

## AN ESG PUZZLE

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The world is rapidly changing. Companies are becoming increasingly aware that an entirely traditional business model will soon have to be complemented by a strategy that is focused on sustainability. Many companies around the world, in all sectors, have already started to change the way they used to measure corporate performance by including sustainability measures in their non-GAAP reports. In the EU, the Non-Financial Reporting Directive (NFRD) requires companies from 2018 onwards to report on how they operate and manage social and environmental challenges. The directive applies to companies with more than 500 employees and covers the 6,000 largest companies in Europe<sup>1</sup>. According to the Governance & Accountability Institute (G&A), the number of companies in the S&P 500 that publish a sustainability report has increased from 20 percent in 2011 to 90 percent in 2019,<sup>2</sup> and 65 percent of Russell 1000 companies published sustainability reports in 2019<sup>3</sup>. In this case, you are asked to put together pieces of financial and sustainability information reported by companies in eleven different industries and to identify each industry.

### ESG CONCEPTS AND KPIs

**Environmental** considerations are linked to **nature**. They are a trending topic due to climate change and have been related to some famous scandals like oil spills. Environmental KPIs are mainly quantitative measures that cover the environmental performance of a company. Furthermore, environmental KPIs also include energy use (to capture energy efficiency), use of renewable energies, water usage, and waste management.

**Social** KPIs are linked to **people and society** and are a mix of quantifiable and intangible factors. Social quantitative KPIs are mostly related to employees: e.g., the percentage of part-time employees, employee turnover, employee development plans, and employee diversity. Other KPIs cover working conditions for employees and include references to injury rates (injuries and fatalities), absenteeism, and the possibility or existence of trade unions.

**Governance** KPIs address **company** and business model issues. Some of the KPIs aim to measure companies' management team and how well the company is being governed in terms of practices, transparency, remuneration, and diversity concerning the different boards (board of directors) and committees (audit, compensation, nomination, etc.). Other governance KPIs address business practices such as fair competition, corruption and bribery, data privacy, control, and risk mitigation. The indicators are both qualitative and quantitative.

**Materiality in ESG** is a concept that places relevance on various components of sustainability reporting. Sectors and industries within sectors are exposed to different challenges, drivers, and business models; therefore, not all components are equally relevant. This is why we have a definition

<sup>1</sup> [https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/non-financial-reporting\\_en](https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/non-financial-reporting_en)

<sup>2</sup> <https://www.ga-institute.com/research-reports/flash-reports/2020-sp-500-flash-report.html>

<sup>3</sup> <https://www.ga-institute.com/research-reports/flash-reports/2020-Russell-1000-flash-report.html>

of **materiality**. The International Integrated Reporting Council (IIRC) suggests an issue is material if it is relevant (is likely to have an impact on value creation) and is sufficiently important in terms of its known or potential effect on value creation and the likelihood of its occurrence. SASB's approach to financial materiality is based on a traditional definition that is well-accepted globally, that is, information that is reasonably likely to be important to investors when making voting and investment decisions.

Different materiality is reflected in the weights given by the rating agencies to the three non-financial areas (ESG pillar weights). When rating agencies calculate their scores, they give different weights (%) to the ESG pillars depending on how relevant they are for that specific industry. For example, a mineral extraction company's environmental scores should be assigned a much higher weight than a service company's environmental scores in the media industry should. As you can see in the table, the weights change from one industry to another, which can give you some hints to solve the puzzle. In which industries will environmental factors have a higher weight? In which industry will social implications be more important?

To help you on your quest to identify the industries, you will find a description of all the KPIs and financial ratios (as defined by Refinitiv Eikon) included in this puzzle in *Appendix 1*. Furthermore, *Table 1* follows the sector structure provided by the Sustainability Accounting Standards Board (SASB), where you will see examples of companies from eleven industries. These are the eleven industries with some specific hints about the companies:

1. Infrastructure – an electric utility company that is transitioning to renewable energies
2. Transportation: an airline
3. Renewable Resources and Alternative Energy: wind powering equipment
4. Consumer Goods – fast fashion (retail)
5. Resource Transformation - chemicals
6. Financial – a commercial bank
7. Services – media advertising company
8. Mineral Extraction and Processing – steel manufacturing corporation
9. Healthcare – drug producer
10. Food and Beverage – processed foods
11. Technology and Communications – a telecom company

You are given environmental, social, and governance (ESG) key performance indicators (KPIs) as well as the key financial ratios for 11 European companies pertaining to 11 different industries (see *Table 1*).

**This information, specifically the weights of the ESG pillars, will give you critical hints. Can you match the companies (in Table 1) with one of the industries listed above? How many can you get right? Are you ready to solve this ESG puzzle?**

TABLE 1. ESG KPIS AND FINANCIAL RATIOS

	Company 1	Company 2	Company 3	Company 4	Company 5	Company 6	Company 7	Company 8	Company 9	Company 10	Company 11
<b>SCORES / RATINGS</b>											
ESG Combined Score	B	A	B	B-	B+	B-	B+	C	A	B-	A
Environmental Pillar Score	A	A+	A	A	B	A-	A-	B	A+	A-	A+
Social Pillar Score	B+	A+	B+	A+	B+	A	A-	B	A-	A+	A+
Governance Pillar Score	A-	A-	C+	C+	B	A-	B	A	A-	A-	B+
ESG Controversies Score	C	A+	C+	C-	A+	D+	A+	D	A+	D	A+
<b>ESG PILLAR WEIGHTS (MATERIALITY)</b>											
Environmental Pillar Weight	14.40%	19.10%	42.50%	20.30%	39.60%	35.20%	38.60%	30.80%	28.70%	12.60%	22.70%
Social Pillar Weight	49.60%	42.60%	33.90%	53.20%	38.00%	40.20%	27.30%	41.20%	45.20%	49.70%	46.30%
Governance Pillar Weight	36.00%	38.30%	23.60%	26.50%	22.40%	24.60%	34.10%	28.00%	26.10%	37.70%	31.00%
<b>ESG KPIS &amp; RATIOS</b>											
Total Energy Use / Million in Revenue \$	49.56	236.92	1,869.65	423.42	578.94	30,078.60	112.69	13,597.76	668.5	32.2	186.14
Renewable Energy Use Ratio	73.88%	42.51%	52.36%	8.66%	N/A	0.23%	N/A	N/A	N/A	11.21%	N/A
Total Water Use / Million in Revenue \$	23.66	41.98	12,567.01	14.94	774.16	26,936.98	63.35	N/A	2577.51	N/A	250.35
Total CO <sub>2</sub> Emissions / Million in Revenue \$	0.9	16.98	6544.5	27.51	23.21	2,581.60	6.34	1078.96	46.21	2.77	7.53
Total Waste / Million in Revenue \$	N/A	0.73	347.81	1	6.44	N/A	5.25	6.2	22.33	0.21	0.67
Salary Gap	25	400	34	30	76	90	20	47	121	31	69
Gender Pay Gap Percentage	N/A	99.20%	100%	100%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Women Managers	37%	79%	15.80%	31.10%	18%	14%	10%	30%	N/A	49%	43.50%
Injury Rate Total	N/A	N/A	N/A	3.01	N/A	4.79	4.71	N/A	2.98	1.08	2.34
Average Training Hours	6.86	15.78	30.4	26	N/A	57	36.99	43.4	21.93	8.08	32.2
Training Cost Per Employee	1,277	N/A	N/A	N/A	N/A	339	N/A	N/A	N/A	N/A	1596
Audit Committee Independence	85.71%	71.43%	57.14%	50%	100%	100%	60%	100%	75%	71.43%	80%
Compensation Committee Independence	100.00%	50.00%	N/A	N/A	N/A	100.00%	N/A	100.00%	N/A	N/A	100.00%
Nomination Committee Independence	100.00%	100.00%	N/A	N/A	N/A	100.00%	N/A	87.50%	N/A	N/A	100.00%
Board Gender Diversity, Percent	33.33%	33.33%	30%	33.33%	33.33%	33.33%	23.08%	33.33%	43.75%	54.55%	23.08%
Average Board Tenure	4.47	11.92	5.5	4.53	3.42	9.72	3.91	4.75	8.3	4.5	11.66
Independent Board Members	90%	60%	45.45%	47.06%	100%	55.56%	41.18%	73.33%	50%	46.15%	78.57%
<b>ACCOUNTING AND FINANCIAL RATIOS</b>											
% Current Assets	21.00%	40.20%	43.99%	23.51%	36.54%	32.55%	47.33%	31.76%	22.31%	27.10%	37.61%
% Inventory	0.00%	7.99%	2.47%	0.85%	8.77%	19.68%	11.17%	1.58%	4.26%	0.74%	7.29%
% LTA	79.00%	59.80%	56.01%	76.49%	63.46%	67.45%	52.67%	68.24%	77.69%	72.90%	62.39%

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	Company 1	Company 2	Company 3	Company 4	Company 5	Company 6	Company 7	Company 8	Company 9	Company 10	Company 11
% Liabilities	94.00%	47.35%	72.82%	67.62%	49.41%	53.95%	62.41%	80.85%	61.69%	58.30%	56.83%
% Equity	6.00%	52.65%	27.18%	32.38%	50.59%	46.05%	37.59%	19.15%	38.31%	41.70%	43.17%
Gross Profit	100.00%	55.88%	30.83%	58.27%	42.77%	2.45%	9.27%	68.19%	49.07%	44.36%	71.21%
EBITDA Margin	46.00%	26.86%	18.96%	14.03%	9.07%	-0.89%	7.09%	10.24%	12.80%	8.69%	27.53%
ROE	9.00%	24.62%	48.70%	9.64%	5.69%	6.09%	2.30%	25.34%	11.67%	10.38%	44.72%
Inventory Turnover	0	4.89	5.73	18.84	4.66	3.52	5.52	15.11	6.66	36.63	2.74
D/E	15.58	0.9	2.68	2.09	0.98	1.17	1.66	4.22	1.61	1.4	1.32
R&D/Revenue	N/A	0.80%	0.19%	1.59%	2.75%	0.43%	2.03%	N/A	1.39%	0.85%	1.83%
MARKET RATIOS											
PE	8.71	25.99	33.07	12.82	37.49	* -5.85	60.43	8.77	25.02	20.12	20.1
EV/EBITDA	5.03	11.84	8.05	5.19	13.46	6.68	6.67	4.13	12.4	15.4	11.23

APPENDIX 1  
ESG MEASURES AND FINANCIAL RATIOS - DEFINITIONS

ESG Measures	Eikon Definition
ESG Combined Score	Refinitiv ESG Combined Score is an overall company score based on the reported information regarding the environmental, social, and corporate governance pillars (ESG Score) with an ESG Controversies overlay.
Environmental Pillar Score	The environmental pillar measures a company's impact on living and non-living natural systems, including the air, land, and water as well as complete ecosystems. It reflects how well a company uses best management practices to avoid environmental risks and capitalize on environmental opportunities in order to generate long-term shareholder value.
Social Pillar Score	The social pillar measures a company's capacity to generate trust and loyalty with its workforce, customers, and society through its use of best management practices. It is a reflection of the company's reputation and the health of its license to operate, which are key factors in determining its ability to generate long-term shareholder value.
Governance Pillar Score	The corporate governance pillar measures a company's systems and processes, which ensures that its board members and executives act in the best interests of its long-term shareholders. It reflects a company's capacity, through its use of best management practices, to direct and control its rights and responsibilities through the creation of incentives as well as checks and balances in order to generate long-term shareholder value.
ESG Controversies Score	The ESG controversies score measures a company's exposure to environmental, social, and governance controversies and negative events reflected in global media.
Environmental Pillar Weight	The environmental pillar weight in the total ESG combined score.
Social Pillar Weight	The social pillar weight in the total ESG combined score.
Governance Pillar Weight	The governance pillar weight in the total ESG combined score.
KPIs	
Total Energy Use / Million in Revenue \$	Total direct and indirect energy consumption in gigajoules divided by net sales or revenue in US dollars (in millions). <i>Has negative polarity (lower values are better).</i>
Renewable Energy Use Ratio	Total energy generated from primary renewable energy sources divided by total energy.
Total Water Use / Million in Revenue \$	Total water withdrawal in cubic meters divided by net sales or revenue in US dollars. <i>Has negative polarity (lower values are better).</i>
Total CO <sub>2</sub> Emissions / Million in Revenue \$	Total CO <sub>2</sub> and CO <sub>2</sub> equivalents, emission in tons divided by net sales or revenue in US dollars. <i>Has negative polarity (lower values are better).</i>
Total Waste / Million in Revenue \$	Total amount of waste produced in tons divided by net sales or revenue in US dollars. <i>Has negative polarity (lower values are better).</i>
Salary Gap	CEO's total salary (or the highest salary) divided by average salaries and benefits. <i>Has negative polarity (lower values are better).</i>
Women Managers	Percentage of women managers. Percentage of women managers out of total managers at the company. If there is a breakdown by category in percentage such as top, senior, middle, junior management, then we consider the percentage of middle woman managers as follows: percentage of women managers= number of women managers/total number of managers*100. <i>Has a positive polarity (higher values is better).</i>
Total Injury Rate Total	Total number of injuries and fatalities including no-lost-time injuries relative to one million hours worked. total injury rate = accident total (number of injuries)/total working hours*1,000,000. Injuries include all work-related deaths, illnesses, minor and major injuries, lost time and non-lost time accidents, medical treatment injuries (MTI), recordable incidents and commuting accidents. total injury rate ≠ employees injury rate + contractors injury rate. Total injury rate includes both employee and contractor injury rate. If the company does not report on contractors' health and safety, then the total employee injury rate is equal to the total injury rate. Unless the company provides the exact working hours, total working hours = total number of (employees + contractors)* 2,000.
Average Training Hours	Average hours of training per year per employee. If the company has reported the total training hours, divide the value by the total number of employees and not employees trained. Only consider average employee training hours. Include all types of training given to general employees (such as health and safety, environmental, emergency response, skills, and career development training). If the value is given in days, multiply by 8, assuming that 1 day = 8 hours worked. <i>Has positive polarity (higher values are better).</i>

Audit Committee Independence	Percentage of independent board members on the audit committee as stipulated by the company. <i>Has positive polarity (higher values are better).</i>
Board Gender Diversity, Percent	Percentage of women on the board. <i>Has positive polarity (higher values are better).</i>
Average Board Tenure	Average number of years each board member has been on the board. <i>Has positive polarity (higher values are better).</i>
Independent Board Members	Percentage of independent board members as reported by the company. <i>Has positive polarity (higher values are better).</i>
<b>Financial Ratios</b>	
% Current Assets	Equals total current assets as a percentage of total assets.
% Long Term Assets	Equals total long-term assets as a percentage of total assets.
% Liabilities	Equals total liabilities as a percentage of total assets.
% Equity	Equals total equity as a percentage of total assets.
Gross Profit Margin	Equals total revenue less cost of sales divided by total revenue.
EBITDA Margin	Equals earnings before interest tax depreciation and amortization divided by revenue.
ROE	Equals net income divided by average total equity.
ROA	Equals net income divided by average total assets.
Inventory Turnover	Equals revenue divided by average inventory.
Quick Ratio	Equals current assets less inventory less prepaid assets divided by current liabilities.
Debt to Equity	Equals total liabilities divided by total equity.
Price to Earnings Ratio	Equals share price divided by earnings per share.
R&D/Revenue	Equals research and development expenses divided by revenue.

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