



Eagle Alpha



Blending Alternative Data For ESG Investing

A Data Team Approach To An
Investment Challenge

Eagle Alpha's ESG Data Hackathon Winner 2021

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Alternative Data for ESG Investing

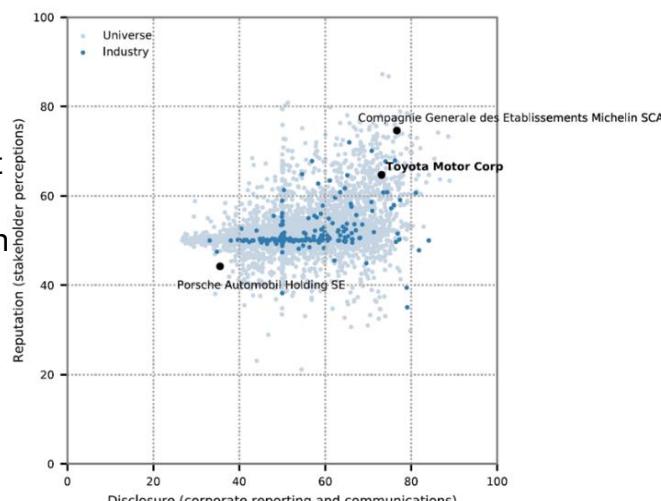
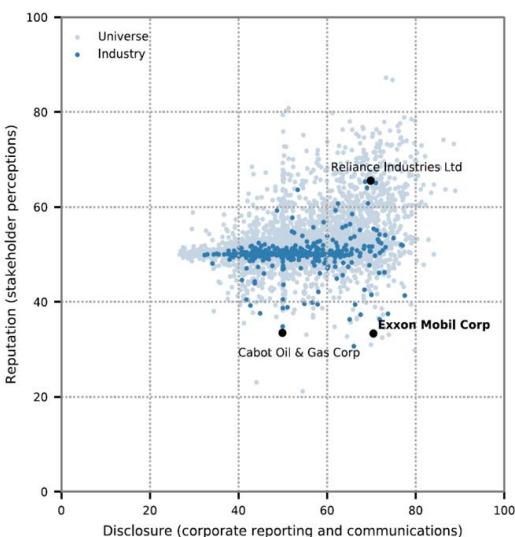
There are numerous reasons to consider environmental, social, and governance (ESG) criteria when identifying suitable investment opportunities. At the most basic level, investors may want to maintain a green or socially responsible portfolio for its own sake; this trend in investing creates incentives for companies to conform to ESG criteria. There may also be more immediate reasons for considering ESG criteria. Failing to account for environmental or social factors poses a risk of both consumer and regulatory backlash, and this risk must be incorporated into the price of an asset. Finally, the ability of a company to meet ESG standards may speak to its financial health, providing a useful signal to investors.

This paper is the result of a collaboration between Eagle Alpha, OttoQuant, and seven alternative data providers brought together for Eagle Alpha's ESG Data Hackathon in May 2021. To address the Hackathon theme, we explored how alternative data can fill gaps in standard ESG measures and provide deeper insights into ESG criteria. We looked at ESG measures for Exxon Mobil and Toyota, and have organized the results by data provider, as each provider brings unique insights.

covalence

ESG ratings

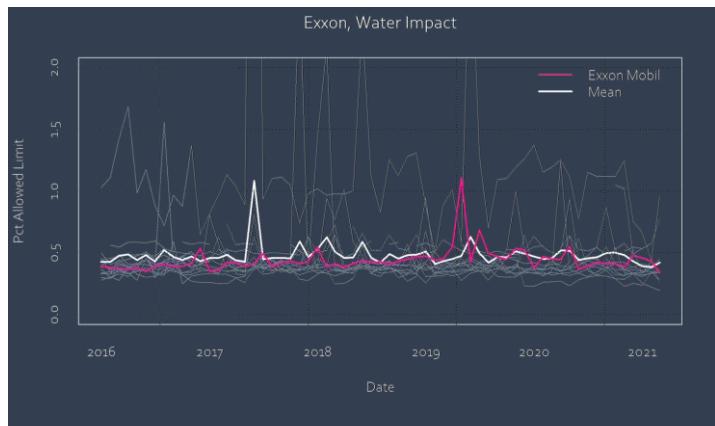
Geneva, Switzerland based Covalence provides our overarching theme. Covalence reports both ESG measures disclosed by companies and public/news based sentiment around ESG criteria. Based on these data, public perceptions of Toyota are very much in line with self-reported ESG numbers, both of which are quite good by industry standards.



The same is not true of Exxon Mobil; while reported numbers are in line with the industry, public perceptions are negative. This is illustrated by the fact that Exxon Mobil is located in the far lower right in the chart to the left, indicating in fact above average disclosed data but very poor public sentiment. In using a wide set of alternative ESG data, we will try to identify the reality of the situation for both companies.

Is Toyota's good reputation, and their self-reported ESG data, truly representative? And perhaps more interestingly, is Exxon Mobil as bad as their reputation indicates? Or do their self-reported data, which are above the industry average, more accurately reflect their ESG credentials?

AZA-Soyul



AZA-Soyul provides data derived from environmental permits and regulatory filings for about 1,800 chemicals released into air and water. The data cover some 450,000 facilities, which account for 98% of all greenhouse gas emissions and 95% of all toxic chemicals releases in the US. This corresponds to coverage for around 10,000 companies and entities. These observations provide an objective measure of a company's

environmental performance, free from media or branding bias. The data provided some interesting surprises. In the oil and gas industry, Total was an outstanding heavy emitter into US waterways. In the auto industry, GM was similarly well above average. However, neither Exxon Mobil nor Toyota emitted above the industry average; indeed, both tended to be slightly below.



Carbon 4 finance provides emissions measurements from the full lifespan of a product including upstream and downstream scope 3 emissions. Data include the carbon intensity of production, annual historical emissions and historical carbon intensity, avoided emissions (against an industry baseline), reduced emissions (that is, changes in carbon intensity), and whether a company has a forward-looking strategy. Here, Exxon Mobil suffers from being the largest oil and gas producer outside of Saudi Aramco: their total emissions (85% of which come from using the actual product, that is, scope 3) increased more than the industry average. Additionally, Exxon Mobil does not have a forward-looking plan for scope 3 emissions reductions; Exxon Mobil argues that consuming fossil fuels is a choice consumers and society in general must make. While not having a forward-looking scope 3 plan may count against Exxon Mobil, this is balanced by the fact that plans from other producers are not credible. Indeed, in the five years to 2020 no major producer reduced emissions.

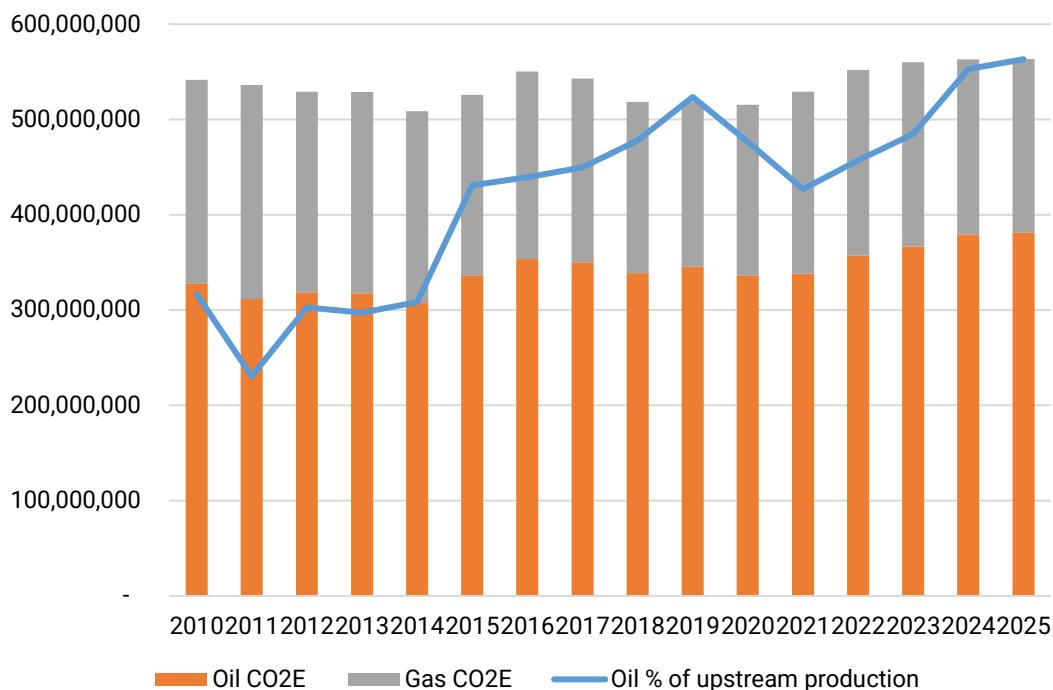
Shifting to Toyota, the company is better than the industry average both in terms of the fuel efficiency of its fleet and the carbon intensity of production. Notably, from 2014 to 2019 Toyota saw a 28%

reduction in the carbon intensity of production. While this impacts scope 1 and 3 emissions, Carbon 4 Finance notes that scope 3 emissions account for 95% of auto industry emissions.

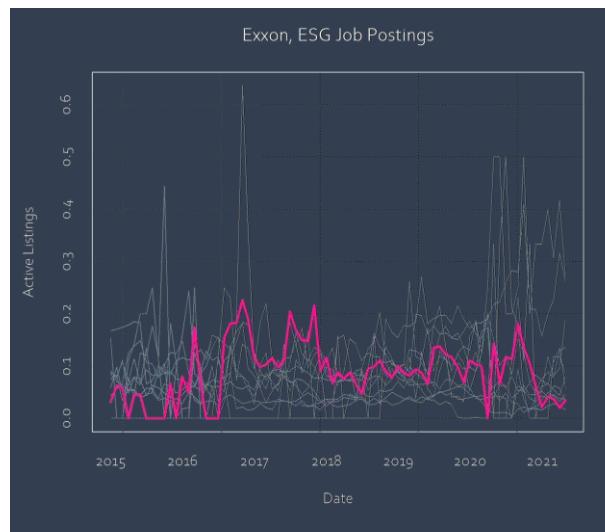
GlobalData.

GlobalData differs from the other providers mentioned thus far in that they are not ESG specific, but rather provide a wide range of intelligence across 18 different industries. For this project, GlobalData analyzed over 700 active and upcoming oil and gas fields in which ExxonMobil participates, using data from its Asset-Driven Climate Risk Data Service (profiled on Eagle Alpha). This asset level data is extremely detailed, including information on location and ownership, historical and forecast production, reserves, characteristics of the oil including gravity and sulfur content, the break even oil price, and a host of other information. From these statistics GlobalData can forecast scope 3 emissions for Exxon Mobil's upstream oil and gas production going forward five years. The result is that scope 3 emissions will likely increase by around 50 million tons of CO₂ equivalent, more than offsetting Exxon Mobil's 30% target reduction in scope 1 and 2 emissions. At the regional level, this increase in emissions will come from new projects in North and South America, where the company is investing in new oil developments.

Modelled scope 3 emissions from upstream production by commodity



LinkUp



Like GlobalData, LinkUp is also not an ESG specific data provider. LinkUp provides job market insights based on millions of job listings sourced directly from employer websites. To look at the ESG dimensions of the data, LinkUp searched for ESG related job postings for both Exxon Mobil and Toyota. In this case, ESG postings included jobs related to workplace health and safety, environment engineering, pension on benefits managers, and, in the case of Toyota, fuel cell, battery, and other electric propulsion technicians. Again, we found that Exxon Mobil was average, or slightly better than average, for

the industry when it came to ESG related postings. Toyota, on the other hand, was consistently above the industry average over the six years of data LinkUp analyzed.

axiomatic Data



Axiomatic Data provides retirement and benefit data from IRS form 5500 (ERISA) covering over one million US companies. They provide 99 indicators including binary values for whether the company offers health insurance, life insurance, scholarship funding, and pension stock bonuses as well as quantitative values for net pension plan assets, total employee contribution to pension plans as well as contributions per employee, and benefit plan participation. These data are summarized in a single index, the companies Thrive Score. For the oil and gas industry, pension plan participation is tightly clustered around 99%, though Exxon Mobil

is slightly below average at 97.5%. However, employer pension contributions are the second highest in the industry. Exxon Mobil's Thrive Score is again right at the industry average. Turning to Toyota, the company was slightly below industry average in terms of pension plan participation, and right at the average for employer contributions. The company's Thrive Score is slightly above the industry average. In both cases here, we find that according to these data both companies are at or slightly better than the industry average.

 S-Factor™

The S-Factor offers data on social indicators for 74 themes including, sentiment, controversy, government, best practices, ethics, and supply chain. Each theme receives an individual score allowing for granular analysis: where does a company fail and what are its strong point? The S Factor delivers these ratings, scores, company and fund analysis, and quantitative analytics in a platform that is customizable to suit client's needs. Comparing scores for Exxon Mobil with those for Shell and Chevron, we find that Exxon Mobil is again average, and in some cases better on social criteria than its peers. However, there are a few categories in which Exxon Mobil scores poorly. Key shortcomings include accountability, air emissions management, board diversity cultural heritage preservation, dispute resolution and grievance systems, and indigenous rights and land tenure. Toyota, on the other hand, consistently scores best in class on a range of social criteria, with 10/10 on 21 different themes. The only point where Toyota does not do well is ethics violations. Because S-Factor originates and structures its own data, they were able to dive into specific events which led to score changes. In the case of ethics violations, the low score was due to a lawsuit in which the company was found not to have addressed known breaking issues in some of its vehicles.

Summary

Our findings indicate that the strong self-reported data and public perception of Toyota is justified by objective analysis. The company is consistently above average for both environmental and social criteria. Toyota has a more fuel-efficient fleet than the industry average, has reduced the carbon intensity of production by 28%, and scores well over a broad range of social criteria. Exxon mobile, on the other hand, is perhaps slightly below its peers on some points, but the extreme negative sentiment does not seem justified by the hard data. Thus, an interesting question coming from this work is what drives the poor perception of Exxon Mobil in the oil and gas industry? Does Exxon Mobil suffer from particularly negative media coverage? If so, why not other oil and gas producers? Does "greenwashing" work for other oil and gas companies? Exxon Mobil has not published targets for reduction in oil and gas output, but those published by others in the industry do not seem credible. Or is it size, as ExxonMobil is the largest producer after Saudi Aramco? A few other interesting possibilities exist. First, on March 24, 1989, Exxon Valdez ran aground in Prince William Sound spilling 10.8 million gallons of crude oil; to date it is the second largest oil spill in US after Deepwater Horizon. The spill had a high environmental impact due to location. Second, from the 1970s to the mid 2000's, Exxon/Exxon Mobil funded research denying climate change and refuting the costs and risks of global warming. Finally, Exxon Mobil is associated with right of center politics, though contributions to Republican candidates are only slightly more than Democratic candidates (for a total of \$2.9 million). And though Exxon Mobil spent \$8.7 million on lobbying in 2020, this is significantly less than other corporations including Blue Cross Blue Shield (\$23M) and Facebook (\$20M). While the source of the negative sentiment identified by Covance around Exxon Mobil is not obvious, this does pose a real risk to the company, and remains important to potential investors.

About Eagle Alpha

Established in 2012, Eagle Alpha is the one true source of alternative data. We are the leading alternative data aggregation platform with supporting advisory services for data buyers and data vendors.

First adopted by alpha-seeking hedge funds over 10 years ago, alternative data is now being sought for use in the wider asset management space, as well as the private equity and corporate verticals.

Eagle Alpha was one of the first companies to recognize the value from these new data sources and has been investing in educating and connecting alternative data vendors and buyers since 2012, in the process building trusted relationships with both sides of this market.

As of May 2021, Eagle Alpha has profiled in excess of 1,500 datasets and provides annual solutions to data buyers and data vendors globally.

A unique breadth of datasets, knowledge of the industry and client relationships have cemented Eagle Alpha as the global leader and strategic partner in the data space.

Eagle Alpha partners with industry leaders to continue to shape the industry:

1. J.P. Morgan, lead sponsor of our data conferences.
2. FISD, member of this association to create standards for the industry.
3. Lowenstein Sandler, partner with this US law firm.

OttoQuant --- Quantitative Analysis for Blended Data



About OttoQuant

Established in 2019 by PhD economist Seth Leonard and entrepreneur Joao Monteiro, OttoQuant specializes in signal extraction, nowcasting, and forecasting, optimizing the information contented in blended datasets. OttoQuant grew from a collaborative project nowcasting trade flows from thousands of proprietary datapoints. The unique methodology we built effectively mixed observations at arbitrary frequencies, publication dates, and publication lags to ensure predictive models always used the most up-to-date information available. Today, OttoQuant sits at the forefront of academic research on mixed frequency modeling.

Mixed frequency modeling is fundamental to both econometric and machine learning frameworks striving to use any and all available information. OttoQuant helps bring quantitative teams to the technological frontier of the field.

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