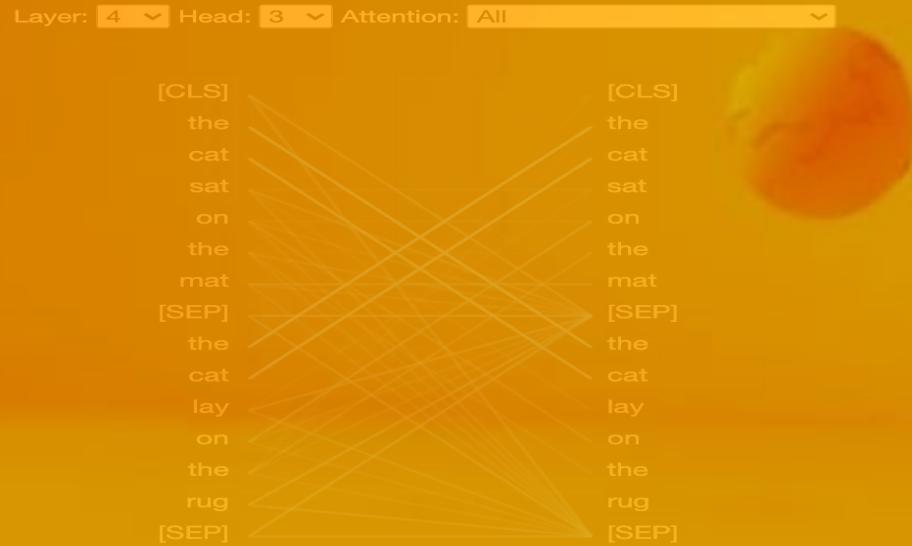


Climate Change, Greenwashing and Artificial Intelligence



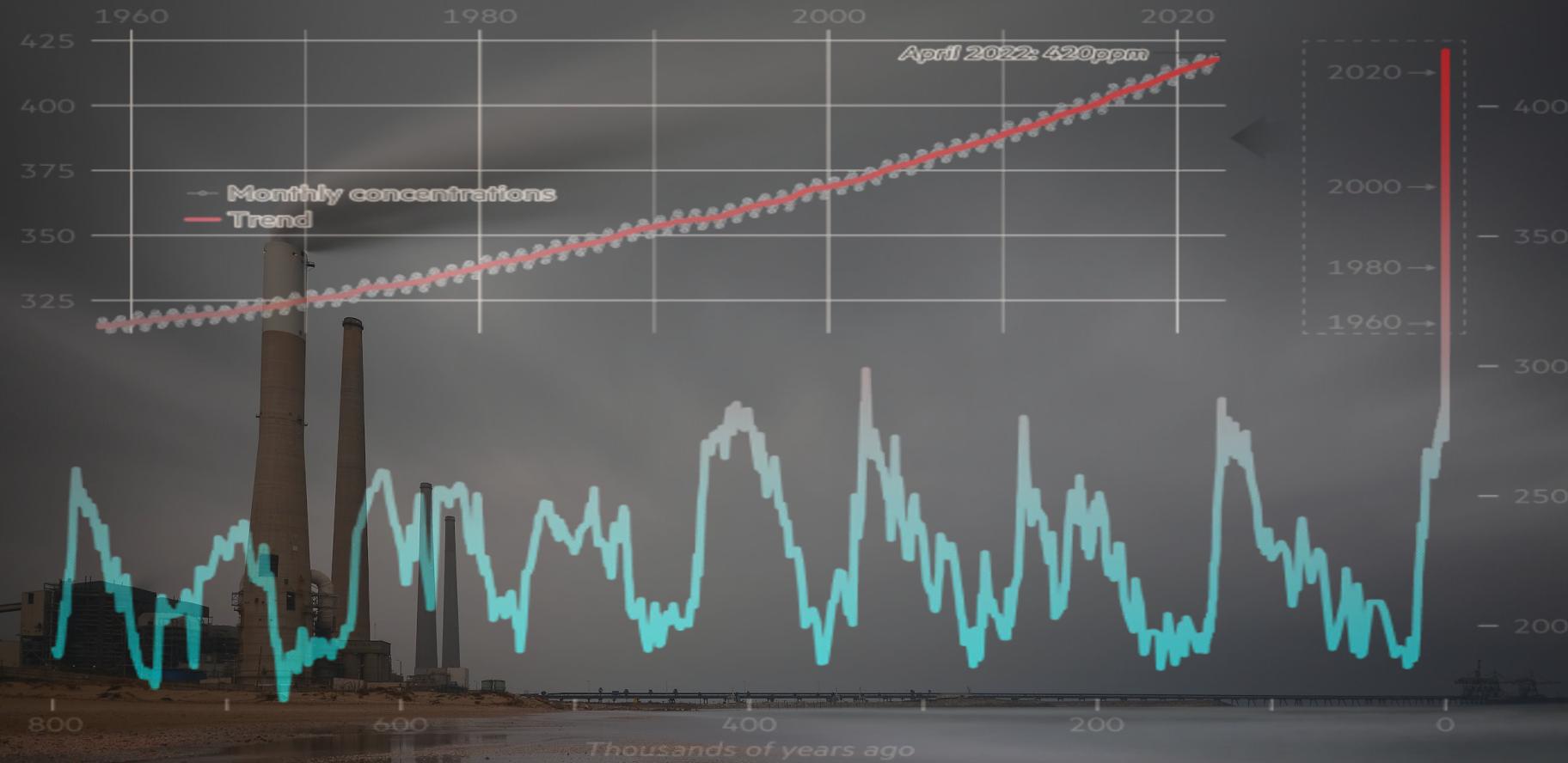
Markus Leippold

Born at :: 322.41 ppm

University of Zurich and Swiss Finance Institute

Atmospheric carbon dioxide hits new high in April 2022

CO₂ concentration (parts per million)



Ice-core data before 1958. Modern CO₂ data after 1958. Sources: C. D. Keeling, Scripps Institution of Oceanography; Noaa

© FT



“Ask BERT: How Regulatory Disclosure of Transition and Physical Risks Affects the CDS Term Structure”

Journal of Financial Econometrics, 2022.

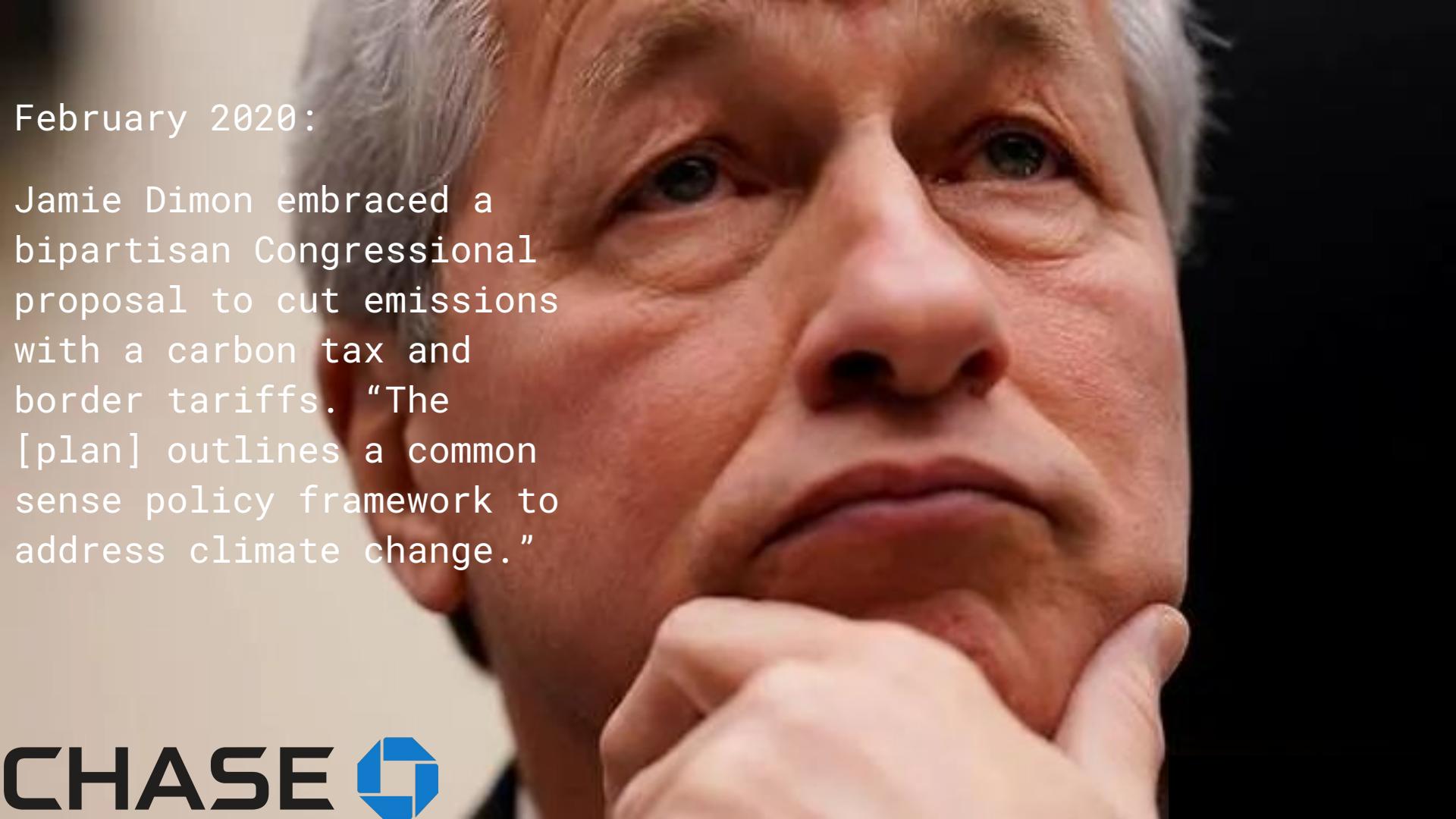




BLACKROCK®



Source: Financial Times



February 2020:

Jamie Dimon embraced a bipartisan Congressional proposal to cut emissions with a carbon tax and border tariffs. "The [plan] outlines a common sense policy framework to address climate change."



bp

February 2020:

Bernard Looney pledges net zero
carbon emissions by 2050

Who cares if Miami is six meters underwater in 100 years? Amsterdam has been six meters underwater for ages and that is a really nice place. We will cope with it!

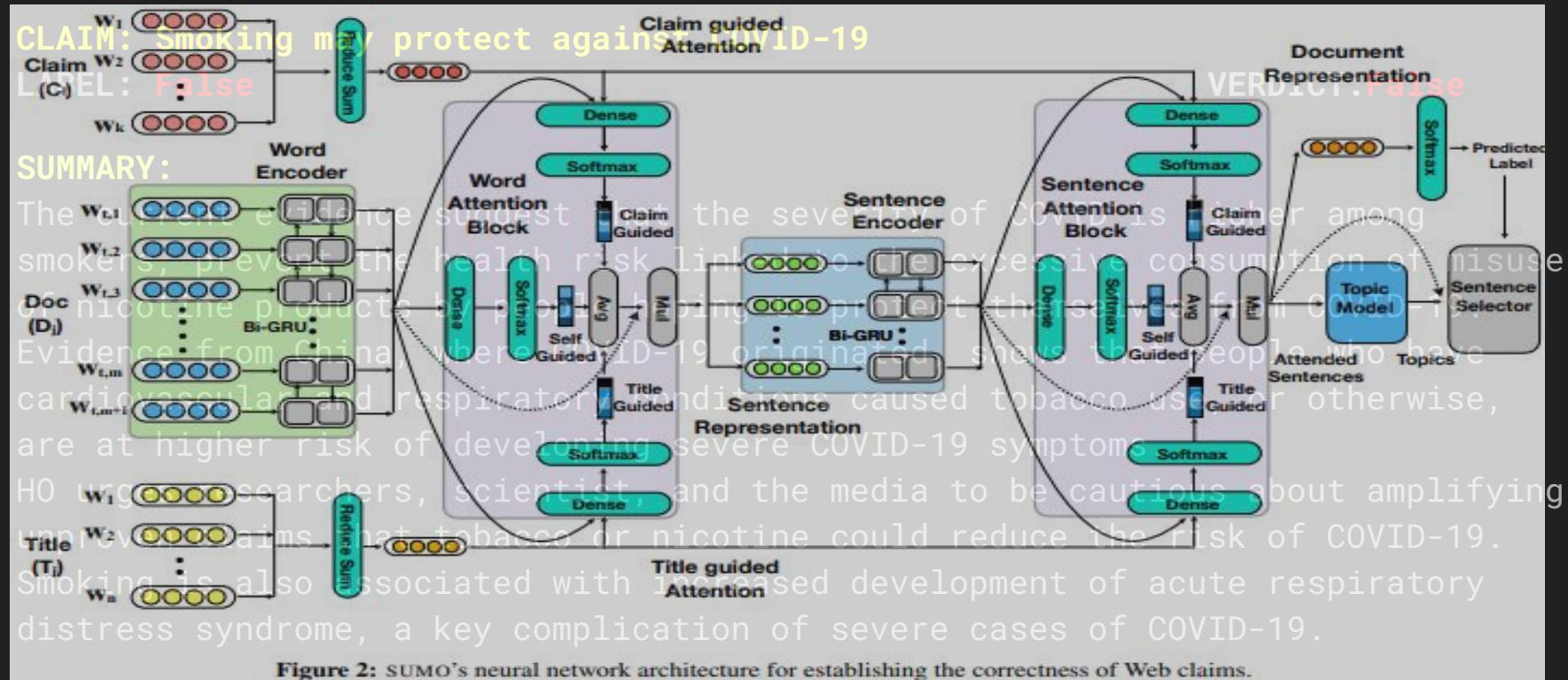
Stuart Kirk

Head of Responsible Investments



Verification and Summarization

Mishra, Rahul and Gupta, Dhruv and Leippold, Markus; Generating Fact Checking Summaries for Web Claims (October 2020). Conference on Empirical Methods in Natural Language Processing EMNLP.



«It's (not) easy being green»





Three years ago, we created ClimateBERT:

...which now allows us to ask many relevant questions.



Bingler, J. A., Kraus, M., Leippold, M., & Webersinke, N. (2022). **Cheap talk and cherry-picking: What climateBert has to say on corporate climate risk disclosures**. Finance Research Letters, 102776



Bingler, J. A., Kraus, M., Leippold, M., & Webersinke, N. (2022). **Cheap Talk in Corporate Climate Commitments: The Effectiveness of Climate Initiatives**. Available at SSRN 3998435. GRASFI 2022 Best Paper Prize.



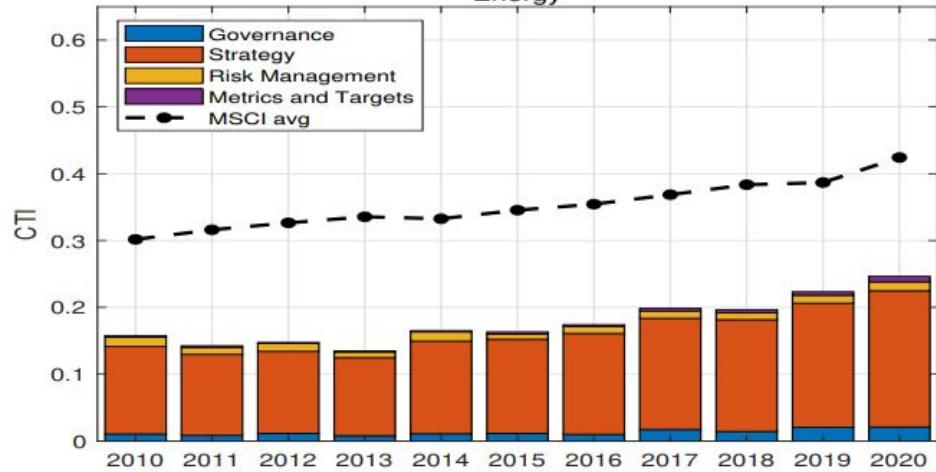
Stammbach, D., N. Webersinke, J. A. Bingler, M. Kraus, and M. Leippold. **"A Dataset for Detecting Real-World Environmental Claims."** arXiv preprint arXiv:2209.00507 (2022).



Vaghefi, S., Muccione, V., Huggel, C., Khashehchi, H., and Leippold, M. (2022). **Deep Climate Change: A Dataset and Adaptive Domain Pre-trained Language Models for Climate Change Related Tasks** (Submitted)

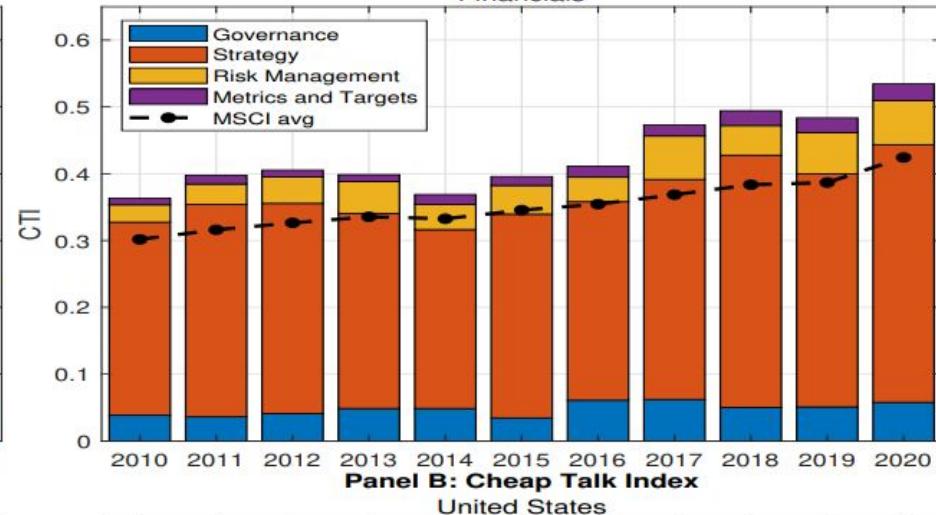
Panel A: Cheap Talk Index

Energy



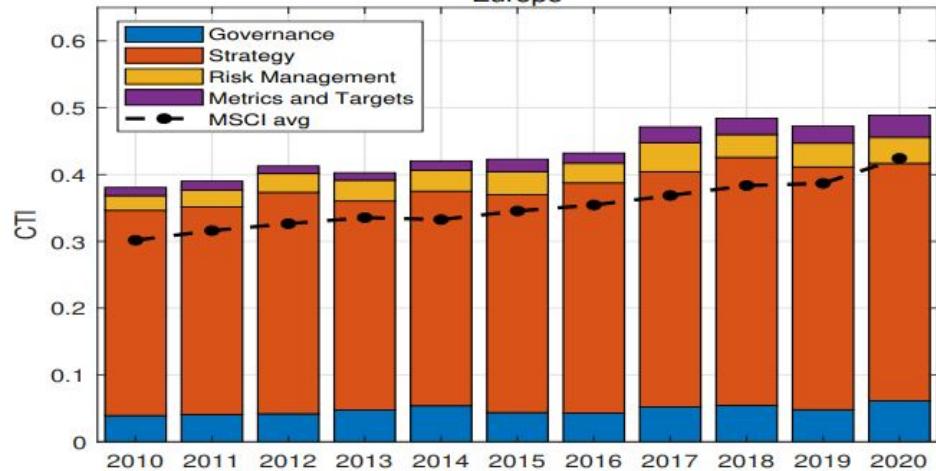
Panel B: Cheap Talk Index

Financials



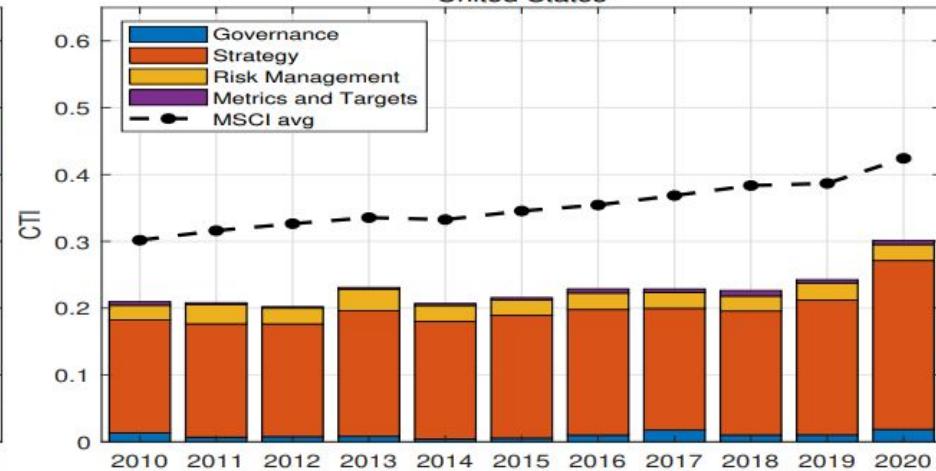
Panel A: Cheap Talk Index

Europe



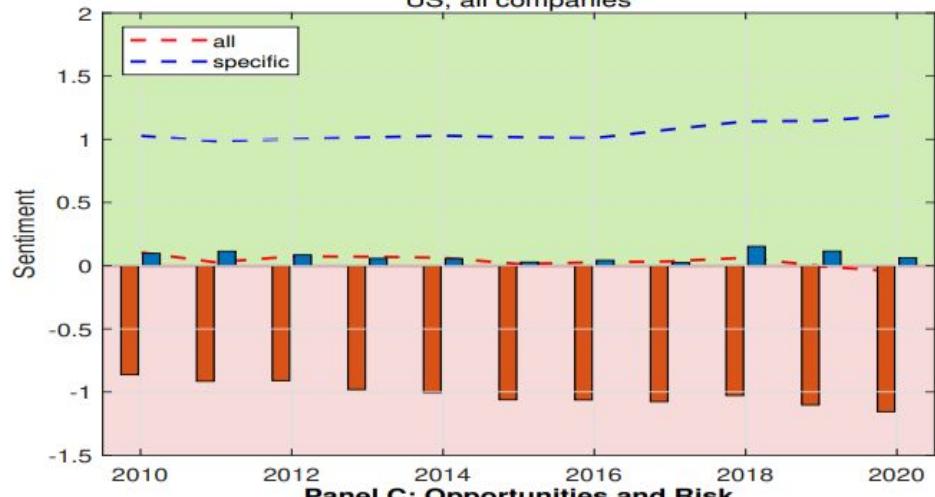
Panel B: Cheap Talk Index

United States

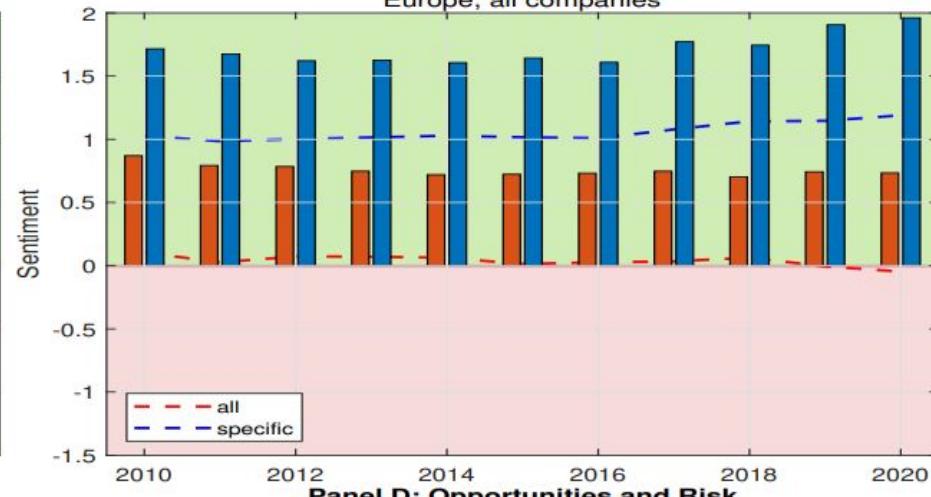


Panel A: Opportunities and Risk

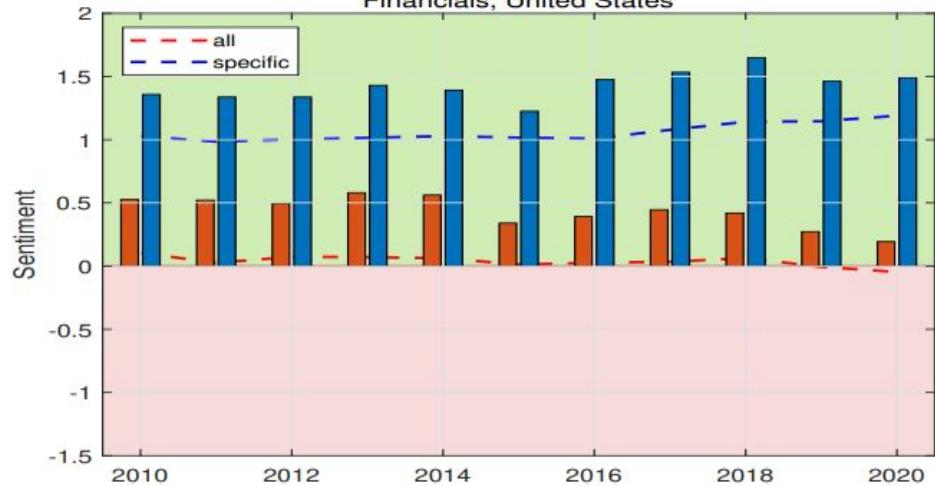
US, all companies

**Panel B: Opportunities and Risk**

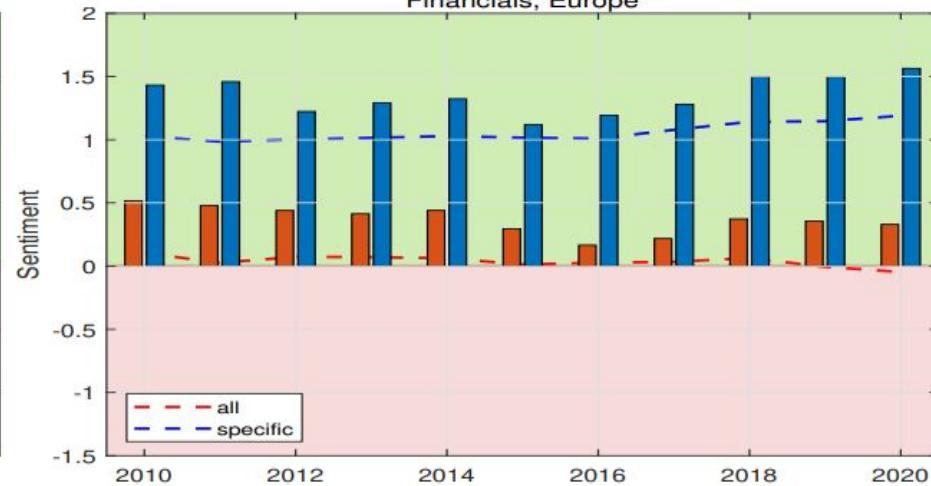
Europe, all companies

**Panel C: Opportunities and Risk**

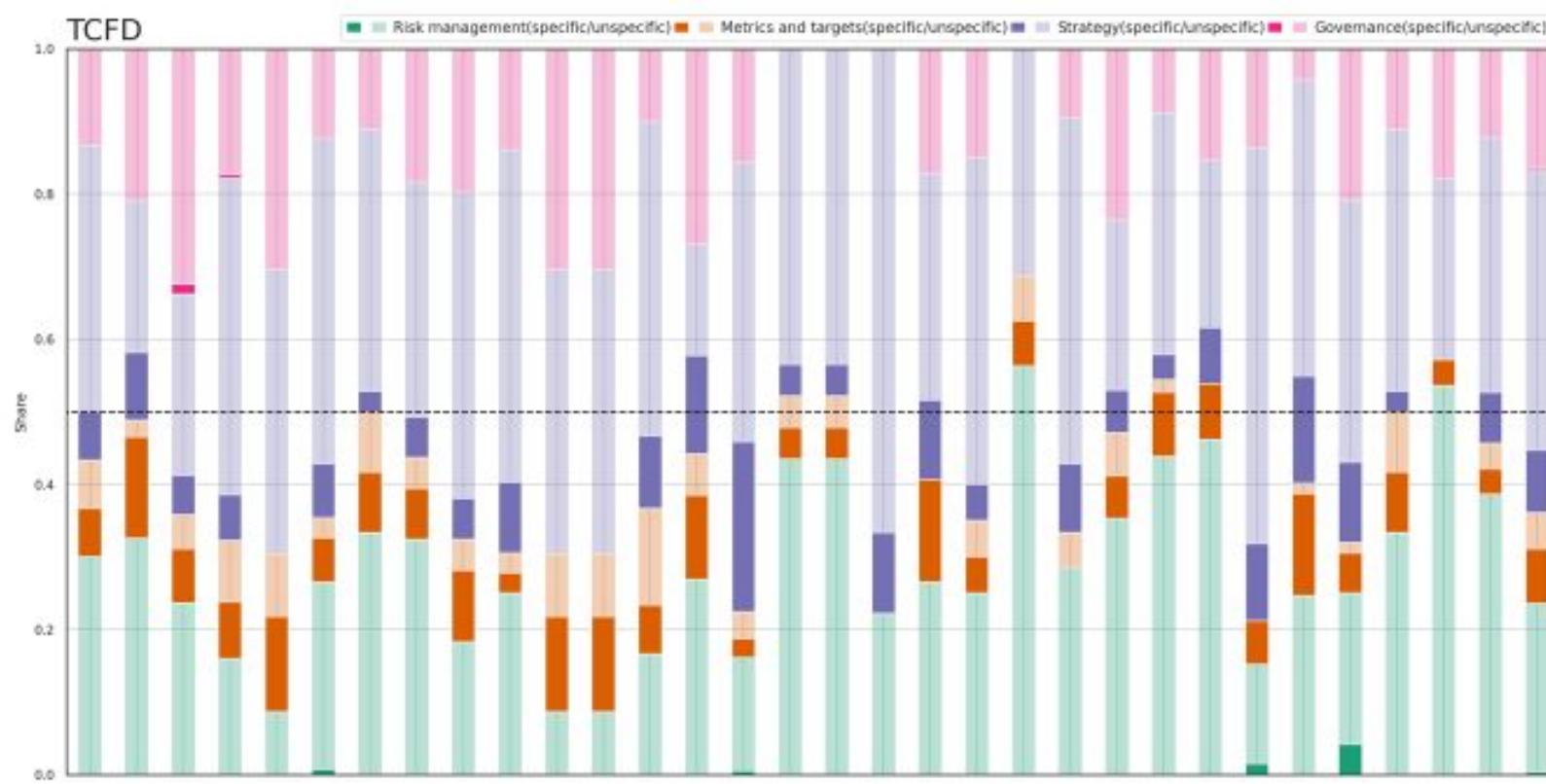
Financials, United States

**Panel D: Opportunities and Risk**

Financials, Europe



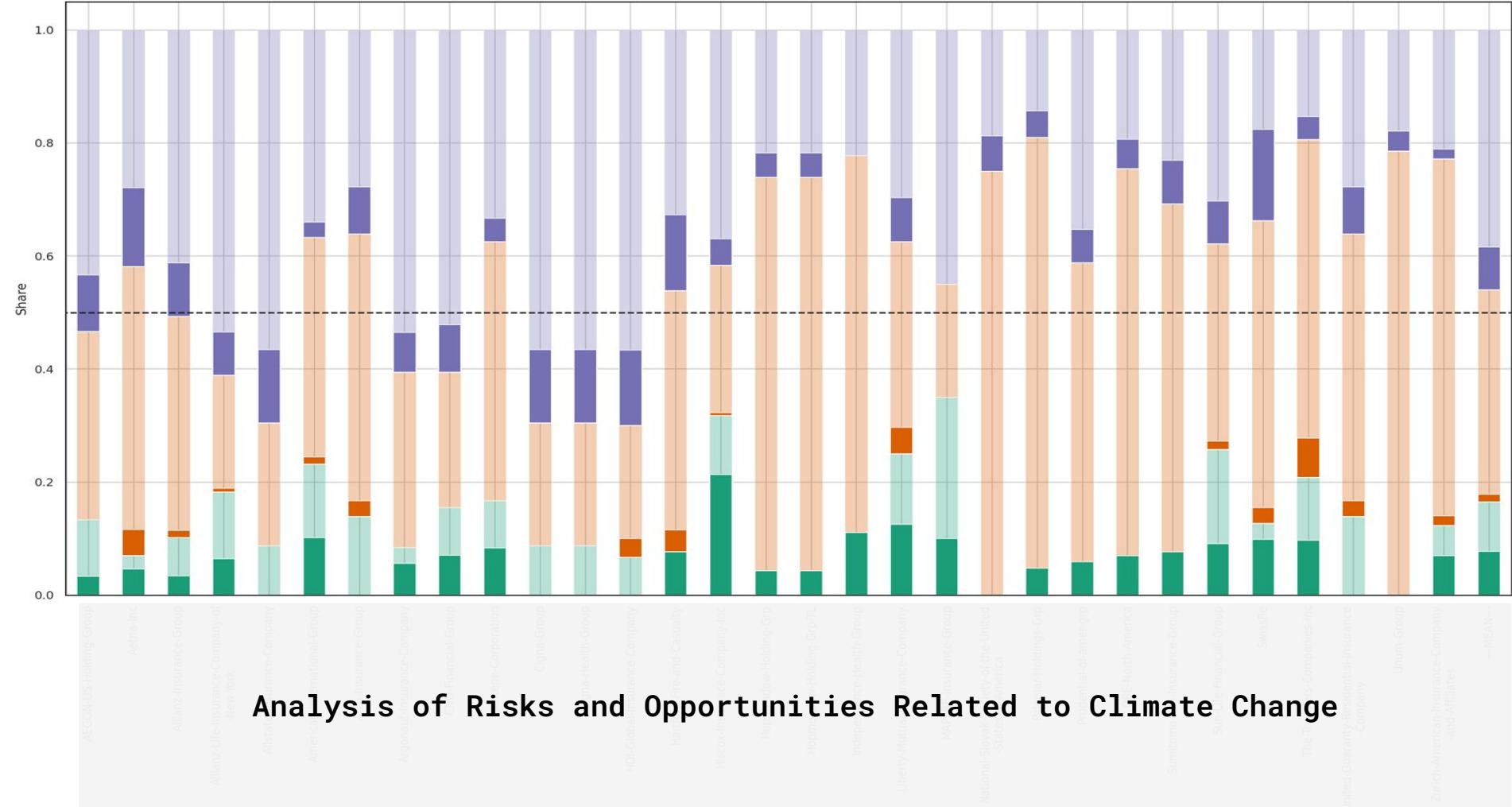
	Main	Main with controls	Main lagged	Mandatory
<i>ClimAct100</i>	-0.0641***	-0.0271**		-0.0380***
<i>SBT</i>	-0.0014	-0.0101		0.0023
<i>TCFD</i>	0.0336**	0.0371**		0.0745***
<i>Age</i>		-0.0002*	-0.0002*	0.0001
<i>EDS</i>		0.1293***	0.1317***	0.2187***
<i>GHG</i>		-0.0170***	-0.0168***	-0.0174***
<i>IOwn</i>		0.0493**	0.0499**	-0.1386***
<i>Material</i>		-0.0050	-0.0051	-0.0132
<i>OppRisk</i>		-0.0164***	-0.0164***	0.0143***
<i>ClimAct100_{lag1}</i>			-0.0300***	
<i>SBT_{lag1}</i>			-0.0186*	
<i>TCFD_{lag1}</i>			0.0234**	
<i>Mandatory</i>				0.0001
<i>ClimatePolicyGrade</i>				-0.0009
Country FE	Yes	Yes	Yes	No
Sector × Year FE	Yes	Yes	Yes	Yes
No. Observations	12915	9849	9849	9407
R-squared	0.2572	0.3006	0.3000	0.2197



Analysis Across Different TCFD Categories

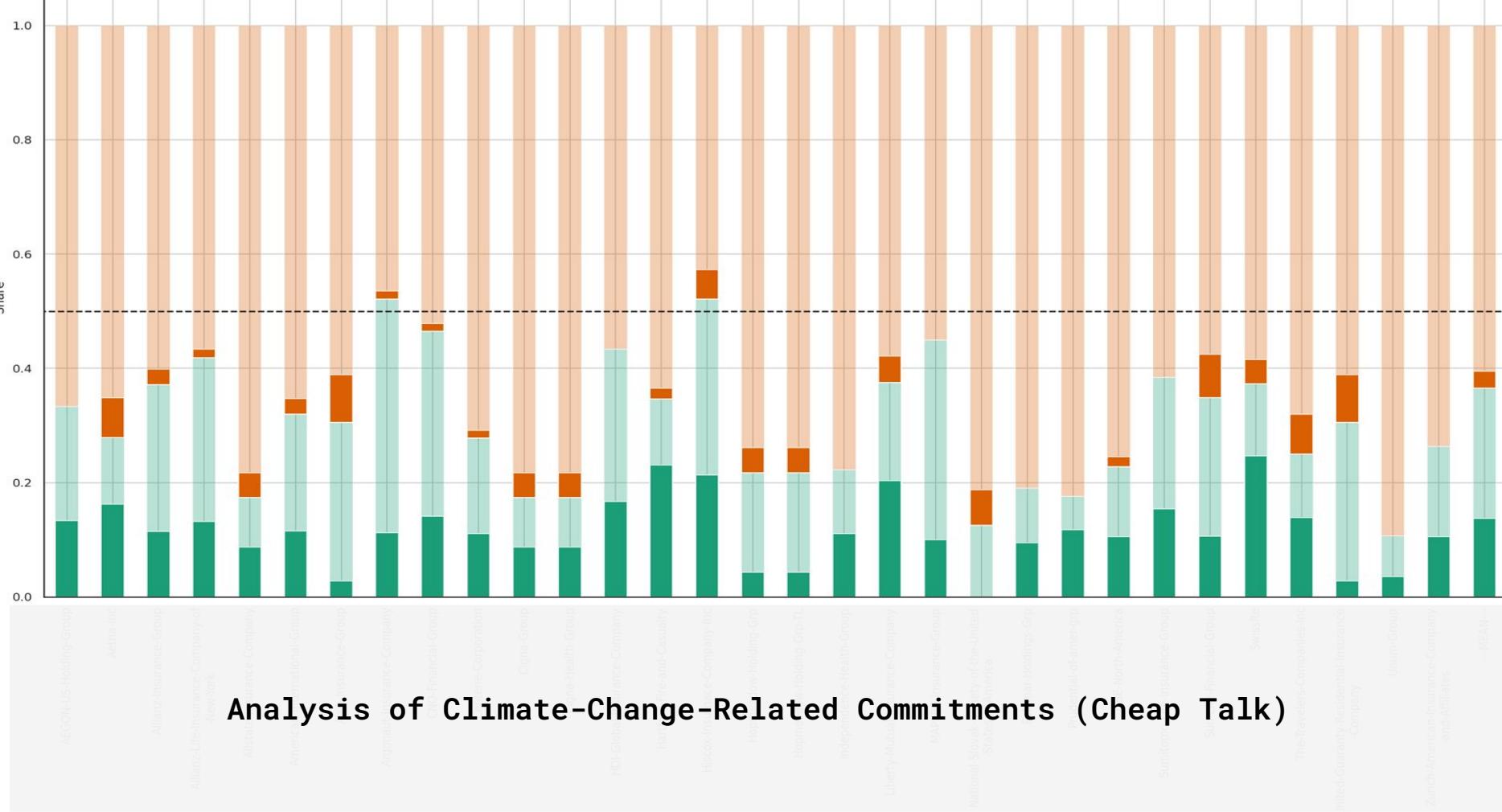
Sentiment

Opportunity(specific/unspecific) Risk(specific/unspecific) Neutral(specific/unspecific)



Committing Statement

■ Committing(specific/unspecific) ■ Non-committed(specific/unspecific)



Analysis of Climate-Change-Related Commitments (Cheap Talk)

Thus spoke GPT-3

Leippold, M. (2022). Thus spoke GPT-3: Interviewing a Large-Language Model on Climate Finance.

>> Is greenwashing a problem for the financial industry? Give your answer very detailed and elaborated!

Yes, greenwashing is definitely a problem for the financial industry. For one thing, it can be difficult for consumers to tell whether a financial product or service is truly green or not. This is because there is no one standardized definition of what "green" means, and so companies can make all sorts of claims about their products being green without necessarily having to back them up.

This can lead to people making investment decisions based on false or misleading information, which can ultimately have negative financial consequences. In addition, greenwashing can also make it harder for genuinely sustainable and responsible companies to stand out from the crowd. This is because if consumers see that all companies are making green claims, they may become skeptical of all of them and less likely to invest in any of them. This can ultimately lead to less money flowing into truly sustainable businesses, which can hamper their growth and development.

So overall, greenwashing is definitely a problem for the financial industry, both for consumers and for sustainable businesses. It's important for companies to be transparent about their environmental claims, and for consumers to be aware of the potential for greenwashing when making investment decisions.

Thus spoke GPT-3

Leippold, M. (2022). Thus spoke GPT-3: Interviewing a Large-Language Model on Climate Finance.

>> Do you know ClimateBERT?

ClimateBERT is a machine learning model that has been specifically designed to identify climate-related information in text. It can be used to automatically extract climate-related information from articles, reports, and other documents.

This can be useful for a variety of purposes, such as monitoring climate change-related news or identifying potential investment opportunities in the green economy.

ENDE

