FIRE: THE FIRST-YEAR INNOVATION & RESEARCH EXPERIENCE

SUSTAINABILITY ANALYTICS

# Uncovering Greenwashing: A Review of Large Public Companies

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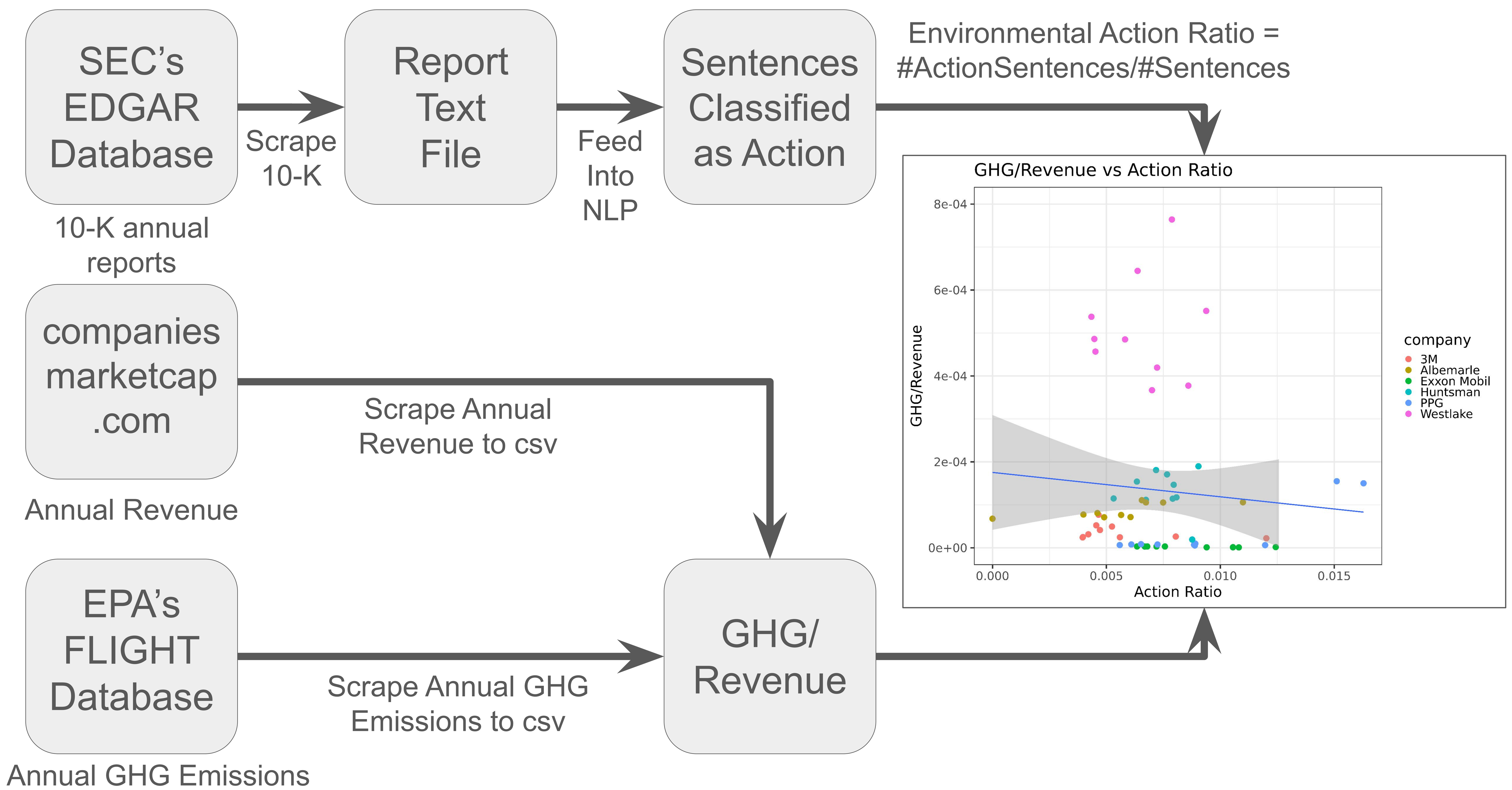
## Research Question

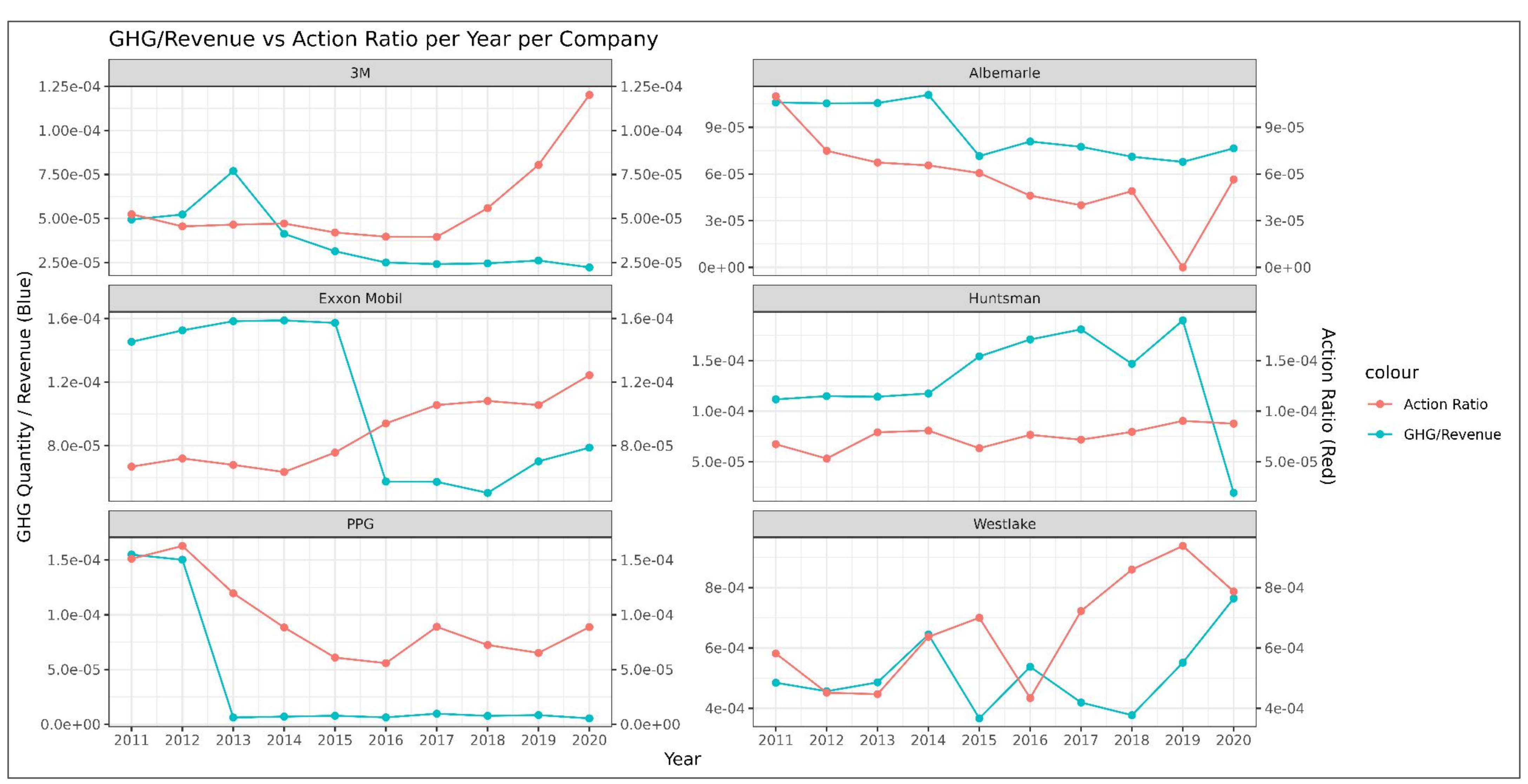
Do changes in corporate environmental action statements correlate with their GHG emissions?

## Background

- With the growing societal pressure on corporations to reduce their negative impact on the environment, many corporations are making public statements about their stance and impact on the environment.
- It is important to question whether their rhetoric leads to any measurable change.
- This research project compares six chemical companies' environmental actions from their 10-K filings and annual GHG emissions within the United States from 2011 to 2020.
- An existing NLP model, EnvironmentalBERT-action (Schimanski et al. 2024) is used to classify sentences as environmental action from each annual report.

## Methodology & Results




This figure shows the environmental action ratio and GHG/revenue for each company from 2011 to 2020. There is a clear negative correlation for Exxon Mobil and Westlake, indicating that their GHG emissions may negatively correlate with environmental action ratio or revenue may be positively correlated with environmental action ratio.

## Conclusion

- There is no direct correlation between GHG/revenue and environmental action ratio.
- In a regression with a year trend and company fixed effects, there is a weak positive correlation between GHG/revenue and environmental action ratio.
- There is no conclusive evidence given the data that we have.

## Limitations

- Companies can impact the environment in other ways besides GHG Emissions.
- We only analyze 10-K annual reports; however, environmental disclosures are not mandatory in 10-K's, and we do not analyze other texts.

## References

Schimanski, T., Reding, A., Reding, N., Bingler, J., Kraus, M., & Leippold, M. (2024). Bridging the gap in ESG measurement: Using NLP to quantify environmental, social, and governance communication. *Finance Research Letters*, 61, 104979.