

# Finance and the Fight Against Climate Change

Evidence and Future Research

Workshop JFSR Special Issue on  
*“Social, Sustainable, and Innovative  
Financial Services”*

Zacharias Sautner

June 12, 2024



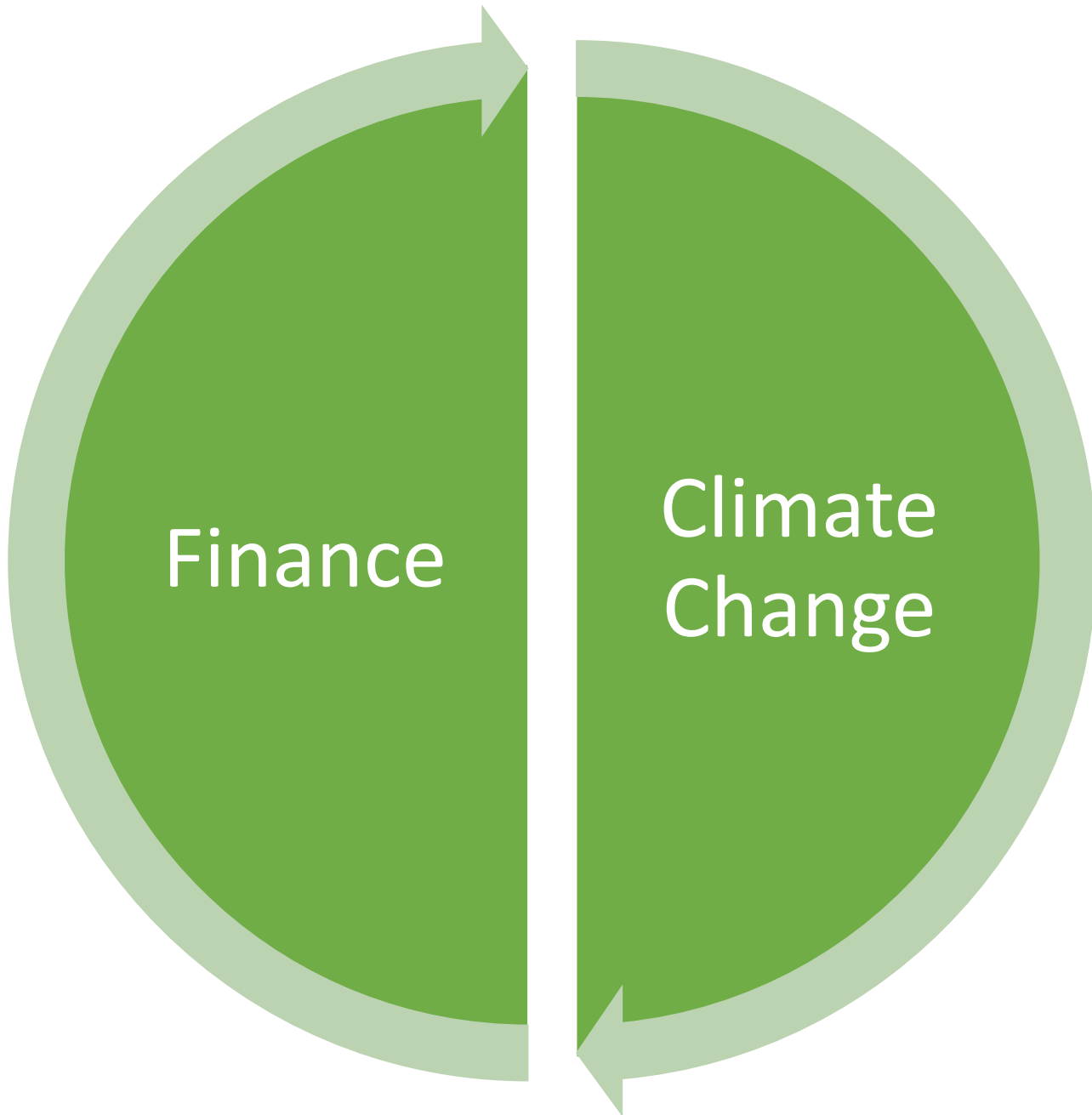
# This Talk

- Mostly an overview talk
- Mostly informed by research findings, complemented with some speculation  
(where clear evidence is not out yet)
- Heavily biased by my own work



**Capital(ism) is Part of the Problem**

**But also Part of the Solution**



Climate change *will* have a major impact on finance

Finance *can (will?)* have a major impact on climate change!

# Agenda

- 1. The Sky and the Landscape**
2. The Good, the Bad, and the Ugly



The Sky.

# Global greenhouse gas emissions and warming scenarios



- Each pathway comes with uncertainty, marked by the shading from low to high emissions under each scenario.
- Warming refers to the expected global temperature rise by 2100, relative to pre-industrial temperatures.

Annual global greenhouse gas emissions  
in gigatonnes of carbon dioxide-equivalents

150 Gt

100 Gt

50 Gt

Greenhouse gas emissions  
up to the present

0

1990 2000 2010 2020 2030 2040 2050 2060 2070 2080 2090 2100

**No climate policies**  
4.1 – 4.8 °C

→ expected emissions in a baseline scenario if countries had not implemented climate reduction policies.

**Current policies**  
2.5 – 2.9 °C

→ emissions with current climate policies in place result in warming of 2.5 to 2.9°C by 2100.

**Pledges & targets (2.1 °C)**

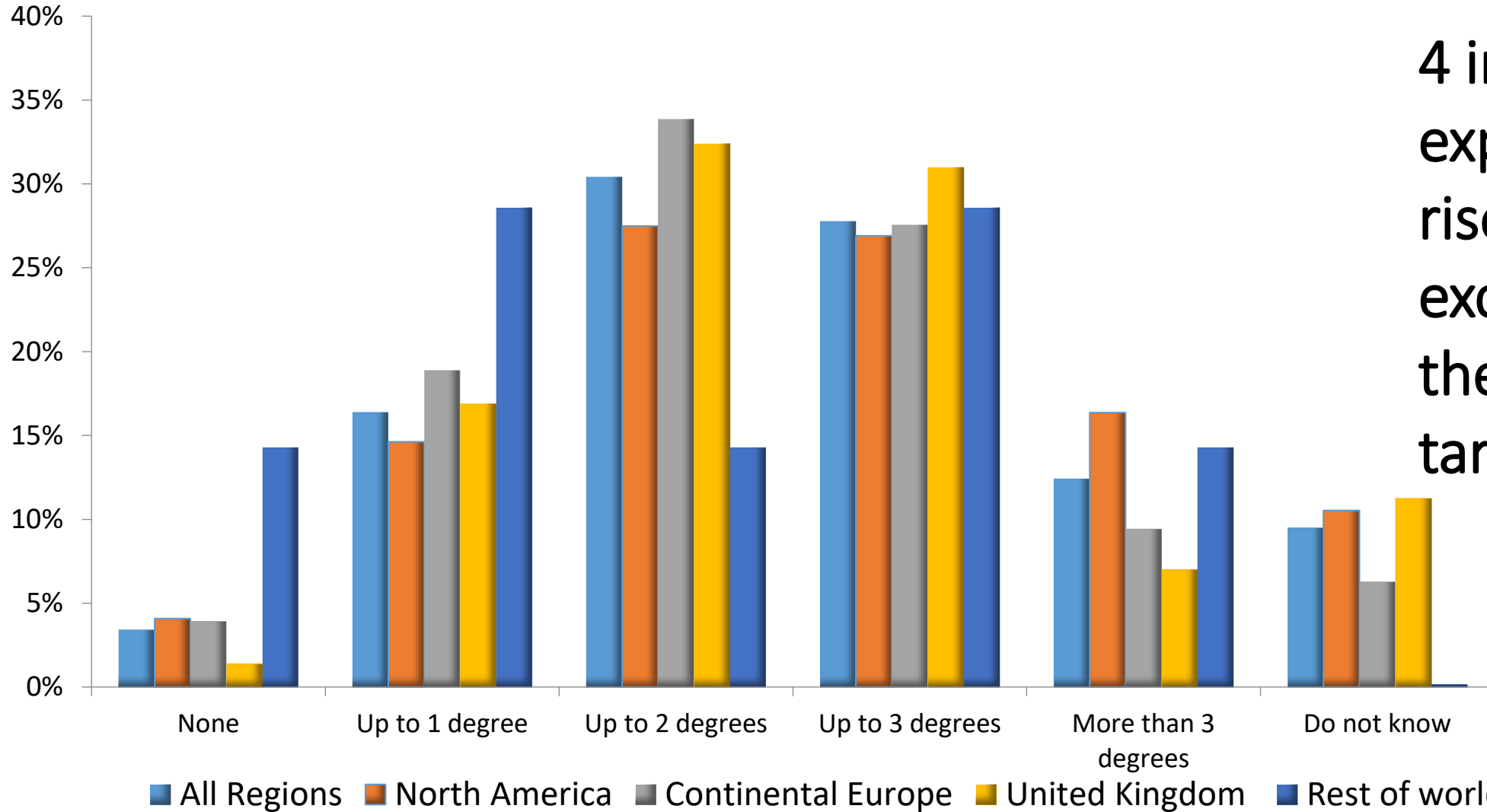
→ emissions if all countries delivered on reduction pledges result in warming of 2.1°C by 2100.

**2°C pathways**  
**1.5°C pathways**

Potentially huge  
**REGULATORY  
(TRANSITION)  
&  
PHYSICAL  
RISKS**  
ahead



# Temperature Expectations of Institutional Investors



4 in 10  
expect a  
rise that  
exceeds  
the Paris  
target



# The Landscape.

# Paris Agreement

## Article 2

1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:

(a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;

(b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and

(c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.



**Table 8**

Carbon emissions and stock returns. The sample period is 2005-2017. The dependent variable is *RET*. All variables are defined in Table 1. We report the results of the pooled regression with standard errors clustered at the firm and year level. All regressions include year-month fixed effects. In columns (4) through (6), we additionally include industry-fixed effects. Panel A reports the results for the natural logarithm of total firm-level emissions; Panel B reports the results for the percentage change in carbon total emissions; Panel C reports the results for carbon emission intensity. \*\*\*1% significance; \*\*5% significance; \*10% significance.

Panel A: Total emissions						
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
LOG (SCOPE 1 TOT)	0.043** (0.023)			0.164*** (0.036)		
LOG (SCOPE 2 TOT)		0.098** (0.042)			0.167*** (0.048)	
LOG (SCOPE 3 TOT)			0.135** (0.046)			0.312*** (0.071)
LOGSIZE	-0.140 (0.163)	-0.184 (0.167)	-0.193 (0.165)	-0.302* (0.148)	-0.327* (0.154)	-0.410** (0.163)
B/M	0.460 (0.260)	0.469 (0.266)	0.444 (0.258)	0.656** (0.234)	0.642** (0.229)	0.562** (0.224)
....						
Year/month F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Industry F.E.	No	No	No	Yes	Yes	Yes
Observations	184,288	184,216	184,384	184,288	184,216	184,384
R-squared	0.203	0.204	0.204	0.206	0.206	0.206

1 STD  
increase in  
*SCOPE 1*  
-> 13-bps  
increase in  
returns,  
1.5%  
annualized

A. Firm-level regressions

Dependent variable:	<i>SlopeD</i> (1)	<i>MFIS</i> (2)	<i>VRP</i> (3)
<i>log(Scope 1/MV industry)</i>	0.006*** (3.85)	-0.002 (-0.70)	0.001*** (3.79)
<i>log(Assets)</i>	-0.029*** (-9.22)	-0.045*** (-8.04)	-0.005*** (-7.10)
<i>Dividends/net income</i>	0.009 (1.54)	-0.014 (-1.26)	-0.000 (-0.00)
<i>Debt/assets</i>	0.038** (2.28)	0.062** (2.00)	0.003 (0.71)
<i>EBIT/assets</i>	-0.187*** (-4.59)	-0.078 (-1.02)	-0.018 (-1.60)
<i>CapEx/assets</i>	-0.374*** (-5.13)	0.216* (1.75)	-0.060** (-2.35)
<i>Book-to-market</i>	0.077*** (8.10)	0.122*** (5.21)	0.016*** (4.30)
<i>Returns</i>	-0.018** (-2.13)	-0.054*** (-2.95)	-0.010* (-1.93)
<i>Institutional ownership</i>	-0.045* (-1.75)	-0.085 (-1.59)	-0.008 (-1.20)
<i>CAPM beta</i>	0.010 (1.42)	-0.033*** (-3.18)	-0.001 (-0.44)
<i>Volatility</i>	-0.687*** (-6.48)	1.926*** (8.27)	
<i>Oil beta</i>	-0.008 (-0.50)	-0.003 (-0.10)	-0.020*** (-2.73)
<i>Time trend</i>	-0.000 (-0.29)	0.033*** (9.93)	-0.001* (-1.67)
Model	Heckman	Heckman	Heckman
Year-by-quarter fixed effects	Yes	Yes	Yes
Level	Firm	Firm	Firm
Frequency	Monthly	Monthly	Monthly
Obs.	18,664	18,664	18,664
Adj. $R^2$	n/a	n/a	n/a

1 STD increase in a firm's log industry carbon intensity (2.28)

-> increases *SlopeD* by 0.014 or 10% of its SD

# Investor Coalitions

- ICCR
- PRI
- CDP
- TCFD
- IIGCC
- Investor Network on Climate Risks
- Climate Action 100+
- Ceres
- Global Investor Coalition on Climate Change
- Investor Group on Climate Change



# Climate Action 100+



- Investor-led initiative
- Focus on the world's largest carbon emitters
  - 170 firms in 2024, responsible for about 80% of industrial emissions
- Supported by 500+ investors, USD 50+ trillion in assets, including Blackrock and StateStreet
- Investors commit to engagement with companies, in seeking to ensure they:
  - Reduce emissions in line with the Paris Agreement;
  - Implement a strong governance framework -> board accountability, oversight of climate risks
  - Disclosure in line with TCFD)

# Agenda

1. The Sky and the Landscape
2. The Good, the Bad, and the Ugly

50<sup>th</sup> ANNIVERSARY EDITION

**CLINT EASTWOOD**



**THE GOOD THE BAD and THE UGLY**

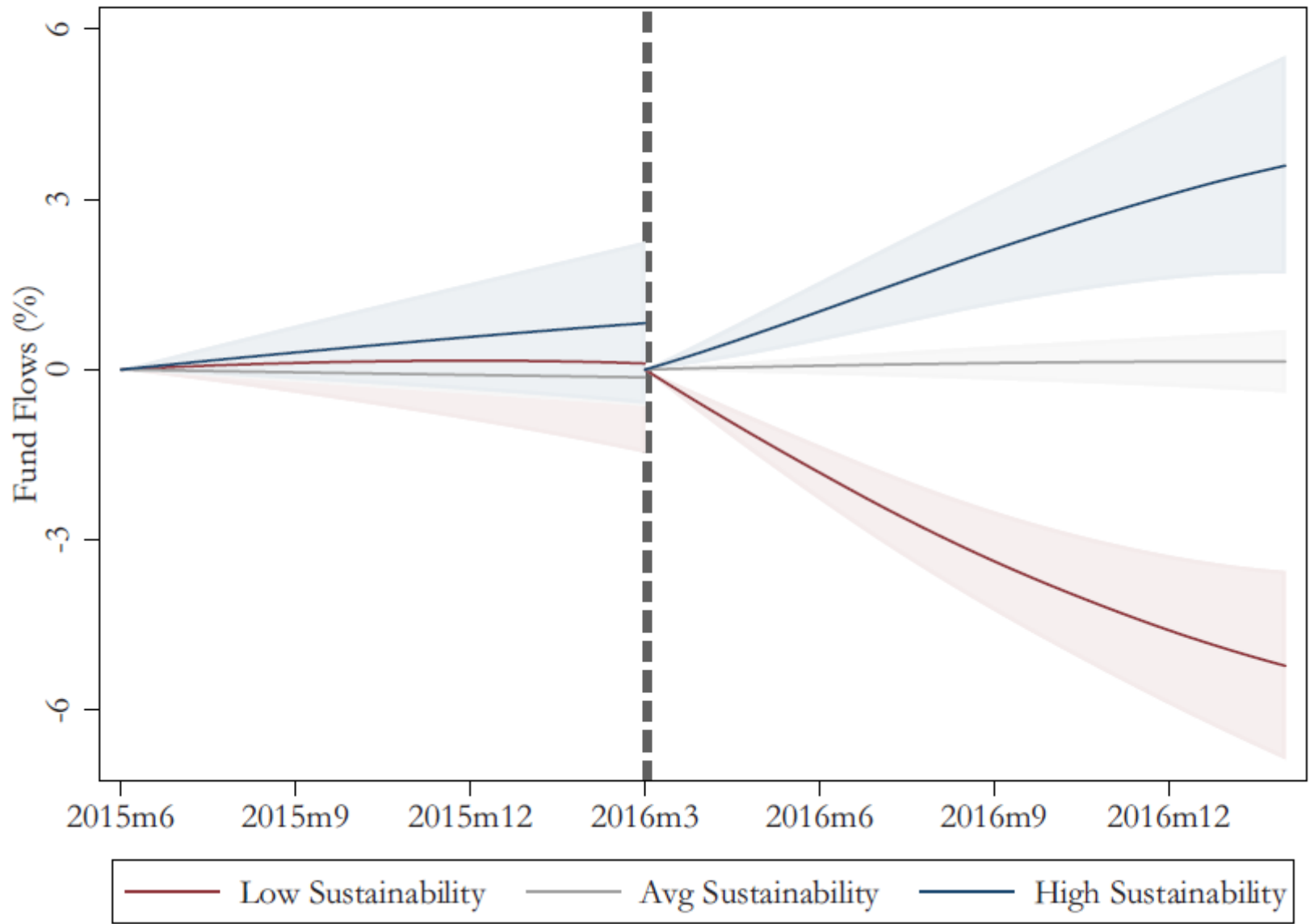
co-starring  
**LEE VAN CLEEF**

also starring  
**ELI WALLACH**  
in the role of TUCO

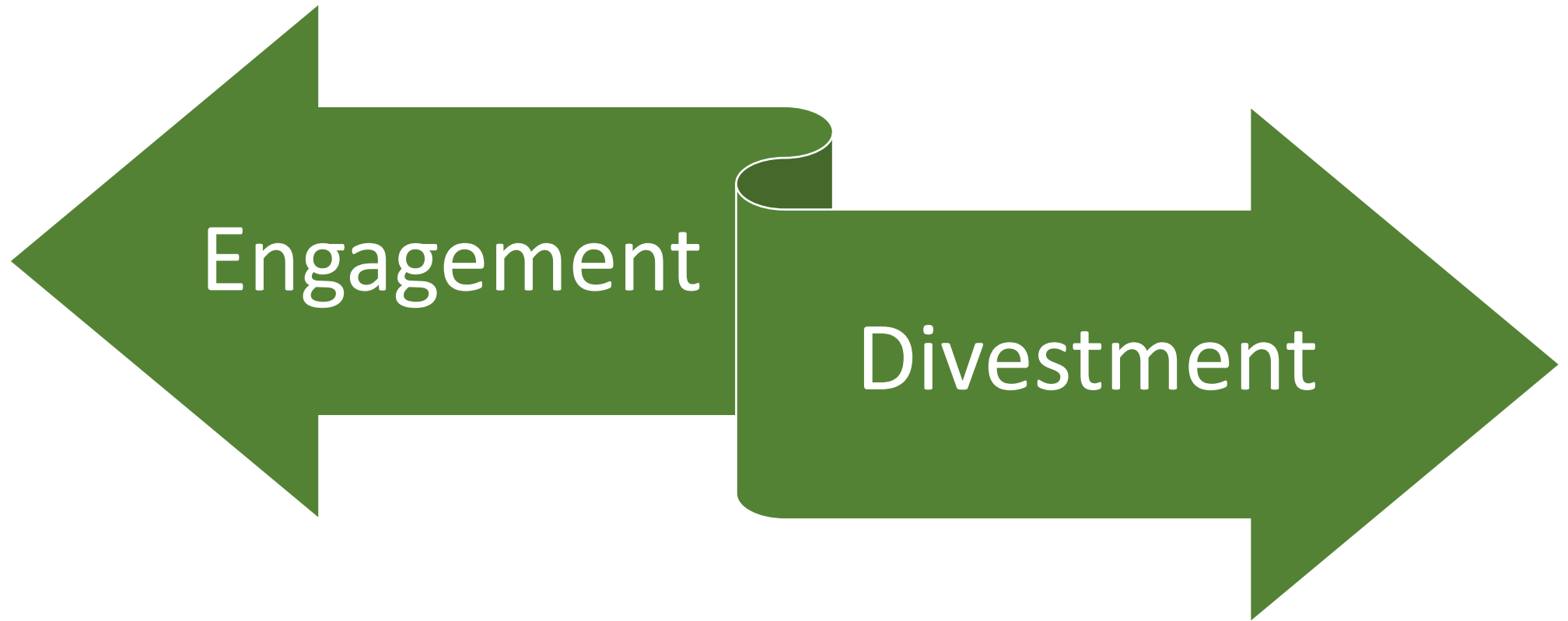
directed by  
**SERGIO LEONE**



The Good.



# How to Fight Climate Change?



# Engagement can work

- Improves disclosure
- Reduces ESG / climate risk
- Reduces emissions
  
- ... and more evidence exists

# Climate Risk Disclosure: Climate-Conscious IO

1 STD increase  
in *Stewardship  
code IO*  
-> 3pp  
increase in the  
propensity to  
disclose  
emissions  
(12% of mean)

	<i>Scope 1 disclosure</i>			<i>Climate risk disclosure</i>			<i>Log(Climate disclosure score)</i>		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Stewardship code IO</i>	0.17** (0.08)			0.64** (0.28)			1.17** (0.51)		
<i>High-norms IO</i>		0.30** (0.13)			0.63** (0.29)			1.00** (0.45)	
<i>Universal owner IO</i>			0.41*** (0.08)			0.67*** (0.20)			1.28*** (0.26)
<i>Non-stewardship code IO</i>	0.04 (0.08)			-0.21 (0.30)			-0.38 (0.44)		
<i>Low-norms IO</i>		0.01 (0.11)			-0.10 (0.35)			-0.18 (0.51)	
<i>Non-universal owner IO</i>			-0.15 (0.10)			-0.27 (0.31)			-0.62 (0.50)
Sample Years	All Firms 2010-2019			All Firms 2011-2016			All Firms 2010-2015		
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry x Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	35350	35350	31059	21312	21312	20716	21168	21168	20584
Adj. R-sq.	0.291	0.291	0.290	0.252	0.251	0.249	0.304	0.303	0.301

# Climate Risk Disclosure: French Article 173

	<i>Scope 1 disclosure</i>				<i>Climate risk disclosure</i>
	(1)	(2)	(3)	(4)	(5)
<i>Post Article 173 x High French IO</i>	0.020** (0.009)	0.021** (0.010)	0.032** (0.014)		0.078** (0.037)
<i>Post Article 173 x French IO</i>				1.379** (0.540)	
<i>High French IO</i>	0.059*** (0.012)	0.059*** (0.012)	-0.007 (0.012)		0.074 (0.052)
<i>French IO</i>				0.621 (0.445)	
			All Firms, Balanced Panel 2013-2017	All Firms with French IO >3% 2013-2017	All Firms 2013-2016
Sample Years	All Firms 2013-2017	All Non-French Firms 2013-2017			
Controls	Yes	Yes	No	Yes	Yes
Industry x Year Fixed Effects	Yes	Yes	No	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	No	No	Yes	No	No
Firm Fixed Effects	No	No	Yes	No	No
N	17878	16835	13126	1113	14294
Adj. R-sq.	0.302	0.295	0.784	0.485	0.257

# ESG Engagement and Downside Risk

Dependent variable:	VaR				LPM			
	All	M2 and above	M3 and above	Below M2	All	M2 and above	M3 and above	Below M2
Engagement success:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Target x Post</i>	-0.090 (-1.22)	-0.241** (-2.07)	-0.793** (-2.58)	-0.002 (-0.02)	-0.051 (-1.51)	-0.113** (-2.02)	-0.433** (-2.61)	-0.016 (-0.44)
<i>Target</i>	0.491*** (5.43)	0.628*** (4.51)	1.341*** (3.17)	0.436*** (4.11)	0.249*** (5.61)	0.297*** (4.37)	0.670*** (3.17)	0.237*** (4.45)
<i>Post</i>	0.196*** (3.04)	0.270*** (2.78)	-0.186 (-0.81)	0.170** (2.13)	0.108*** (3.53)	0.148*** (3.06)	-0.014 (-0.10)	0.088** (2.48)
Model	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry x Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	26,082	10,263	1,852	15,819	26,082	10,263	1,852	15,819
Adj. R-sq.	0.291	0.362	0.405	0.266	0.324	0.381	0.408	0.309

Results mostly originate from engagement over climate topics

# Climate Engagement Topics

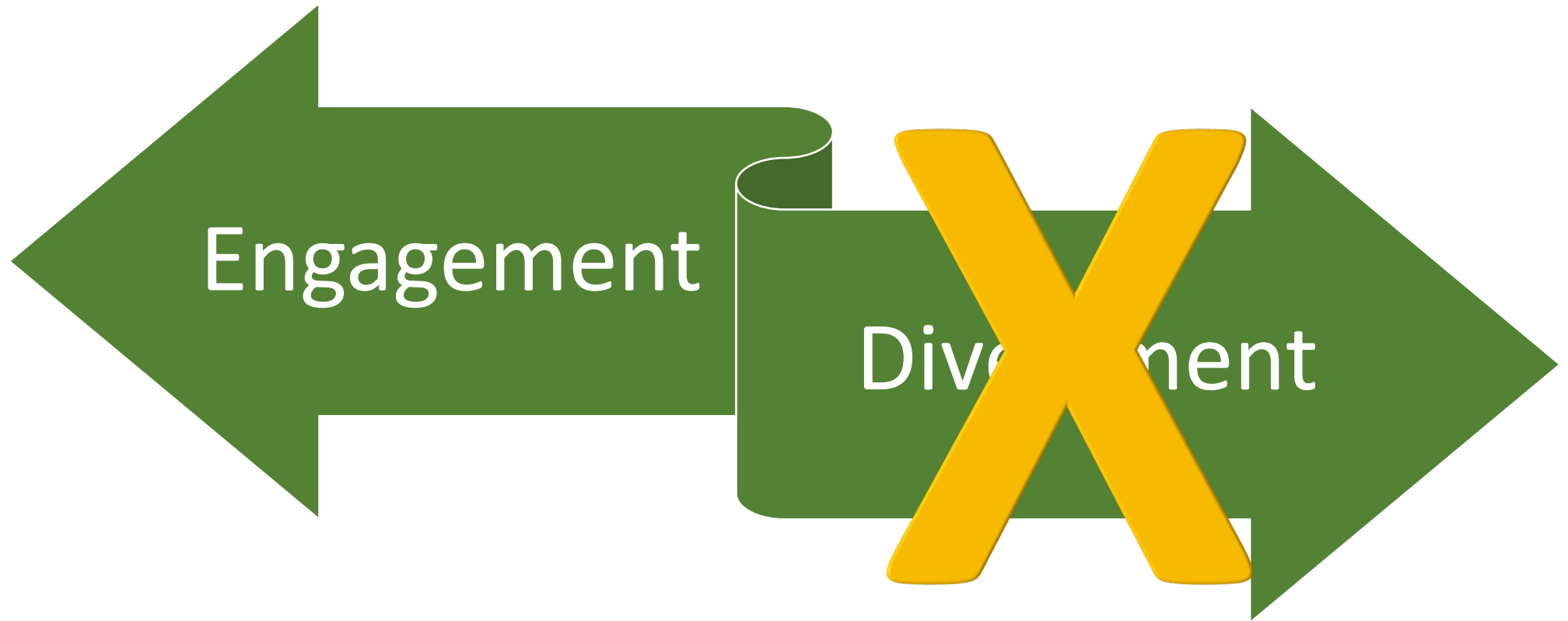
Climate Change Subtopics	#	%
Carbon strategy & risk management	51	28
Carbon disclosure/reporting	48	27
Carbon intensity reduction	45	25
Stranded assets	10	6
Others (methane, gas flaring)	25	14
Total	179	100



# Effect of Engagement on Incidents

Dependent variable: Downside risk measure: $\Delta$ Downside Risk <sub>Pre vs Post</sub> :	# E incidents				
		VaR		LPM	
	All	Large	Small	Large	Small
	(1)	(2)	(3)	(4)	(5)
<i>Post</i>	-0.223* (-1.87)	-0.329*** (-2.77)	0.134 (0.88)	-0.308*** (-2.59)	-0.029 (-0.21)
Model	Poisson	Poisson	Poisson	Poisson	Poisson
Controls	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Industry x Year fixed effects	Yes	Yes	Yes	Yes	Yes
Obs.	4,439	2,222	2,217	2,272	2,167
Ps. R-sq.	0.312	0.432	0.279	0.410	0.315

# How to Fight Climate Change?

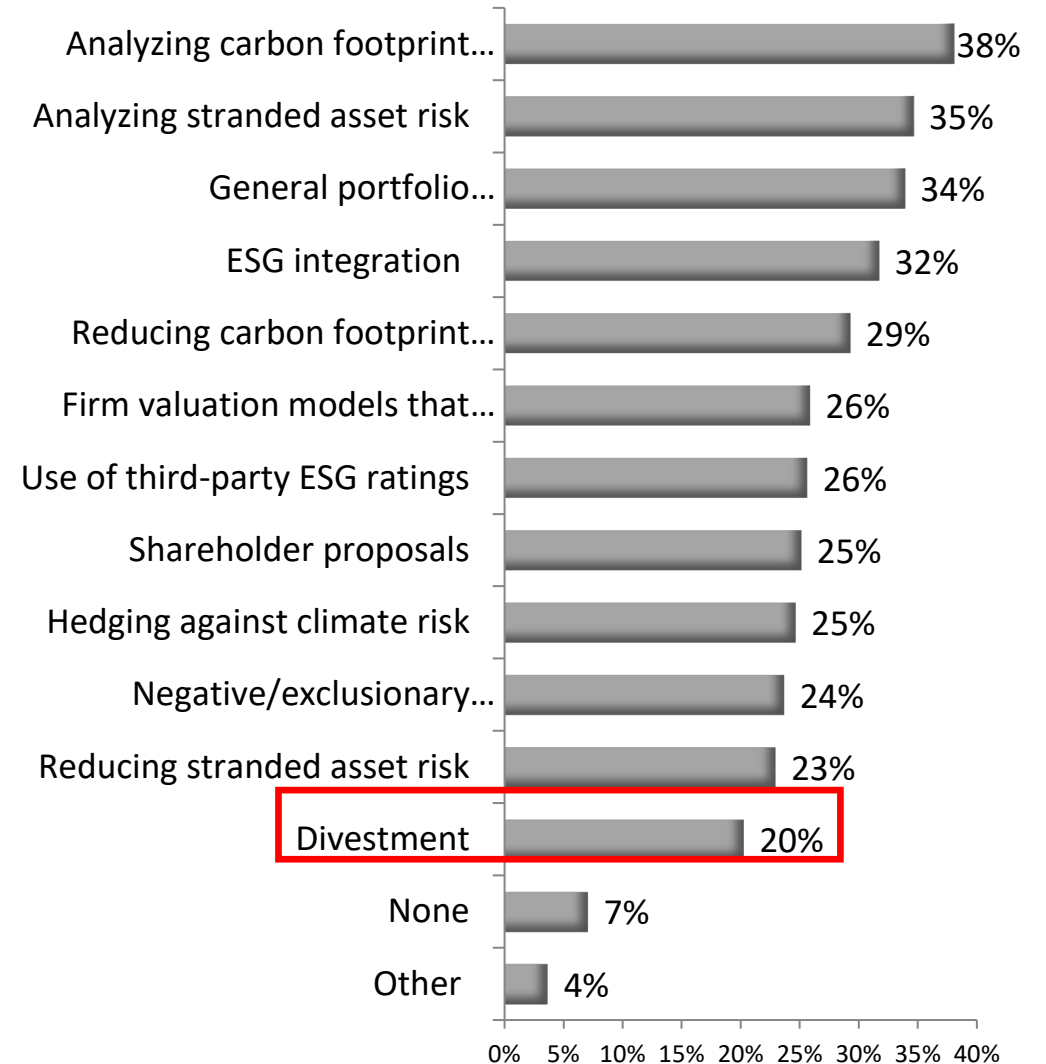


# Divestment: Rare and Small Effects

	(1)
	4Good
$I_{it}$	-0.0010 (-0.64)
$I_{it}^{4G(Select)}$	0.0004 (0.27)
$\Delta I_{it}$	0.0131 (1.55)
$\Delta I_{it}^{4G(Select)}$	0.0021 (0.38)
Constant	0.0098*** (2.60)
Observations	1376792
$R^2$	0.00

t-statistics in parentheses

Price change of FTSE 4Good inclusion/exclusion is 0.21% only  
 -> Effect of divestment by ESG investors on the cost of capital is only 40 bps

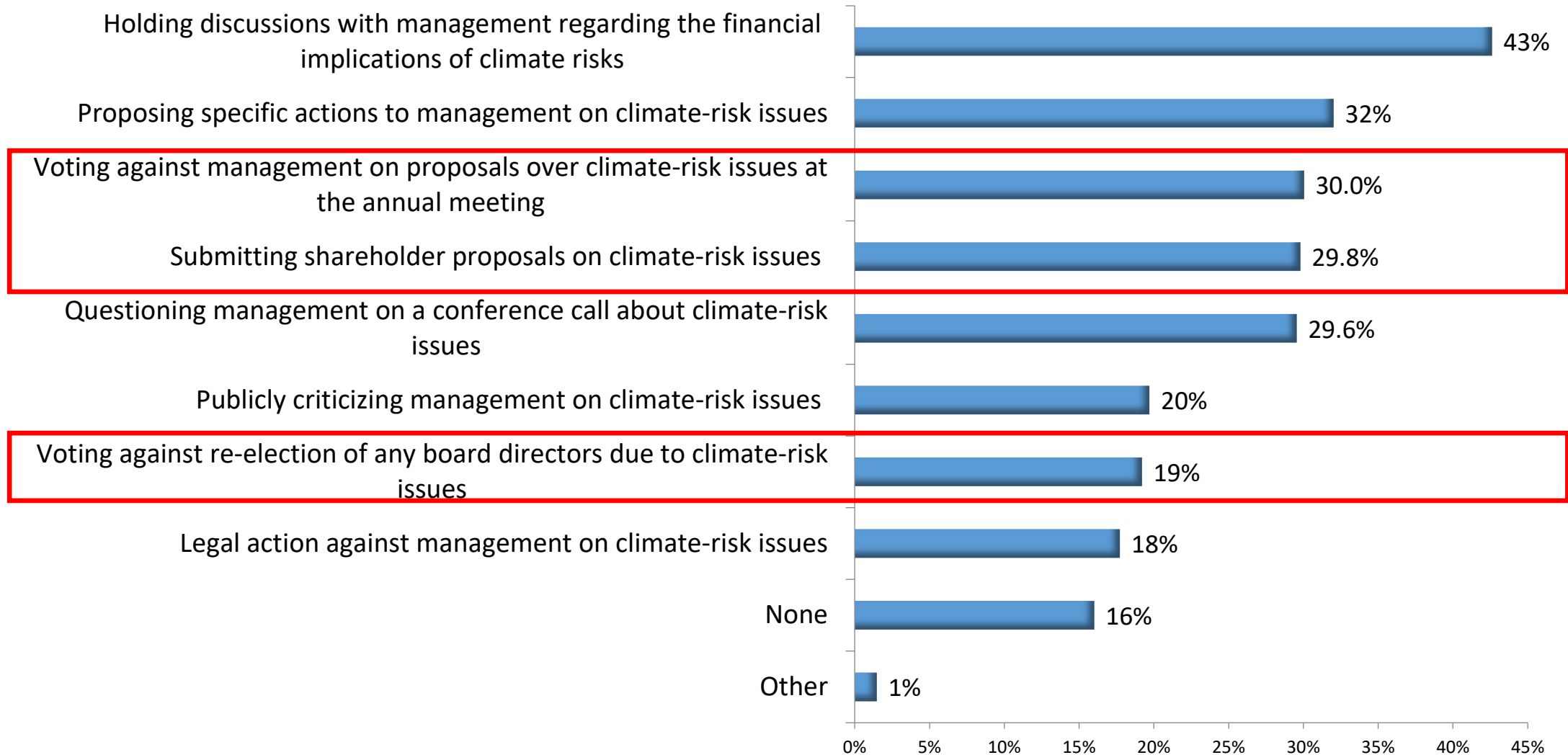


The Bad.

# The Bad

- Not enough investors engage
- There is too little action

# Addressing Climate Risks



# Too Little Action – Achieving Net-Zero Targets

**69%** of focus companies have now committed to achieve net zero emissions by 2050 across all or some of their emissions

**An absence of medium-term emissions reductions targets aligned with 1.5°C.**

Only 17% of focus companies have set medium-term targets which are aligned with the IEA's 1.5°C scenario and cover all material emissions.

**Continued absence of Scope 3 emissions.**

Just 42% of focus companies have comprehensive net zero by 2050 or sooner commitments that cover all material GHG emissions, including material Scope 3 emissions.

**Alignment of capex strategies with net zero transition goals remains almost non-existent.**

Only 5% of focus companies explicitly commit to align their capex plans with their long-term GHG reduction targets.

**Companies are setting emissions reduction targets but don't have the strategies to deliver them.**

Only 17% of focus companies have robust quantified decarbonisation strategies in place to reduce their GHG emissions.

**The Ugly.**



# The Ugly

- Greenwashing
- Fees
- ESG Ratings
- False Promises?

MARKETS

# SEC Fines BNY Mellon Over ESG Claims

Regulator is boosting its scrutiny of funds as market grows



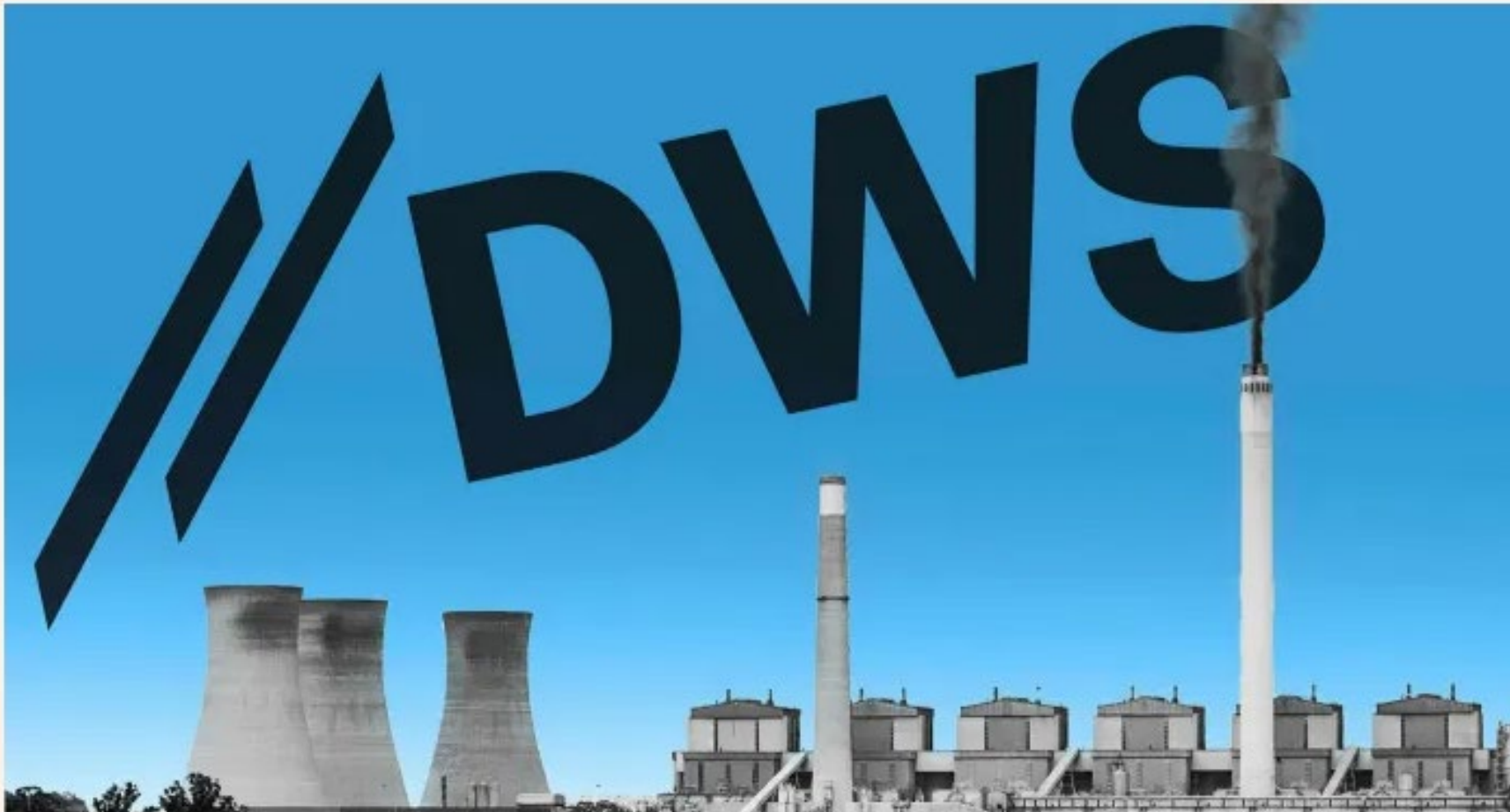
THE WALL STREET JOURNAL.

Inform  
your company's  
tech strategy  
with trusted  
facts.

CIO Journal Newsletter

# ESG's legal showdown: 'There's nothing to suggest DWS is a one off'

The boom in ESG investing is drawing regulatory scrutiny on both sides of the Atlantic



“The amount of “ESG assets” reported in its latest annual report, released in March, were 75 per cent below the €459bn it had said were “ESG integrated” a year earlier.”

“former BlackRock sustainability executive Tariq Fancy said ESG investing was little more than “marketing hype””

# More Systematic Evidence Needed

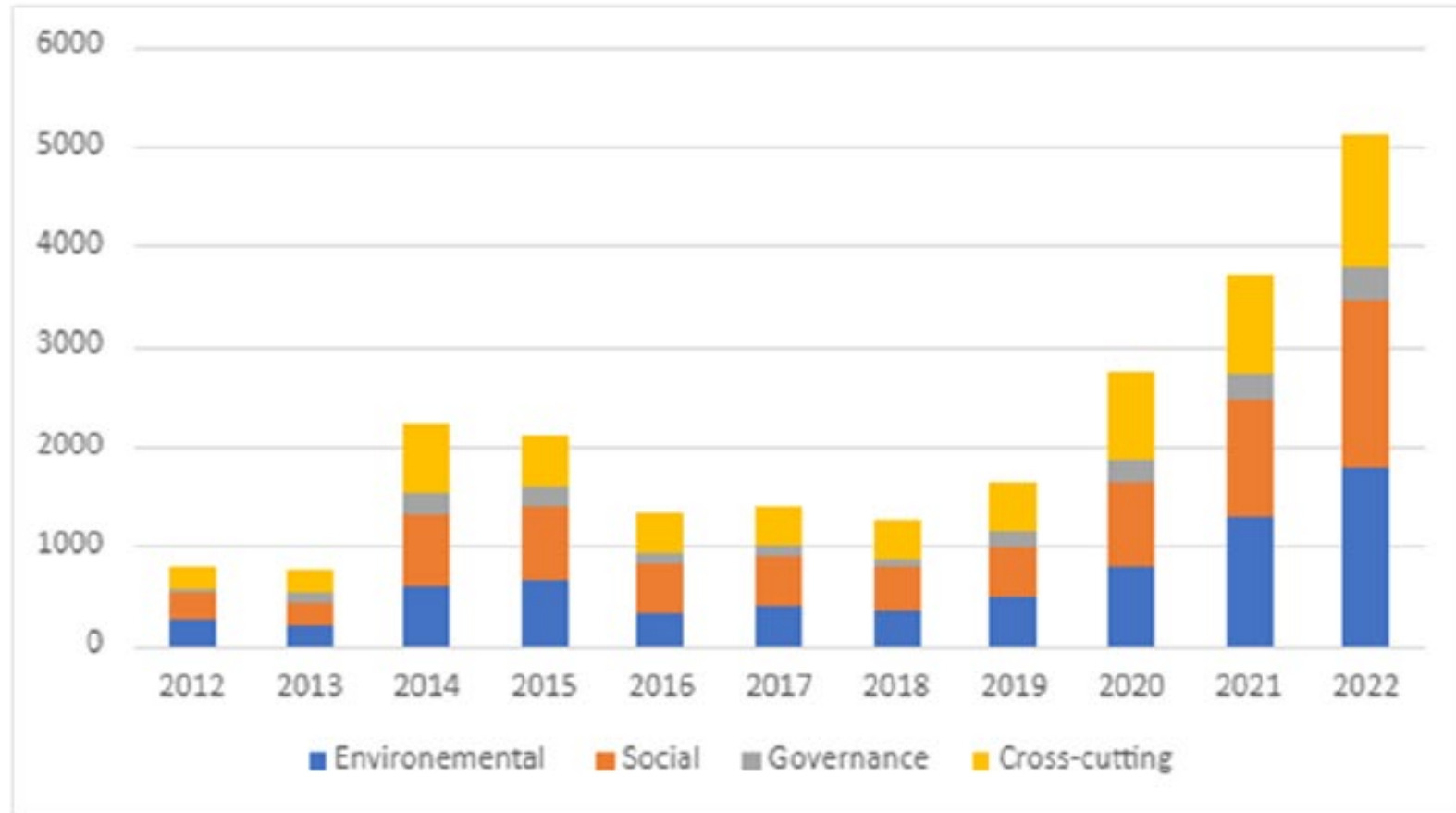
- The European Supervisory Authorities (EBA, EIOPA and ESMA) published reports on greenwashing in the financial sector
- Most prone to greenwashing: Pledges about ESG targets (56% of respondents: (very) relevant, 4% irrelevant), net-zero commitments, transition plans
- Channels: Marketing material, followed by product information and ESG ratings

## EU regulators flag rising greenwashing practices by banks

European Banking Authority says there is a 'clear increase' in financial institutions overstating their climate credentials



Figure 3. Total alleged incidents of misleading communication on ESG related topics



Source: RepRisk ESG Data Science, [www.reprisk.com](http://www.reprisk.com)

# Quiz: Which one is the ESG Fund?

## Fund 1 - Top 10 Holdings

<b>AAPL</b>	<b><i>Apple, Inc</i></b>
<b>AXP</b>	<b><i>American Express</i></b>
<b>BLK</b>	<b><i>Blackrock</i></b>
<b>FB</b>	<b><i>Facebook</i></b>
<b>GOOG</b>	<b><i>Alphabet, Inc.</i></b>
<b>HD</b>	<b><i>Home Depot</i></b>
<b>MMM</b>	<b><i>3M</i></b>
<b>MSFT</b>	<b><i>Microsoft Corp.</i></b>
<b>NVDA</b>	<b><i>Nvidia, Inc.</i></b>
<b>TSLA</b>	<b><i>Tesla, Inc.</i></b>

## Fund 2 - Top 10 Holdings

<b>AAPL</b>	<b><i>Apple, Inc.</i></b>
<b>AMZN</b>	<b><i>Amazon.com</i></b>
<b>BRK.B</b>	<b><i>Berkshire Hathaway</i></b>
<b>FB</b>	<b><i>Facebook</i></b>
<b>GOOG</b>	<b><i>Alphabet, Inc.</i></b>
<b>JNJ</b>	<b><i>Johnson &amp; Johnson</i></b>
<b>JPM</b>	<b><i>JP Morgan</i></b>
<b>MSFT</b>	<b><i>Microsoft Corp.</i></b>
<b>NVDA</b>	<b><i>Nvidia, Inc.</i></b>
<b>TSLA</b>	<b><i>Tesla, Inc.</i></b>

**SUSA - Blackrock Ishares USA ESG Select**

**SPY - SPDR S&P 500 ETF Trust**

## ESG Fund

## Standard Fund

### Fund 1 - Top 10 Holdings

<b>AAPL</b>	<b><i>Apple, Inc</i></b>
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**SUSA - Blackrock Ishares USA ESG Select**  
**Expense Ratio: 0.25%**

**SPY - SPDR S&P 500 ETF Trust**  
**Expense Ratio: 0.09%**

### Fund 1 - Top 10 Holdings

<i>AAPL</i>	<i>Apple, Inc</i>
<i>AXP</i>	<i>American Express</i>
<i>BLK</i>	<i>Blackrock</i>
<i>FB</i>	<i>Facebook</i>
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<i>MSFT</i>	<i>Microsoft Corp.</i>
<i>NVDA</i>	<i>Nvidia, Inc.</i>
<i>TSLA</i>	<i>Tesla, Inc.</i>

**ESG Fund**

### Fund 2 - Top 10 Holdings

<i>AAPL</i>	<i>Apple, Inc.</i>
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<i>MSFT</i>	<i>Microsoft Corp.</i>
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<i>TSLA</i>	<i>Tesla, Inc.</i>

**Standard Fund**





**Elon Musk** ✓  
@elonmusk



Exxon is rated top ten best in world for environment, social & governance (ESG) by S&P 500, while Tesla didn't make the list!

**ESG is a scam.** It has been weaponized by phony social justice warriors.

5:09 pm · 18 May 2022 · Twitter for iPhone



Tesla kicked out of the S&P 500 ESG Index

# Is This the “Ideal” ESG Fund?

## Top 5 holdings



Top 5 holdings as a per cent of portfolio

42.79%	27.64%	0.00%	27.64%
Category average	% Net assets	% Short	% Long

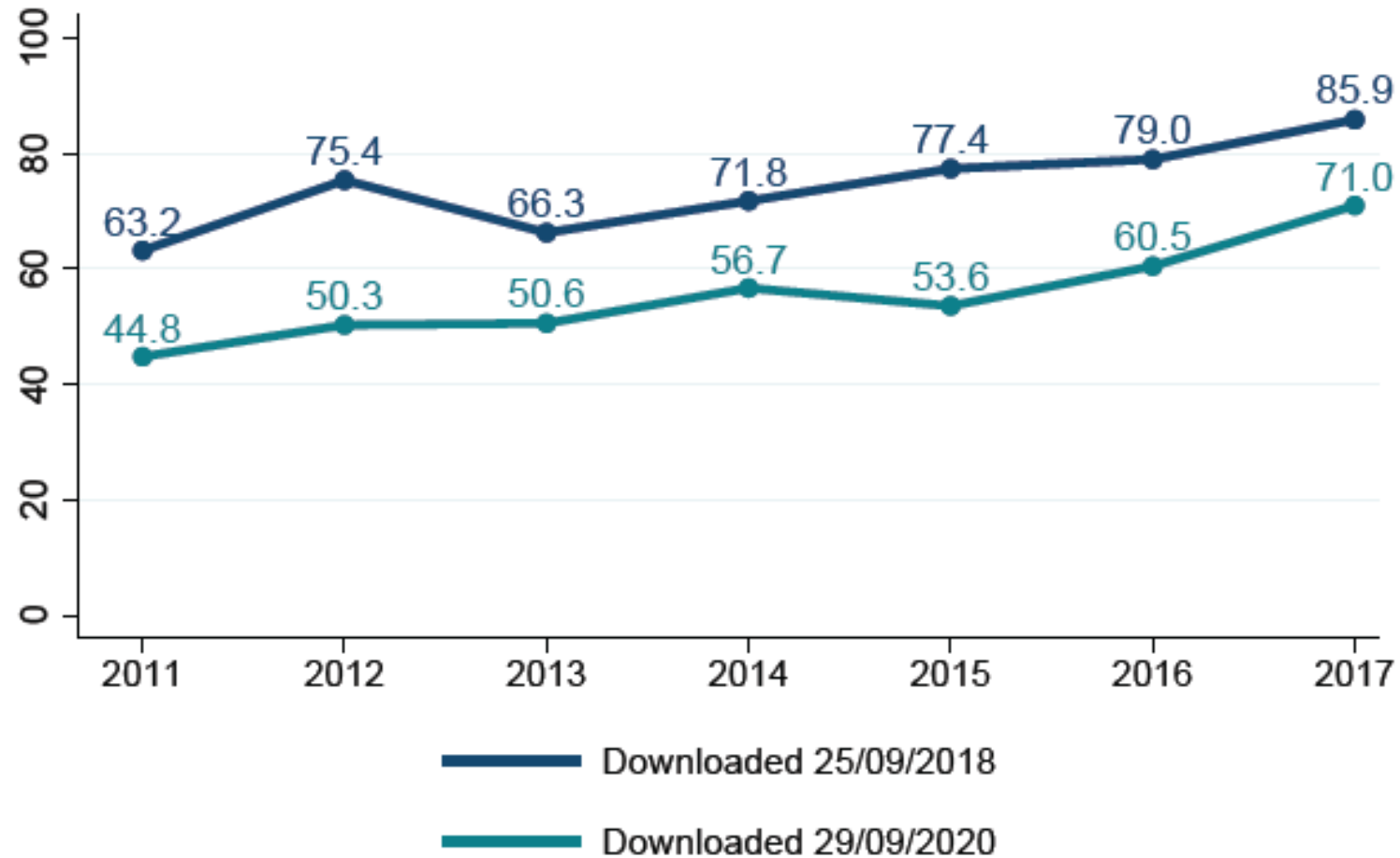
Company	1 year change	Portfolio weight	Long allocation
<b>Conocophillips</b> COP:NYQ	+89.19%	7.41%	<div style="width: 7.41%;"></div>
<b>Marathon Petroleum Corp</b> MPC:NYQ	+67.26%	5.71%	<div style="width: 5.71%;"></div>
Shell PLC	+60.04%	5.61%	<div style="width: 5.61%;"></div>
<b>Pioneer Natural Resources Co</b> PXD:NYQ	+64.34%	5.19%	<div style="width: 5.19%;"></div>
<b>Shell PLC</b> SHEL:NYQ	+35.83%	3.72%	<div style="width: 3.72%;"></div>

Per cent of portfolio in top 5 holdings: **27.64%**

## Vanguard Energy Fund Investor Shares

Data delayed at least 15 minutes, as of Jun 14 2022 14:31 BST.

# ESG Ratings – Data Rewriting by Refinitiv



# ESG Ratings - Rewriting and Stock Returns

Data version	09/2018	09/2020
Dependent variable	<i>Future Ret.</i>	<i>Future Ret.</i>
	(1)	(2)
<i>E&amp;S Score</i>	0.001 (0.06)	<b>0.031**</b> <b>(2.43)</b>
Observations	20,874	20,874
Control variables	Yes	Yes
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Country Fixed Effects	Yes	Yes
Adj. R-squared	0.12	0.12

# False Promises?

ESG Investing = Impact Investing

Divestment = Better World

ESG Investing = Higher Returns



# False Promises?

Effect of the EU Taxonomy classification on Loan Spreads from **2005 to 2018**

Some of the intended effects may already be priced in, at least in the syndicated loan market

Dependent variable	Loan Spread <sub>ij,c,t</sub>				Package Loan Spreads <sub>ij,c,t</sub>	Loan Spread <sub>ij,c,t</sub>
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Transitional Rev</i> <sub>j,c,t-1</sub>	-14.268*** (4.000)	-12.897*** (4.084)	-17.227*** (5.430)	-15.828*** (6.012)	-12.038*** (3.739)	-47.430*** (17.362)
<i>Enabling Rev</i> <sub>j,c,t-1</sub>		6.515 (4.587)				-3.615 (18.511)
<i>Log Loan Amount</i> <sub>ij,c,t</sub>	-4.234*** (1.065)	-4.265*** (1.066)	-5.893*** (1.091)	-4.958*** (1.088)	-4.037*** (1.298)	-5.233 (6.347)
<i>Log Loan Maturity</i> <sub>ij,c,t</sub>	3.955** (1.963)	3.803* (1.952)	3.653** (1.858)	6.761*** (1.955)	2.003 (2.117)	14.531* (7.919)
<i>Loan Covenants</i> <sub>ij,c,t</sub>	1.049 (1.235)	1.055 (1.237)	1.056 (1.179)	1.395 (1.282)	1.269 (1.169)	-6.127 (5.941)
<i>Log # Lenders</i> <sub>ij,c,t</sub>	-4.583** (1.797)	-4.541** (1.793)	-5.061*** (1.638)	-7.618*** (1.744)	-2.276 (1.863)	-7.875 (6.795)
<i>Performance Pricing</i> <sub>ij,c,t</sub>	-4.158* (2.504)	-4.111 (2.513)	-3.621 (2.465)	-5.218* (2.848)	-2.247 (2.214)	10.405 (10.677)
<i>Guarantor</i> <sub>ij,c,t</sub>	-1.275 (2.979)	-1.266 (2.982)	-1.792 (3.042)	1.630 (3.399)	-0.677 (2.909)	-6.461 (14.867)
<i>Revolver</i> <sub>ij,c,t</sub>	-18.797*** (2.073)	-18.890*** (2.073)	-18.553*** (1.920)	-17.196*** (1.970)	-21.063*** (2.933)	-28.637*** (8.959)
<i>Inst Tranche</i> <sub>ij,c,t</sub>	66.949*** (5.595)	67.064*** (5.584)	65.035*** (5.329)	55.934*** (5.288)	91.098*** (7.756)	38.064* (22.342)
<i>Secure</i> <sub>ij,c,t</sub>	46.166*** (3.146)	46.141*** (3.144)	38.258*** (3.162)	38.213*** (3.546)	42.976*** (3.260)	48.416*** (11.903)
<i>SP Rating</i> <sub>ij,c,t</sub>	-10.310*** (3.060)	-10.281*** (3.052)	-12.519*** (3.007)	-13.654*** (3.308)	-9.329*** (3.037)	-1.265 (12.908)
<i>Log Assets</i> <sub>j,c,t</sub>	-11.197*** (1.019)	-11.198*** (1.015)	-11.728*** (1.281)	-11.366*** (1.385)	-12.013*** (0.996)	-18.048*** (5.990)
<i>ROA</i> <sub>j,c,t</sub>	-76.276** (34.268)	-76.485** (34.243)	-77.825** (36.039)	-65.568 (47.505)	-75.598* (41.066)	53.643 (75.522)
<i>Leverage</i> <sub>j,c,t</sub>	57.729*** (7.291)	56.547*** (7.226)	69.748*** (7.633)	74.757*** (8.190)	56.032*** (6.653)	148.501*** (35.125)
<i>Tangibility</i> <sub>j,c,t</sub>	2.079 (5.397)	1.650 (5.421)	-12.333 (8.582)	-10.169 (8.597)	2.922 (5.021)	27.818 (23.817)
<i>Tobin's Q</i> <sub>j,c,t</sub>	-11.226*** (1.745)	-11.186*** (1.742)	-10.620*** (1.770)	-10.967*** (2.170)	-11.187*** (1.799)	-23.134** (9.550)
Loan purpose fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	No	No	Yes	No	No	No
Industry x Year fixed effects	No	No	No	Yes	No	No
# Obs.	14,428	14,428	14,397	13,452	9,894	844
Adj. R <sup>2</sup>	0.505	0.505	0.553	0.614	0.508	0.581

# What's the Problem?

May undermine trust in the financial system (again)

Distrust in ESG products may lead to large ESG fund outflows, which can have large real effects on green firms

=> Capital reallocation required for the green transition will be impeded



## Is ESG Investing in Decline?

Investors have retreated from ESG investing amid rising interest rates and heightened scrutiny. But if interest rates fall, could ESG see a resurgence in 2024?

# Important Issues to Address

- Measuring greenwashing
- Understanding the incentive structure of the ESG industry
- Understanding firm adaptation policies (physical, insurance)
- Climate risks in the insurance sector (both sides of the balance sheet)
- Climate change mitigation and the housing sector
- Frictions in shareholder engagement



Danke