

Cutting through the complexity of the E

Corporate environmental (E), social (S), and governance (G) dimensions are inherently difficult to assess. For this reason, many specialised rating agencies have been publishing their view on the non-financial performance of companies since the 1980s. Still, confusion surrounding the ESG performance of publicly-listed companies persists due to high levels of disagreement across rating agencies. The so-called ESG ratings jungle is created by a combination of challenges. Disclosure quality varies, many non-financial metrics require subjective interpretation, and redundant indicators add noise. Even for the environmental dimension, for which underlying quantitative data availability is the strongest, opinions diverge substantially. For instance, a recent study by academics from MIT and the University of Zurich shows that the average correlation between the measurements of corporate greenhouse gas (GHG) emissions by two rating agencies is close to zero.¹

Nevertheless, the environmental dimension provides the strongest link to economic value and while undoubtedly complex, it also presents significant investment opportunities. Applying a precise and consistent definition of what is to be measured, for instance the efficient use of resources, and focusing on objective quantitative metrics such as the draw on natural resources, is key.

Navigating the ESG ratings jungle

The ESG ratings jungle is characterised by the fact that agreement between ESG ratings by different agencies is low.² ESG ratings might differ for several reasons. To start, the taxonomy of ESG is not set in stone and the interpretation of the definitions might change depending on the social and cultural context that the rating agencies operate in. For instance, the legal origin of the countries where ESG rating providers are headquartered can lead to disagreement among them.³ In addition, rating agencies have different frameworks for measuring and aggregating ESG information. The importance placed on the attributes used to assess the corporate sustainability footprint diverges and leads to different assessment outcomes. Figure

¹ Berg, F., Kölbel, J.F. and Rigobon, R., 2019. Aggregate confusion: The divergence of ESG ratings. MIT Sloan Research Paper No. 5822-19.

² See:

- a. Berg, F., Kölbel, J.F. and Rigobon, R., 2019. Aggregate confusion: The divergence of ESG ratings. MIT Sloan Research Paper No. 5822-19.
- b. Chatterji, A.K., Durand, R., Levine, D.I. and Touboul, S., 2016. Do ratings of firms converge? Implications for managers, investors and strategy researchers. *Strategic Management Journal*, 37(8), pp.1597-1614.
- c. Eccles, R.G. and Strohle, J.C., 2018. Exploring social origins in the construction of ESG measures.
- d. Gibson, R., Krueger, P., Riand, N. and Schmidt, P.S., 2019. ESG rating disagreement and stock returns. Available at SSRN 3433728.
- e. Kotsantonis, S. and Serafeim, G., 2019. Four things no one will tell you about ESG data. *Journal of Applied Corporate Finance*, 31(2), pp.50-58.

³ Gibson, R., Krueger, P., Riand, N. and Schmidt, P.S., 2019. ESG rating disagreement and stock returns. Available at SSRN 3433728.

1 summarises the findings of the recent academic study by Berg and co-authors. The research scrutinises the ratings of five prominent ESG assessors and finds that the pairwise correlations of the overall score, a measure of the aggregate performance across the *E*, *S*, and *G* dimensions, is on average 0.61. By means of comparison, credit ratings – which also rely on different data sources, procedures, and judgements – are correlated at 0.99⁴. Correlations are lowest for the social (0.49) and governance (0.38) scores, an indication of the challenges and subjectivity involved in their assessments. With 0.65, the pairwise correlations of the environmental ratings are on average the highest. This is per se unsurprising. One might reasonably expect that the measurement and disclosure of the underlying corporate environmental data, such as CO₂ emissions from energy usage, should be adequately standardised.

	SA - VI	SA - KL	SA - RS	SA - A4	VI - KL	VI - RS	VI - A4	KL - RS	KL - A4	RS - A4
ESG	0.73	0.53	0.68	0.67	0.48	0.71	0.71	0.49	0.42	0.64
E	0.70	0.61	0.66	0.65	0.55	0.74	0.66	0.58	0.55	0.70
S	0.61	0.28	0.55	0.58	0.33	0.70	0.68	0.24	0.24	0.66
G	0.55	0.08	0.53	0.51	0.04	0.78	0.77	0.24	-0.01	0.81
Econ	-	-	-	-	-	-	-	-	-	0.43

Correlations between the ratings on the aggregate level (E, S, G, and ESG) from the five different rating agencies are calculated using the common sample. The results are similar using pairwise common samples based on the full sample. SA, RS, VI, A4 and KL are short for Sustainalytics, RobecoSAM, Vigeo-Eiris, Asset4, and KLD, respectively.

FIGURE 1. CORRELATIONS AT AGGREGATE LEVELS. SOURCE: BERG, F., KÖLBEL, J.F. AND RIGOBON, R., 2019. AGGREGATE CONFUSION: THE DIVERGENCE OF ESG RATINGS.

However, while correlations of the *E* rating are on average the highest, agreement of ESG rating agencies in the categories that make up the aggregate environment score are strikingly low. For example, in Figure 2, with an average of 0.33, the correlations between the rating agencies regarding the water category indicate a low level of agreement on corporate water usage. The same goes for greenhouse gas (GHG) emissions, which are practically uncorrelated (value of 0.13) between ESG agencies. The divergences are increasing in the assessment granularity, a phenomenon which aligns with another study by academics from Harvard Business School⁵, who report that rating disagreement increases with the quantity of publicly available information.

Highlighted in purple in Figure 2 are categories that are quantitatively measurable based on corporate environmental data; emissions, water and waste, as well as resource efficiency. Even within these specific categories, rating agency disagreement is high, with average correlations ranging between 0.13 for GHG emissions and 0.42 for non-GHG air emissions. Pairwise correlations between ESG agencies in the GHG emissions category are negative at times and in the waste category they do not exceed 0.38. While water usage is covered by all five rating agencies included in the study of Berg and co-authors, only a few ESG providers assess hazardous waste and non-GHG emissions. These remarkably low levels of agreement

⁴ Measured between Moody's and Standard & Poor's.

⁵ Kotsantonis, S. and Serafeim, G., 2019. Four things no one will tell you about ESG data. *Journal of Applied Corporate Finance*, 31(2), pp.50-58.

between ESG agencies contradict the prior view that one might have held about the supposedly straightforward assessment of quantitative environmental data.

	KL:A4	KL:RS	KL:SA	KL:VI	RS:A4	RS:SA	SA:A4	VI:A4	VI:RS	VI:SA	Average
Access to Basic Services	0.34		0.42				0.48				0.41
Access to Healthcare	0.52	0.53	0.59		0.55	0.65	0.65				0.58
Animal Welfare							0.61				0.61
Anti-Competitive Practices	0.55			-0.04				-0.05			0.15
Audit							0.64	0.57		0.55	0.58
Biodiversity	0.03	0.00		0.04	0.47			0.41	0.67		0.27
Board							0.51	0.59		0.38	0.49
Business Ethics	0.34	-0.07	0.05		-0.11	0.34	-0.03				0.09
Chairman/Ceo Separation							0.56				0.56
Child Labor	0.49										0.49
Climate Risk Mgmt.	0.44	0.45			0.56						0.48
Clinical Trials							0.60				0.60
Collective Bargaining							-0.05	0.00		0.51	0.16
Community and Society	0.20	0.21	-0.24	0.28	0.58	-0.15	-0.01	0.50	0.50	-0.07	0.18
Corruption	-0.13		0.27	0.30			-0.18	-0.16		0.56	-0.11
Customer Relationship	-0.04	-0.08	0.27	-0.08	0.46	-0.17	-0.15	0.52	0.50	-0.08	0.12
Discrimination and Diversity	0.00		-0.04	-0.03			0.61	0.62		0.63	0.30
Electromagnetic Fields						0.49					0.49
Employee Development	0.34	0.32	0.00	0.20	0.57	0.18	0.32	0.20	0.38	0.19	0.29
Employee Turnover							0.40				0.40
Energy	0.27	0.31	0.12	0.24	0.22	0.26		0.45	0.37	0.38	0.29
Environmental Fines							0.17				0.17
Environmental Mgmt. System	-0.07		0.63				0.41				0.32
Environmental Policy					0.63	0.50	0.52	0.62	0.63	0.52	0.57
Environmental Reporting					0.39	0.52	0.25				0.39
Financial Inclusion			0.29								0.29
Forests											
GHG Emissions	-0.17		-0.11	-0.05			0.35	0.48		0.30	0.13
GHG Policies					0.41	0.28	0.68				0.45
GMOs					0.19	0.44	0.41				0.35
Global Compact Membership							0.86				0.86
Green Buildings	0.22	0.48	0.56		0.08	0.39	0.21				0.32
Green Products	0.38	0.28	0.26	0.13	0.56	0.40	0.52	0.35	0.38	0.46	0.37
HIV Programmes							0.73				0.73
Hazardous Waste						0.20	0.09				0.15
Health and Safety	0.28	0.24	0.04	0.30	0.58	-0.15	-0.17	0.71	0.63	-0.14	0.23
Human Rights	0.11		-0.10	0.13			0.05	0.46		0.01	0.11
Indigenous Rights	-0.10		0.35				-0.27				-0.01
Labor Practices	0.05	-0.13	0.13	-0.03	0.38	0.18	0.34	0.48	0.55	0.19	0.21
Lobbying										-0.28	-0.28
Nor-GHG Air emissions							0.42				0.42
Ozone Depleting Gases							0.62				0.62
Packaging					0.26	0.39	0.43	0.28	0.42	0.43	0.37
Philanthropy						0.27					0.27
Privacy and IT		0.32	0.36								0.32
Product Safety	0.02	0.19	0.02	0.05	0.37	-0.10	-0.05	0.25	0.49	-0.09	0.11
Public Health		0.49	0.46				0.47				0.47
Remuneration	0.13	0.00	0.14	0.08	0.29	0.17	0.81	0.73	0.19	0.69	0.32
Reporting Quality							0.51				0.51
Resource Efficiency					0.59	0.33	0.34				0.42
Responsible Marketing	0.20	-0.34	-0.41	-0.08	-0.11	0.60	-0.07	0.00	0.43	0.40	0.06
Shareholders								0.43			0.43
Site Closure						0.34					0.34
Supply Chain	0.16	0.11	0.17	0.17	0.56	0.53	0.53	0.63	0.64	0.56	0.41
Sustainable Finance	0.49	0.45	0.58		0.63	0.67	0.69				0.59
Systemic Risk		0.26									0.26
Taxes					-0.03	0.11	0.00				0.03
Toxic Spills	0.03		-0.21				0.07				-0.04
Unions	0.66										0.66
Waste	0.27			0.33	0.23			0.38	0.28		0.30
Water	0.23	0.20	0.31	0.32	0.12	0.42	0.40	0.40	0.47	0.47	0.33
Average	0.21	0.20	0.13	0.12	0.36	0.31	0.34	0.40	0.47	0.30	

Correlations between the different categories from different rating agencies. We calculate a value for each criterion on the firm level by taking the average of the available indicators for firm *f* and rater *k*. The panel is unbalanced due to differences in scope of different ratings agencies and categories being conditional on industries. SA, RS, VI, A4, and KL are short for Sustainalytics, RobecoSAM, Vigeo-Eiris, Asset4, and KLD, respectively.

FIGURE 2. CORRELATIONS AT CATEGORY LEVELS. SOURCE: BERG, F., KÖLBEL, J.F. AND RIGOBON, R., 2019. AGGREGATE CONFUSION: THE DIVERGENCE OF ESG RATINGS.

Considering that nowadays approximately \$30 trillion of assets are invested globally relying in one way or another on ESG scores⁶, the fact that there is little convergence of opinions on corporate sustainable performance creates noise. The mixed ESG rating signals can significantly skew investors' perceptions and make it difficult for them to effectively incorporate sustainability into investment decisions. As a result, academics argue that "ESG performance is unlikely to be properly reflected in corporate stock [...] prices, as investors face a challenge when trying to identify out-performers and laggards".⁷

Nonetheless, given the impending transition to a greener economy, profitable investment opportunities are available to those investors that can cut through the sustainability complexity.

⁶ GSIA. Global Sustainable Investment Review. Technical report, 2018.

⁷ Citation from p. 2 of Berg, F., Kölbel, J.F. and Rigobon, R., 2019. Aggregate confusion: The divergence of ESG ratings. MIT Sloan Research Paper No. 5822-19.

There is alpha in the E !

The environmental dimension is the element of sustainability with the strongest economic rationale. Decades of academic research has demonstrated that environmental performance is economically meaningful and can thus be linked to corporate financial performance.⁸ At the core of the environmental-financial performance relationship lies the argument that a more productive use of resources relative to sector peers not only benefits the environment but also the economic bottom line of a company. For instance, reduced draw on natural resources such as groundwater, reduced cost of materials in sourcing fossil energy, and reduced cost of production through diminished waste generation provides companies with a competitive advantage. Better resource use also improves stakeholder risk management, workforce attraction, and brand awareness. Improved management of the corporate environmental footprint might also reduce exposure to political interventions in a climate uncertain future that will increase the cost of externalities through, for example, carbon taxes. The environmental dimension is therefore material to every company and sector that aims to be part of the transition to a greener economy.

Environmental performance and thus the concept of resource efficiency has been proven to have direct financial implications for portfolio construction. As such, environmental research has shown that institutional investors increasingly care about environmental performance and related climate risks, that environmental risks are indeed priced into stock prices, and that resource efficient portfolios can outperform resource intensive portfolios.⁹

The complications of the E explained

Given the availability of objective environmental data, one might assume that it suffers the least from ratings confusion. However, as demonstrated by academic studies, this is not true.

Corporate environmental performance is a complex construct. Insights from academic studies suggest that considerable differences in environmental disclosure practices, as well as a lack

⁸ See for example:

- a. Ambec, S. and Lanoie, P., 2008. Does it pay to be green? A systematic overview. *The Academy of Management Perspectives*, pp.45-62.
- b. Dixon-Fowler, H.R., Slater, D.J., Johnson, J.L., Ellstrand, A.E. and Romi, A.M., 2013. Beyond "does it pay to be green?" A meta-analysis of moderators of the CEP–CFP relationship. *Journal of Business Ethics*, 112(2), pp.353-366.
- c. Hart, S.L. and Ahuja, G., 1996. Does it pay to be green? An empirical examination of the relationship between emission reduction and firm performance. *Business Strategy and the Environment*, 5(1), pp.30-37.
- d. King, A.A. and Lenox, M.J., 2001. Does it really pay to be green? An empirical study of firm environmental and financial performance: An empirical study of firm environmental and financial performance. *Journal of Industrial Ecology*, 5(1), pp.105-116.

⁹ See for example:

- a. Krueger, P., Sautner, Z. and Starks, L.T., 2018. The importance of climate risks for institutional investors.
- b. Chava, S., 2014. Environmental externalities and cost of capital. *Management Science*, 60(9), pp.2223-2247.
- c. Derwall, J., Guenster, N., Bauer, R. and Koedijk, K., 2005. The eco-efficiency premium puzzle. *Financial Analysts Journal*, 61(2), pp.51-63.
- d. Andersson, M., Bolton, P. and Samama, F., 2016. Hedging climate risk. *Financial Analysts Journal*, 72(3), pp.13-32.

of reporting standards (and thus comparability), are the primary impediments to the widespread use of environmental data.¹⁰

Generally, the vast number of indicators used to assess the environmental dimension leads to redundancies and insignificance of certain attributes in explaining corporate environmental performance.

Besides, ratings often depend on the type of performance that is measured: Is it disclosure quality, the current environmental footprint, the management of changing regulatory and reporting requirements, or a combination of all three that matter the most? Metrics relating to organisational processes, such as emission targets, environmental management systems, policies and reporting tools, require subjective input in their assessment. Often these metrics measure intent rather than corporate action in reducing their environmental impact.

The opportunity behind the complexity

A lot of expertise is required to disentangle the signal from the noise.

To begin with, a precise definition and narrow scope of what is to be assessed is needed. Are we trying to measure a company's commitment at reducing its environmental footprint by assessing the quality of its policies, systems, and processes in place to achieve a targeted future improvement? Alternatively, is the goal to measure a company's action today in using the least amount of resources possible while generating economic value? When it comes to corporate valuation with direct economic implications, today's actions should count for more than intent for future improvement.

Second, it's necessary to strip out the subjectivity. The environmental dimension allows one to look at environmental performance through the lens of operational resource efficiency, i.e., the productive use of resources within the operations of a business relative to the economic value it generates. Quantifiable metrics with a strong economic rationale and materiality such as carbon emissions, water usage, and waste disposal provide an objective way of benchmarking companies against each other taking into account the nature of the industry that they operate in. For a long time, the financial industry has used publicly-disclosed balance sheet data, accounting metrics, and financial ratios in order to help them identify companies that are more likely to outperform in the future. When trying to link sustainability to financial

¹⁰ See for example:

- a. Amel-Zadeh, A. and Serafeim, G., 2018. Why and how investors use ESG information: Evidence from a global survey. *Financial Analysts Journal*, 74(3), pp.87-103.
- b. Bassen, A., Kovacs, A., 2008. Environmental, social and governance key performance indicators from a capital market perspective. *The Journal for Business, Economics & Ethics* 9/2, 182-192.
- c. Delmas, M. and Blass, V.D., 2010. Measuring corporate environmental performance: the trade-offs of sustainability ratings. *Business Strategy and the Environment*, 19(4), pp.245-260.
- d. Semenova, N. and Hassel, L.G., 2015. On the validity of environmental performance metrics. *Journal of Business Ethics*, 132(2), pp.249-258.

performance, the approach should be no different. Publicly disclosed environmental performance data from integrated annual reports and sustainability reports should form the basis for a thorough assessment.

The absence of international reporting standards and varying degrees of disclosure quality calls for expert knowledge to make sense of the reported environmental data – the same as complex balance sheet data requires skilled financial analysts to separate material from superfluous information. The general push for greater corporate sustainability reporting has created a plethora of environmental data. The data requires a transparent and consistent methodology to extract material information that can be standardised over time allowing investors to link it back to economic and financial indicators.

Over the past years, investor preferences have shifted dramatically from merely focusing on the financial health of companies to also taking into consideration their impact on the ecosystem. Corporate environmental impacts, however, will only be properly reflected in stock prices by distilling the signal from the noise; a process which requires a lot of knowledge and expertise to cut through the complexity of the intricate link between the draw on natural resources and the economic value generation process.

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