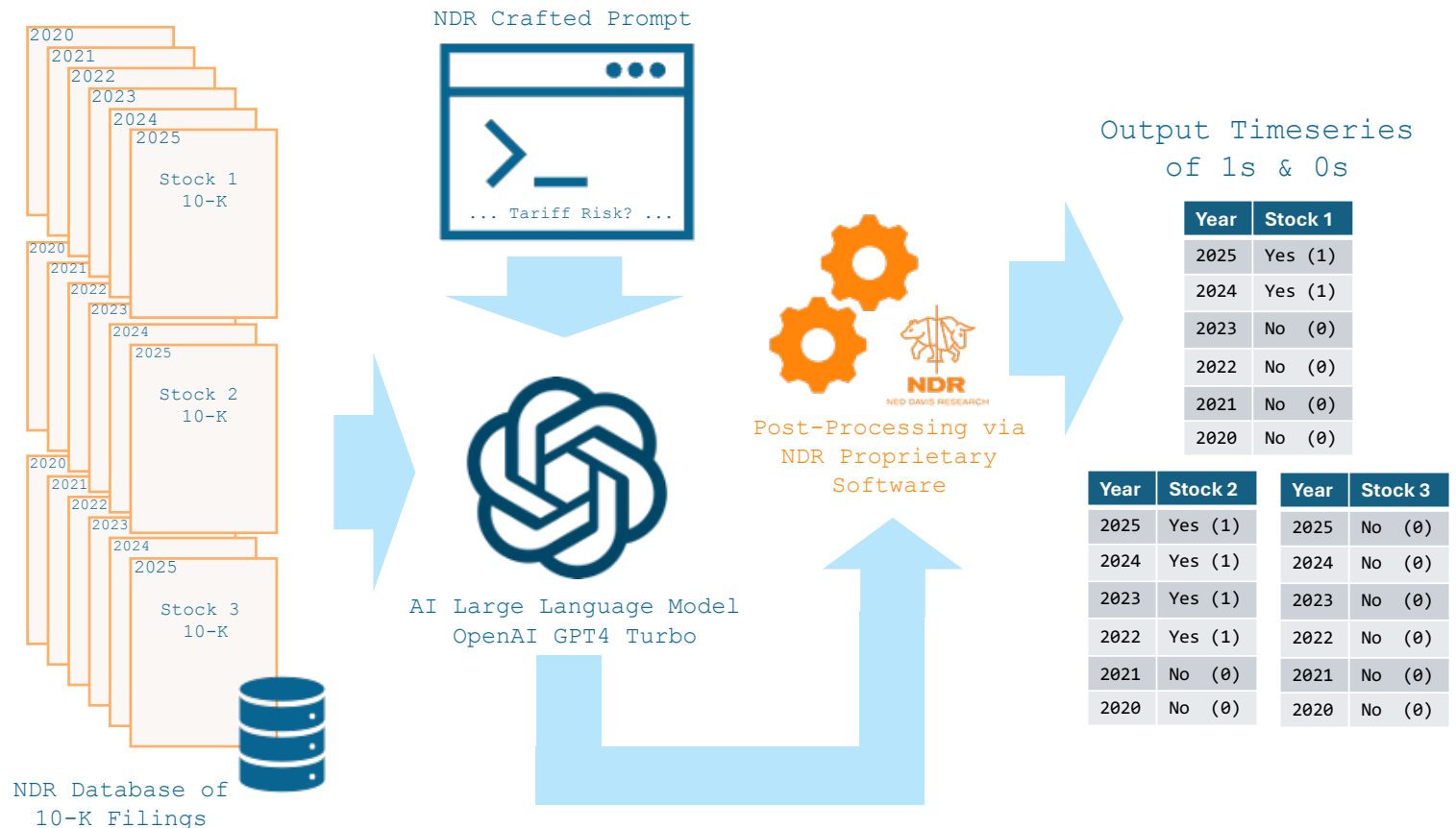
**Q: Why use NDR to do this work? Couldn't I just ask Grok or ChatGPT for free?**

A: Performing reliable analysis using LLM models like ChatGPT or Grok is an evolving art and requires expertise to get reliable, repeatable results. A simple query to an LLM (e.g., “Does Apple view tariffs as a risk to their business?”) results in an answer that relies on the LLM’s training data, which may be outdated, ambiguous, or have questionable credibility.

For our analysis, we provide the LLM with the input data, namely the Risk section of a company’s annual 10-K report, which NDR has for all companies filed with the SEC dating back to 1994. Then we prompt the LLM to tell us, “Yes or No, based solely on the provided text, does this company view tariffs as a risk to their business?” This approach provides us with repeatable and reliable results because NDR supplies both (1), the high-quality input data, and (2) a well-crafted prompt.

NDR has hundreds of thousands of data resources, and we invest substantial time and effort to integrate these sources into a single repository. Moreover, NDR also licenses and maintains index constituent dates, allowing us to perform this type of analysis without survivorship bias, making it ideal for this type of real-world study.

### NDR Process for Identifying Companies with Tariff Risks



**Q: How is AI better than a simple keyword search?**

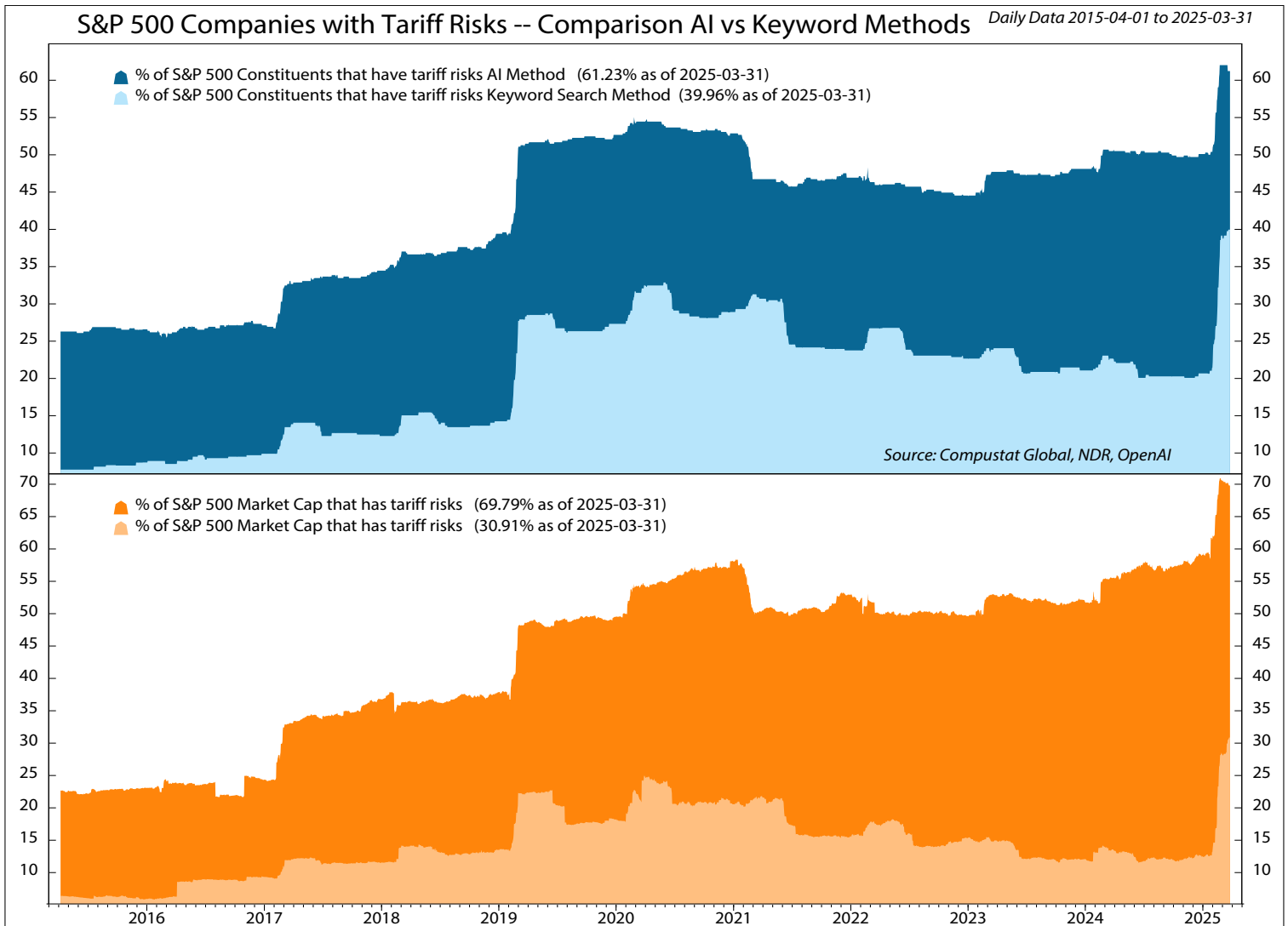
A: Traditional fundamental metrics only have line items for sources of foreign revenue, which differs from revenue risk, and do not fully capture the impact of a potential tariff. Additionally, those line items are not required under GAAP, are not standardized, and cannot easily be compared across companies. U.S. companies are, however, required to discuss risks to their business in their 10-K filings. This narrative text can identify companies impacted by tariffs but requires high-powered tools to process it consistently and efficiently across hundreds of companies, both currently and historically.

One non-AI approach is to simply search the 10-K text for the keywords “tariff”, “Mexico” and “Canada.” However, these keywords alone will not capture cases where a company

describes the impact of tariffs without specifically using the word “tariff.” For example, the LLM correctly labels the statement, “we are concerned about increasing costs as we move our products across country borders.” as “Yes, tariff risk,” whereas a simple search for “tariff” will incorrectly return “No tariff risk.”

The chart below shows that both the AI and keyword search method tell a similar story; however, the keyword search understates the risk by a significant margin compared to the AI findings.

### Comparison of AI and Keyword Search Methods



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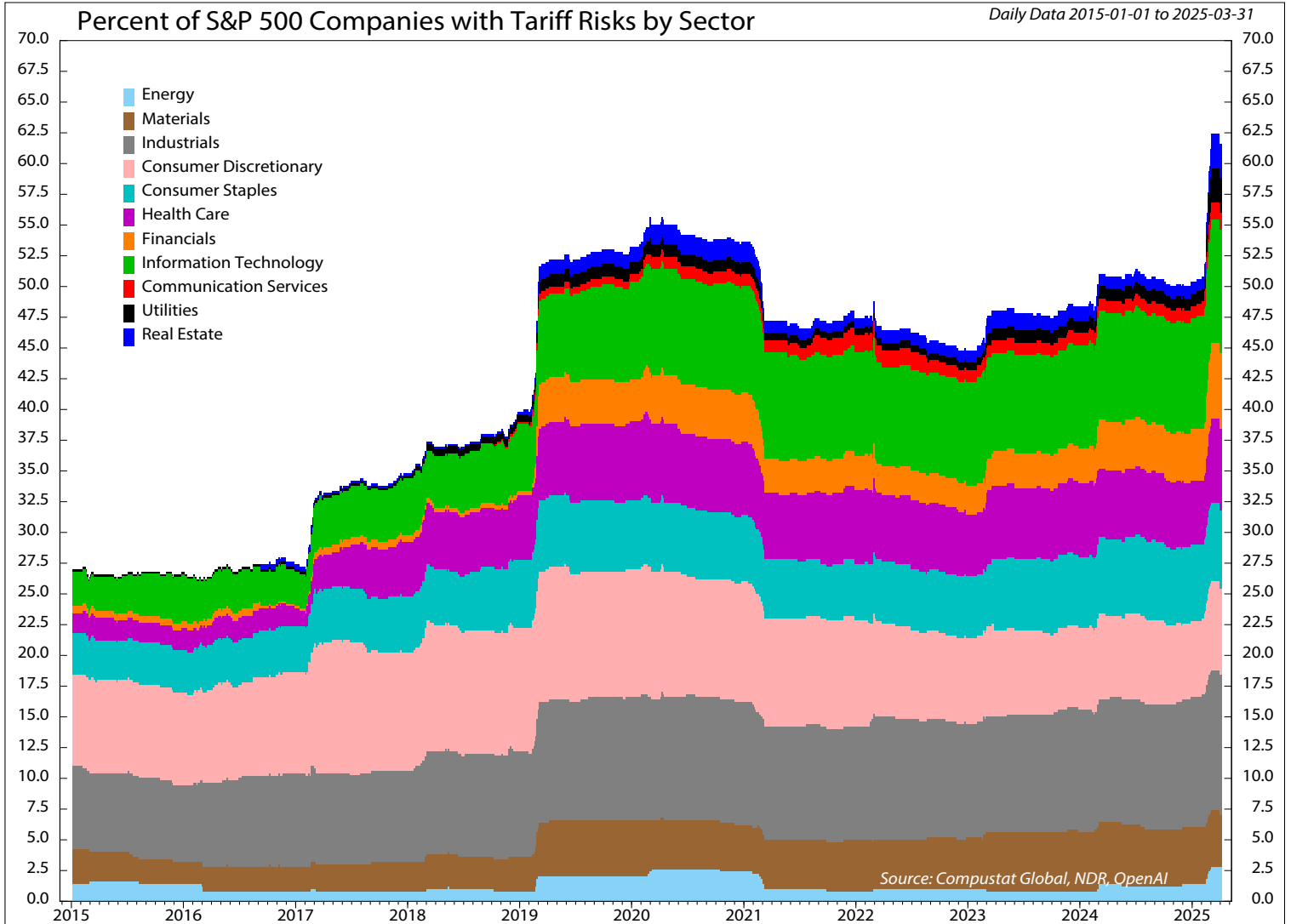


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**Q: Can we break this down further to show the sector impact on affected companies?**

A: Of course! At NDR, we maintain S&P 500 constituent history dating back to 1972, with official S&P sector information starting in 1985. We can efficiently calculate an extended history of the “tariff risk” constituents by sector without survivorship bias to identify areas of the market most impacted by tariffs (chart, below).

### Breakdown by Sector



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Tariffs are just one of many financial research topics where narrative text can provide insight over and above traditional fundamental metrics. NDR also routinely makes use of text data in our [Thematic Opportunities](#) research offering. We have a wide variety of textual information in our database, along with the tools and expertise to turn it into actionable market insights!

To learn more about NDR's AI approach, along with many other research offerings, contact us at [CRSQuestions@ndr.com](mailto:CRSQuestions@ndr.com).



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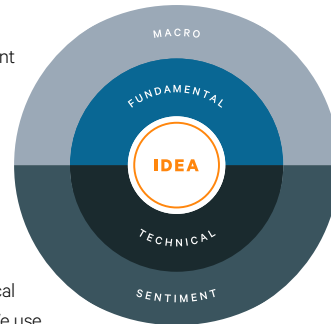
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