

Using ESG Signals to Short

February 2023

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Agenda

Quick Review of Signal Process

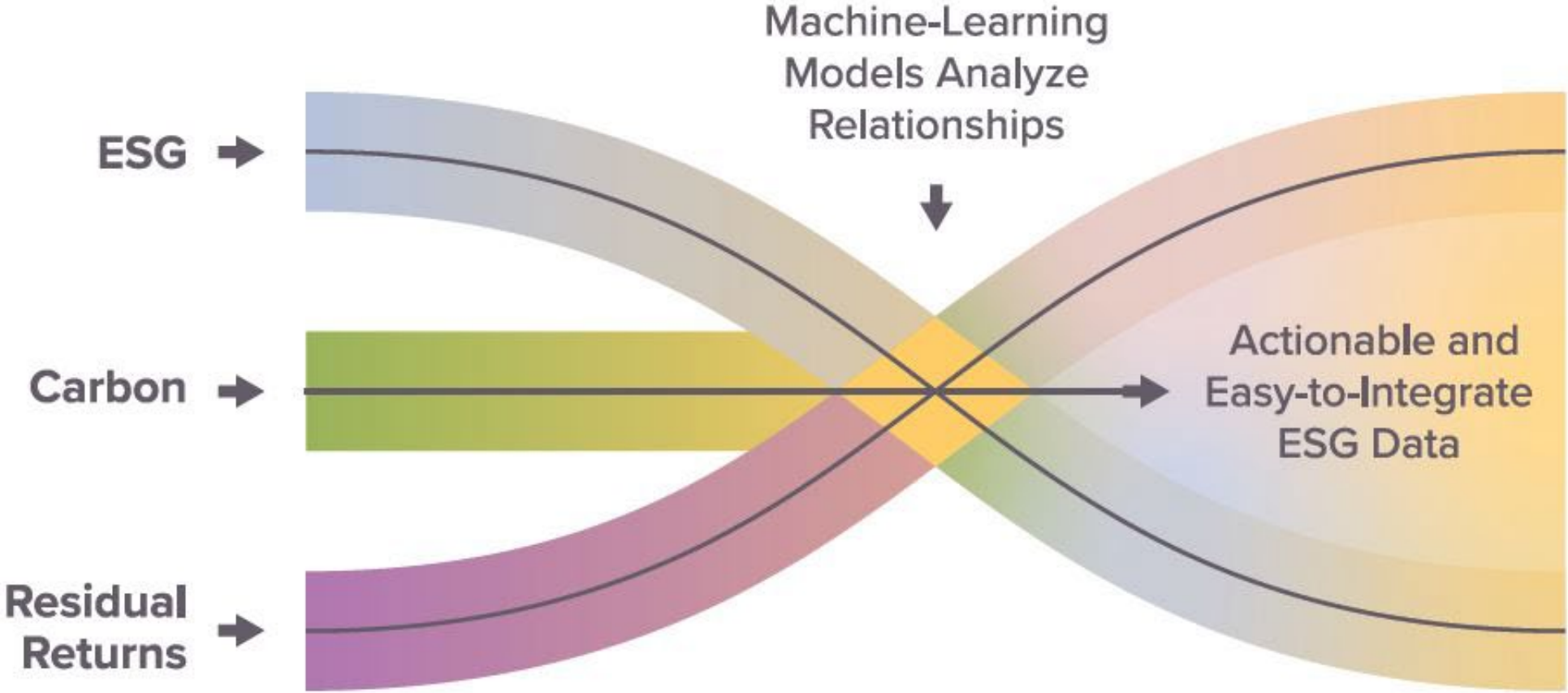
ESG Factors that Underperformed US Benchmark

US ESG Signals Short Model

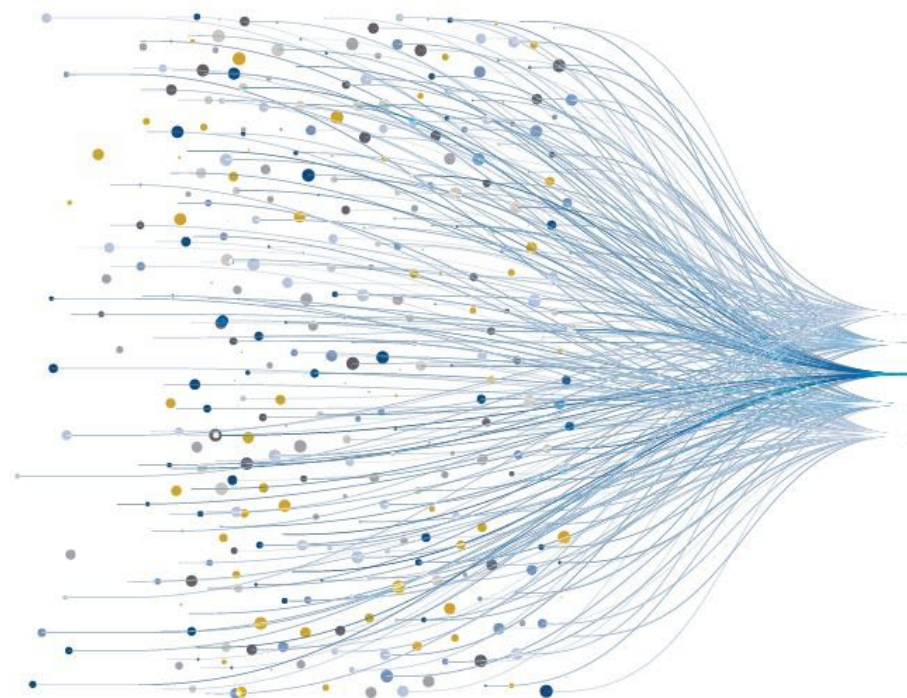
ESG Factors that Underperformed European Benchmark

European ESG Signals Short Model

ESG & Carbon Signal Process



Our Signals Lead to Better Outcomes



Aggregate Rankings

An unbiased view of ESG and carbon rankings, at the individual stock and fund levels, derived from a comprehensive aggregation of numerous ESG datasets.

Performance Rankings

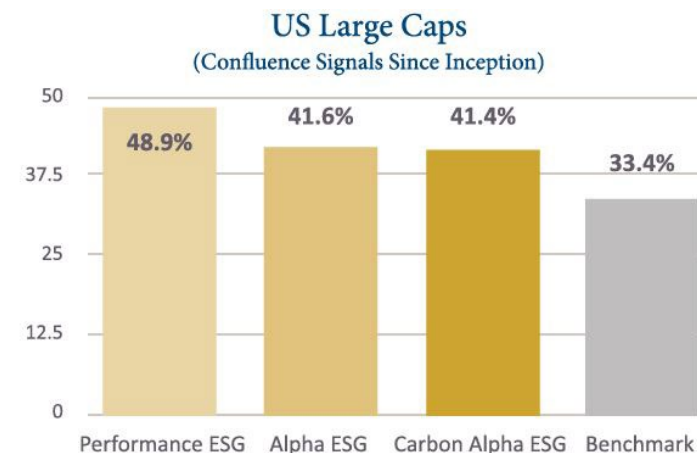
Performance-focused rankings of stocks and funds deduced by uncovering the ESG and carbon factors most correlated with positive historical returns.

Rankings Forecast

12-month forecasts of our Aggregate Rankings, which include a top-level rank as well as rankings for each underlying E-S-G component.

Alpha Forecast

12-month forward alpha forecasts at both the stock and fund levels, based on key ESG and carbon factors shown to be able to predict alpha historically.



Defining Signals

	Description	Use Cases
ESG Rank	Equal-weighted score of E, S, and G pillars	Risk Analysis Reporting
Performance ESG	Score based on Top 5 ESG KPIs positively correlated with residual returns	Risk Analysis Reporting Investment Signal
Alpha ESG Signal	Rank based on 12-month return model of residual returns, ESG data and deltas	Risk Analysis Investment Signal
Alpha ESG Carbon Signal	Rank based on 12-month return model of residual returns, Carbon metrics, ESG data and their deltas	Risk Analysis Investment Signal

US Large Cap Factors Underperforming 3yr

Bottom performing ESG Factors and Signals from the Russell 1000 ETF (IWB) over 3 years

Two (Bottom/Short) ESG Signals show significant levels of alpha generation

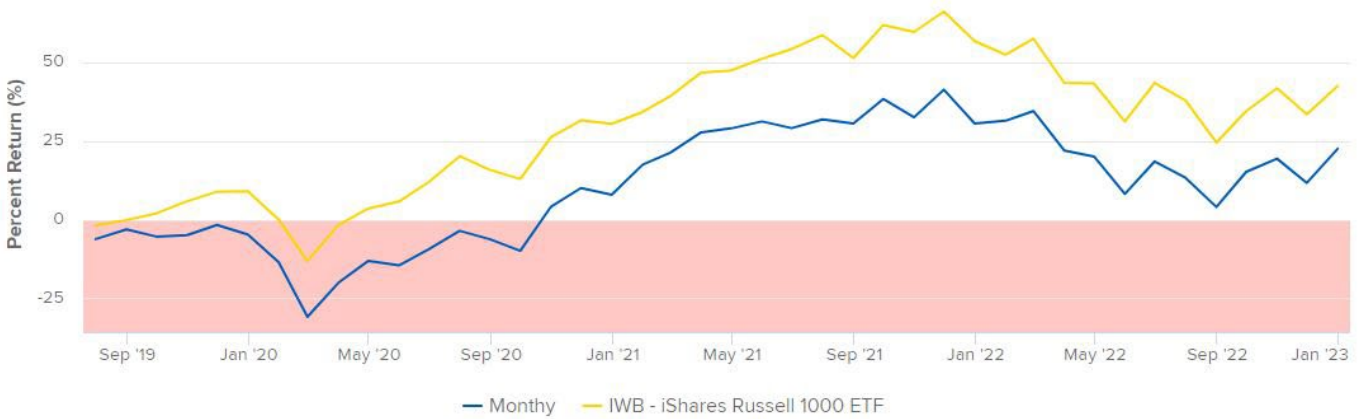
We will construct a short portfolio using these factors and see how it performs

<u>ESG Factor</u>	<u>3yr Return</u>	<u>Alpha</u>	<u># of Companies</u>
IWB ESG Universe (EQW)	39.35	8.68	843
Top E	39.01	8.33	190
Top Sector Price Mo (LT)	36.82	6.14	67
Bottom Price Mo (ST)	30.7	0.02	51
IWB ETF	30.67		
Bottom Sector Price Mo (ST)	29.18	-1.49	51
Top Carbon Mkt Cap	24.52	-6.15	110
Bottom ESG	19.72	-10.95	32
Bottom G	17.03	-13.64	76
Top Scope 3 Mkt Cap	16.94	-13.73	101
Bottom Diversity	14.04	-16.64	22
Bottom E	8.23	-22.44	29
Bottom ESG Alpha Signal	4.48	-26.19	42
Bottom S	0.51	-30.17	23
Bottom ESG Performance	-6.06	-36.73	41

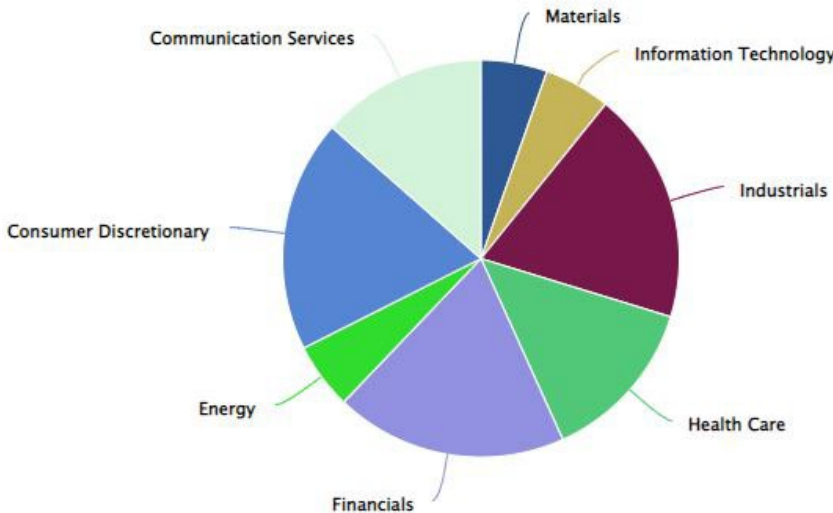
Notes:

- 3yr Returns are equal weighted, rebalanced monthly
- Alpha is vs Russell 1000 ETF (IWB)

ESG Short Signal – US Large Cap



Percent Allocation Per Sector

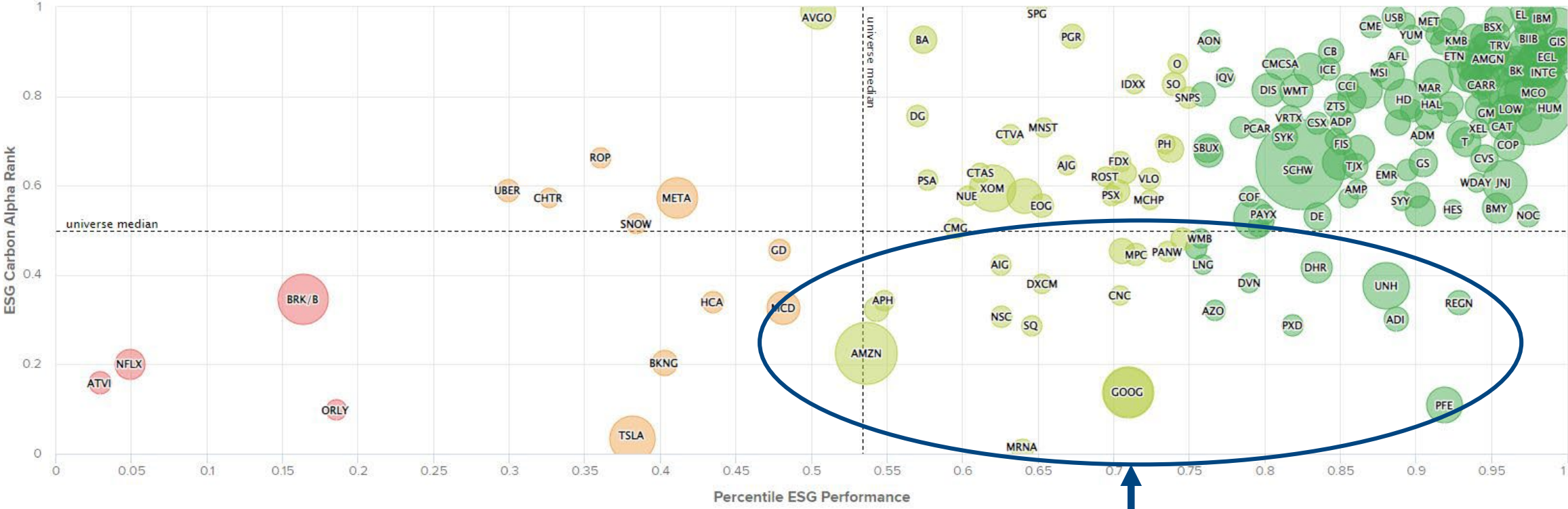


ESG Short Signal – US Large Cap

Underperformed over backed tested data history by over 1000bps

Signal Components: Bottom Ranked ESG Performance & Alpha Signals plus Social Rank

ESG Short Signal – IWB ETF



High ranked ESG Companies that are forecasted to underperform over the next 12 months

European Factors Underperforming 3 Yrs

Bottom performing ESG Factors and Signals from the iShares Europe ETF(IEV) over 3 years

Low Governance/Diversity scores and our ESG Performance Signal both generate considerable levels of alpha on the short side

We will construct a short portfolio using these factors and show the data behind those decisions in subsequent pages

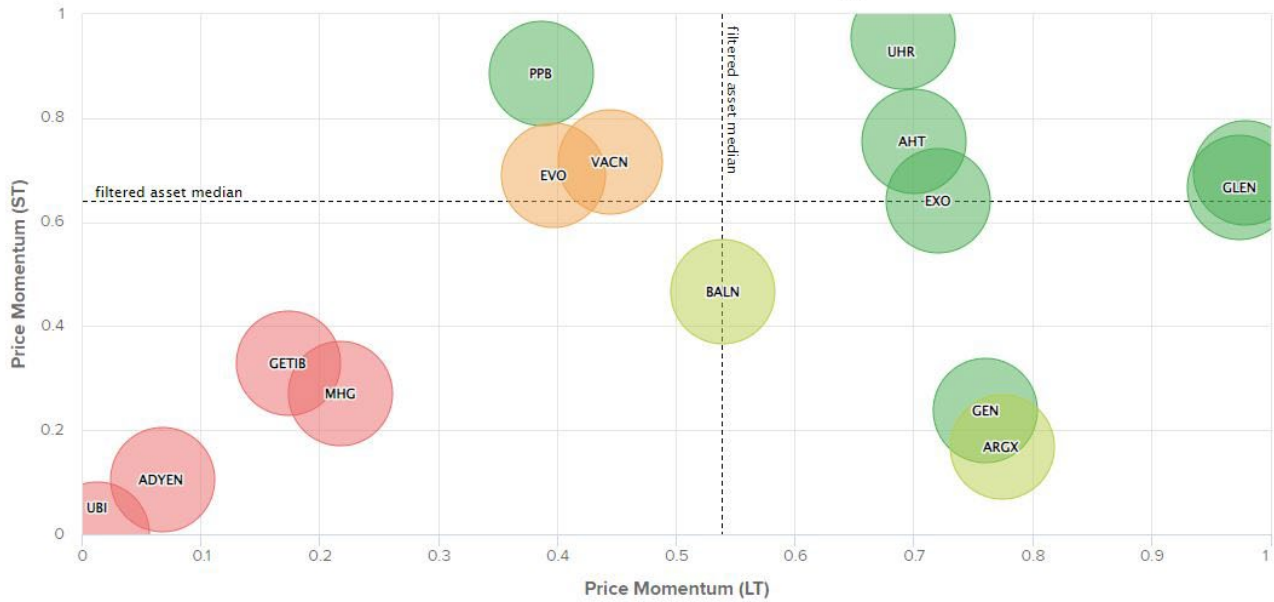
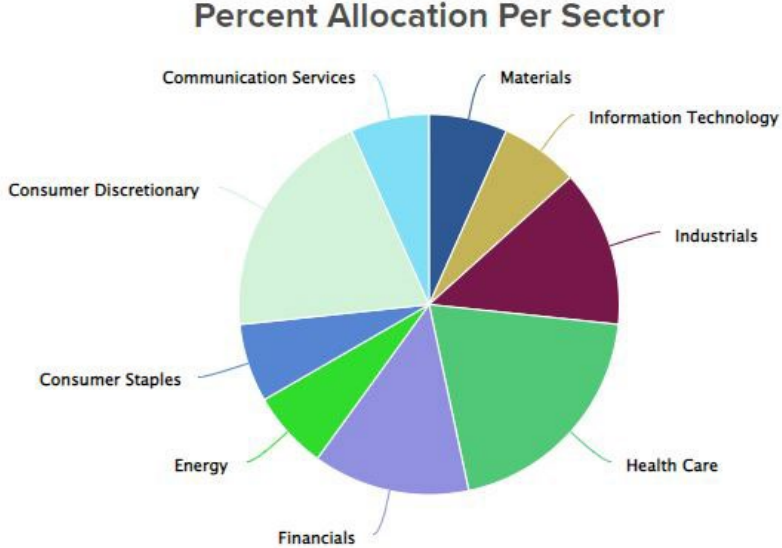
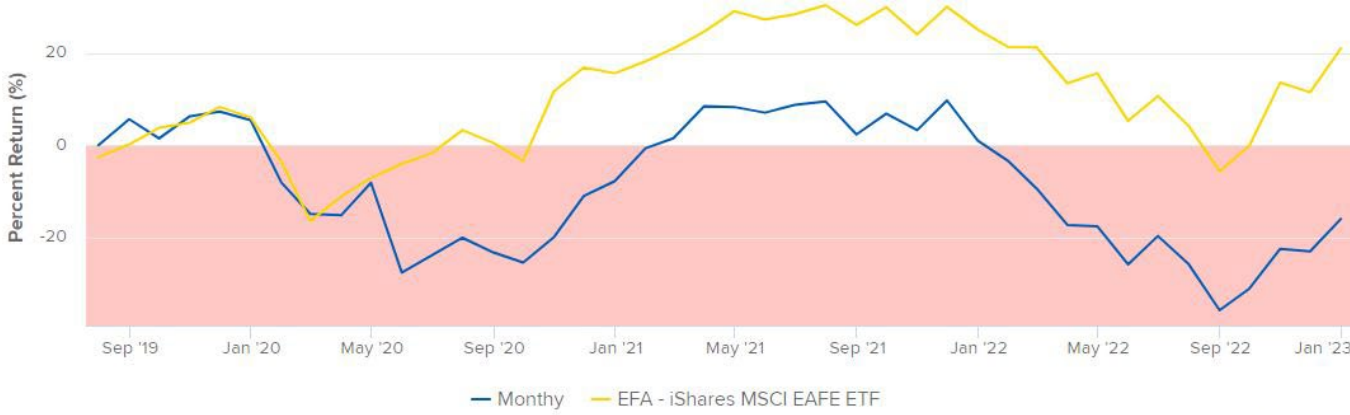
<u>ESG Factor</u>	<u>3yr Return</u>	<u>Alpha</u>	<u># of Companies</u>
EAFE MSCI ETF (EFA)	14.15		
International Developed ESG Universe	12.77	-1.39	305
Top E	12.56	-1.6	144
Top Carbon	12.42	-1.73	99
Top Sector Price Mo	10.45	-3.7	50
Top Sector Price Mo (LT)	10.27	-3.89	47
Top Carbon Mkt Cap	8.76	-5.39	84
Top Price Mo	7.65	-6.5	48
Top Price Mo (LT)	6.58	-7.57	45
Bottom Carbon ESG Alpha Signal	4.36	-9.79	41
Top Scope 3 Mkt Cap	2.26	-11.89	72
Bottom Price Mo (LT)	0.81	-13.35	52
Bottom Sector Price Mo (LT)	-0.25	-14.4	52
Bottom Sector Price Mo (ST)	-0.7	-14.86	50
Bottom Price Mo (ST)	-0.82	-14.98	50
Bottom Price Mo	-9.55	-23.71	52
Bottom Sector Price Mo	-9.64	-23.79	52
Top Carbon Alpha Signal	-10.04	-24.2	62
Bottom ESG Performance	-20.29	-34.44	19
Top ESG Alpha Signal	-24	-38.15	53
Bottom E	-24.04	-38.2	13
Bottom S	-32.95	-47.11	6
Bottom ESG	-34.82	-48.97	7
Bottom G	-55.12	-69.27	9
Bottom Diversity	-56.83	-70.99	5

Notes:

- 3yr Returns are equal weighted, rebalanced monthly

- Alpha is vs iShares Europe ETF (IEV)

ESG Short Signal - European Shorts

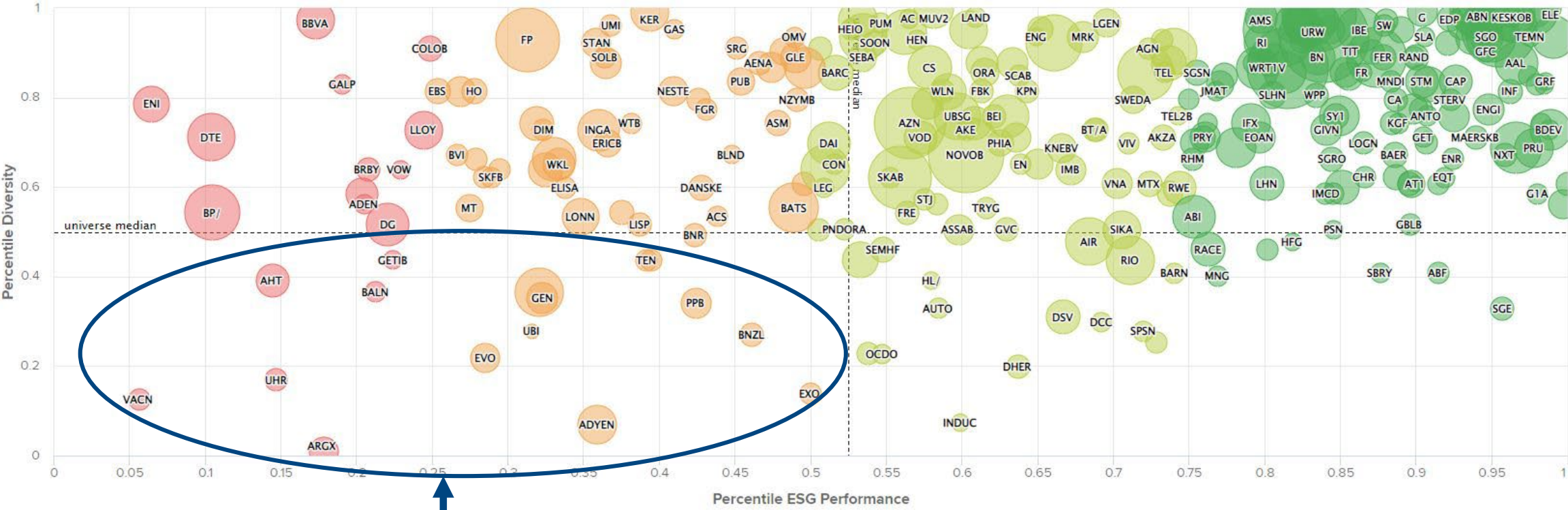


ESG Short Signal – Europe

Outperformed over 1yr (-16.8 vs. -3.2) and over the history of our available data set

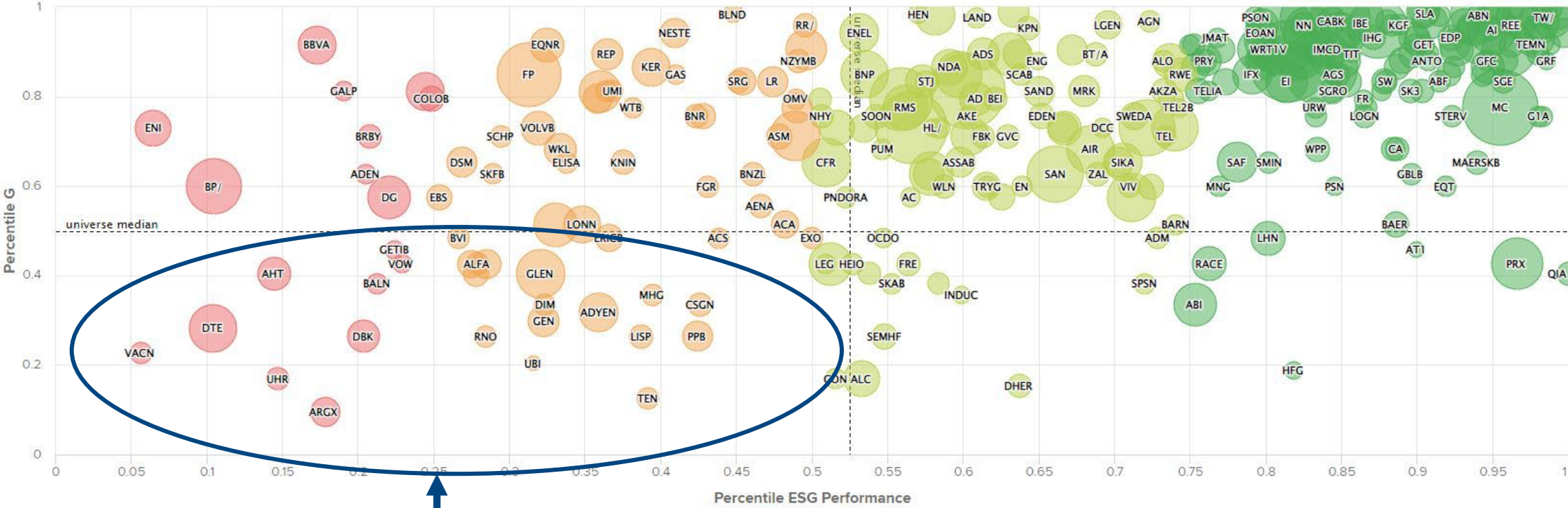
Constructed from Low ESG Performance Signals and Governance / Diversity Ranks

ESG Short Signal – IEV ETF (Performance ESG vs Diversity)



Low ranked ESG Performance Signals & Diversity are short candidates

ESG Short Signal – IEV ETF (Performance ESG vs Governance)



**Low ranked ESG Performance
Signals & Governance are short
candidates**

Thank you!

