Is big tech greenwashing?

https://github.com/amandafbooth/BoothProphete_ENV872_EDA_FinalProject

Amanda Booth and Ricky Prophete

Contents

List of Tables

List of Figures

1 Rationale and Research Questions

As the world searches for climate change mitigation strategies in the face of apocalyptic climate projections and escalating real-world effects, the need to decarbonize the global economy has placed increasing societal and political pressure on companies to limit their emissions. Part of this pressure has come from the Environmental, Social, and Governance investing movement, which focuses on sustainability as a key part of identifying material risks and growth opportunities for companies.

Corporations have responded to the decarbonization challenge posed by these external forces by self-disclosing their carbon footprints along with action plans for reducing them over a specified time horizon. However, there are 2 key issues with the self-disclosure model:

- Current emissions accounting and reporting practices have not been harmonized, leading to differential approaches to carbon accounting.
- Given a lack of oversight in emissions reporting and the nature of informational asymmetries between organizations and investors, companies face perverse incentives to understate their carbon footprint and/or otherwise mischaracterize their progress toward decarbonization.

There have been recent efforts to address these issues. In March of 2022, the Securities and Exchange Commission (SEC) proposed rule amendments that would require companies to incorporate specific climate-related information in their statements and reports. This rule would also impose additional disclosure requirements on organizations that have made public commitments to take steps to address climate change. As part of their rationale for the proposed rule changes, the SEC noted both the need to harmonize disclosure standards and a desire to mitigate attempts by companies to engage in "green-washing" or "climate-washing".

It is in this context that we sought to understand the extent to which companies might be engaged in green- or climate-washing, and whether organizations engaged in these behaviors possessed specific attributes that could reliably predict the propensity of such behavior. To investigate this, we reviewed a partial dataset from the Carbon Disclosure Project (CDP), which is a nonprofit that manages a global carbon emissions disclosure system. As CDP data is paywalled, we were able to access this partial dataset via a study published in Nature (Klaaßen & Stoll). This dataset and its attributes are described in greater detail in our Dataset Information section.

Our primary research question was the following:

- What attributes are the strongest predictors for emissions reporting discrepancies?

Over the course of our work, our dataset inspired an additional question:

- What attributes are the strongest predictors for an organization's total energy consumption?

2 Dataset Information

2.1 Data Retrieval

For this analysis, we used data analyzed in a *Nature Communications* study that took data from 2019 CDP reports. CDP, a carbon footprint registry for companies and municipalities, conducts an in-depth questionnaire that inquires about the details of what entities do and don't include in their carbon emissions reporting. The *Nature* study compared what technology companies published in their official company reports to what companies reported in CDP questionnaires and found technology companies often under reported emissions in official company reports. The data from nature came in the form of an Excel Workbook with many panels. We converted three panels into CSVs for analysis in R:

- Company information
- Emissions predictors
- Reporting inconsistencies

Table 1: Data Information

Detail	**Description**
Data Source	Nature Communications
Retrieved from	https://www.nature.com/articles/s41467-021-26349-x
Variables Used	Company, Sales, Profits, Assets, Market value, Company report, CDP emissions, Emission reports deviation, Reporting inconsistency ratio, Total energy consumption
Data Collection Year	2019

3 Exploratory Analysis

Table 2: Top 5 Companies by Highest Reporting Inconsistency Ratio

Company	Inconsistency_ratio
Samsung SDI	0.9994994
SAP	0.9620065
Adobe	0.9005902
Salesforce.com	0.8326687
IBM	0.7553958

4 Analysis

4.1 Question 1: <insert specific question here and add additional subsections for additional questions below, if needed>

4.2 Question 2:

5 Summary and Conclusions

We did not find a statistically significant relationship between companies' reporting discrepancy ratios and variables that indicate size. As expected, we found a relationship between total energy consumption and size indicators. But surprisingly the indicator with the most confidence was value of assets.

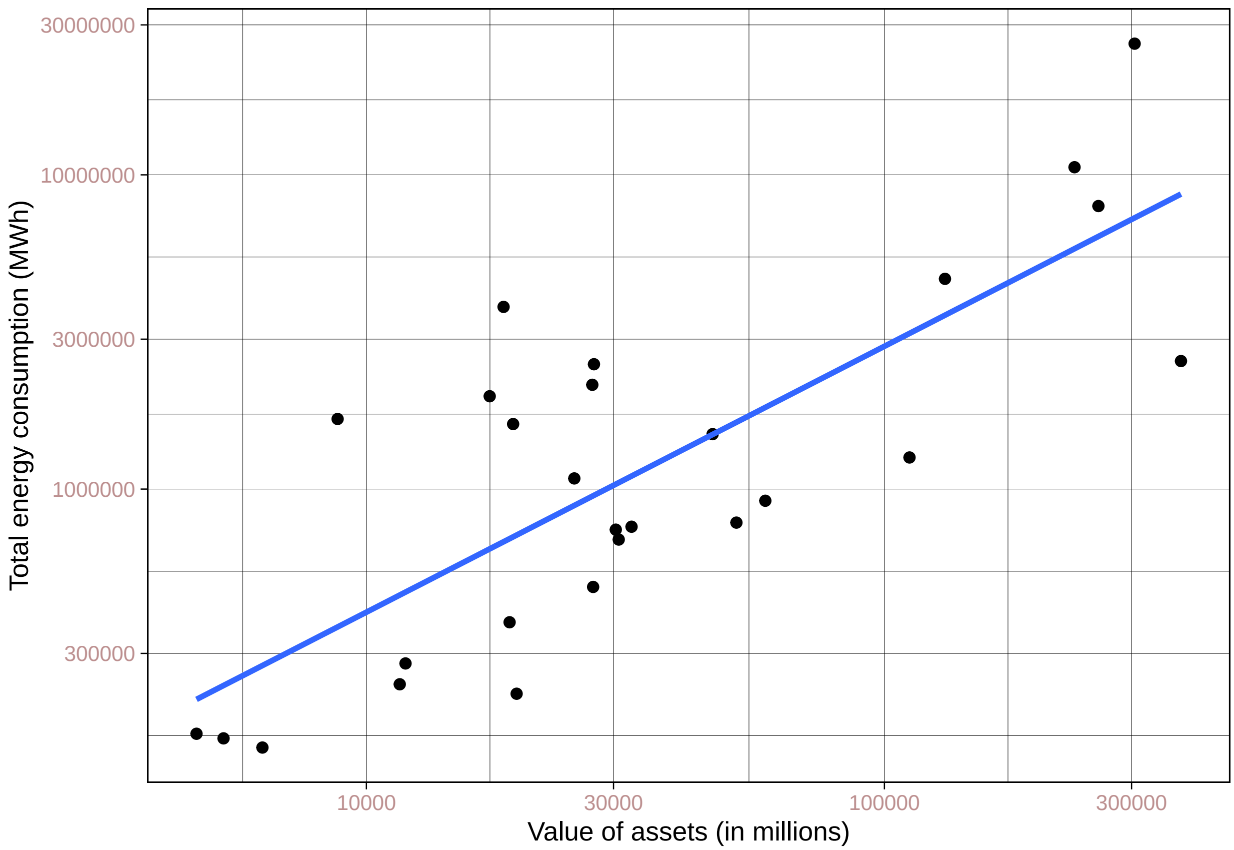

Figure 1: Relationship between asset value and total energy consumption

Our assumption that "big tech" would show more reporting discrepancies was not borne out in the data we analyzed. In future analyses on this topic, we would ideally have access to more CDP reports and more corporate reports in order to have a sample size that allows for more statistically accuracy.

6 References

Klaaßen, Lena, and Christian Stoll. "Harmonizing Corporate Carbon Footprints." Nature News, Nature Publishing Group, 22 Oct. 2021, https://www.nature.com/articles/s41467-021-26349-x.