

| Sustainability Research |

ESG rating and momentum

Do stocks with improving ESG ratings represent potential upside for investors?



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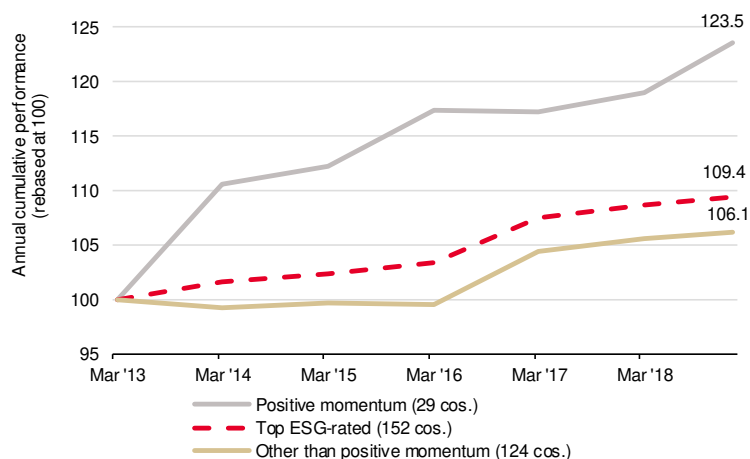
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Traditionally, asset managers have used Environmental, Social and Governance ratings in a defensive way to mitigate portfolio risk, but the model ESG portfolio we have run over the past five years has consistently outperformed the index (and by 27.7% over the full period). Also note that the top rated 10% of our ESG stocks outperformed in all 11 of the 11 semi-annual periods since it was launched. So clearly ESG may not just be for defensive purposes. In this report we go one step further to see whether companies that are *improving their ESG ratings* also outperform. We found that not only do they outperform the index, they also outperformed our portfolio.

Since launching our model ESG portfolio in 2013 we have rebalanced it twice a year using raw data from Sustainalytics. We found that the top 10% of stocks with good ESG ratings outperformed the benchmark (STOXX600) over the five years from March 2013 to March 2018 by 27.7%. In this report, we go one step further to examine this phenomenon of improving ESG ratings (positive ESG momentum).

To this end we expanded the scope of analysis from the top 10% to the top 30% of our “SRI beyond integration” basket for each sector (hence to approx. 150 stocks). From this we found ca. 30 names that enjoyed positive momentum on their ESG ratings generated a cumulative outperformance of 23.5% vs the STOXX600 from Mar 2013 to Jan 2019. This is much higher than the outperformance of the top 30% ESG rated stocks from each sector (+9.4%), or that of negative-/neutral-momentum ESG stocks (+6.1%).

Stocks with improved ESG ratings (positive momentum) outperformed the top 30% ESG stocks



Source: SG Cross Asset Research/ESG (performance from March 15 '13 to Jan 15 '19 relative to STOXX 600)

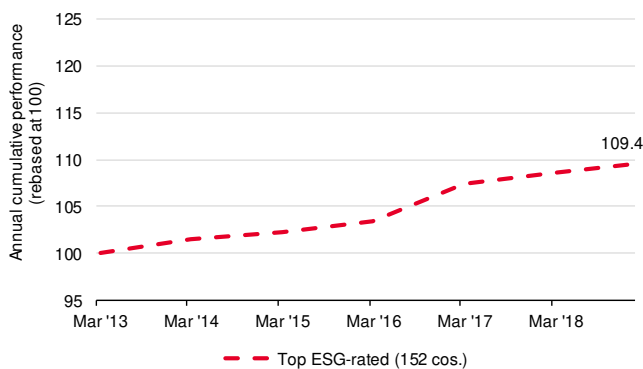
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In summary

As we show below, based on our 'SRI Beyond Integration Universe' of stocks¹, an investor who bought the top 30% ESG rated companies would have outperformed the STOXX600 over our performance period by more than 9%. However, if they had bought the positive-ESG-momentum companies, i.e. those that **improved on the ESG rating by more than 10% yoy, they would have outperformed the STOXX600 by 23.5%. They would also have outperformed the 'other than positive momentum' (i.e. neutral or negative ESG momentum companies) in five out of six years over the 2013-19 period.**

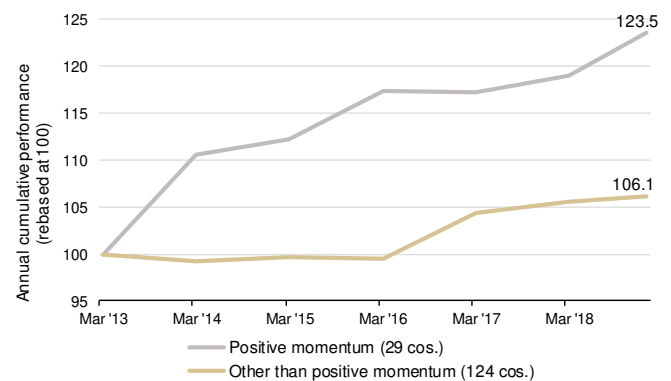
We also found that the average outperformance of companies with improving ESG ratings vs STOXX600 (and our overall SRI basket of 500 stocks) is more than 3% in each of those years, with a cumulative outperformance of more than 20%.

Top companies on ESG rating outperformed STOXX600*



*Performance from March 2013 to Jan 15 '19 relative to STOXX 600
Past performance is no guide to future returns.
Source: SG Cross Asset Research/ESG

...and within those, companies with improving ESG ratings (positive momentum) performed the best



*Performance from March 2013 to Jan 15 '19 relative to STOXX 600
Past performance is no guide to future returns.
Source: SG Cross Asset Research/ESG

Performance of top 30% stocks from each sector based on ESG rating

	Company count		Performance vs STOXX600		Performance vs Universe	
	Positive momentum	Other than positive momentum	Positive momentum	Other than positive momentum	Positive momentum	Other than positive momentum
Mar 13	29	108	10.6%	-0.8%	8.3%	-3.0%
Mar 14	41	113	1.4%	0.5%	4.1%	3.1%
Mar 15	42	118	4.7%	-0.3%	5.3%	0.4%
Mar 16	33	122	-0.1%	4.9%	-3.7%	1.4%
Mar 17	18	134	1.5%	1.1%	-0.5%	-0.9%
Mar 18	8	147	3.8%	0.6%	5.9%	2.7%
Average	29	124	3.6%	1.0%	3.2%	0.6%
Cumulative	-	-	23.5%	6.0%	20.5%	3.5%

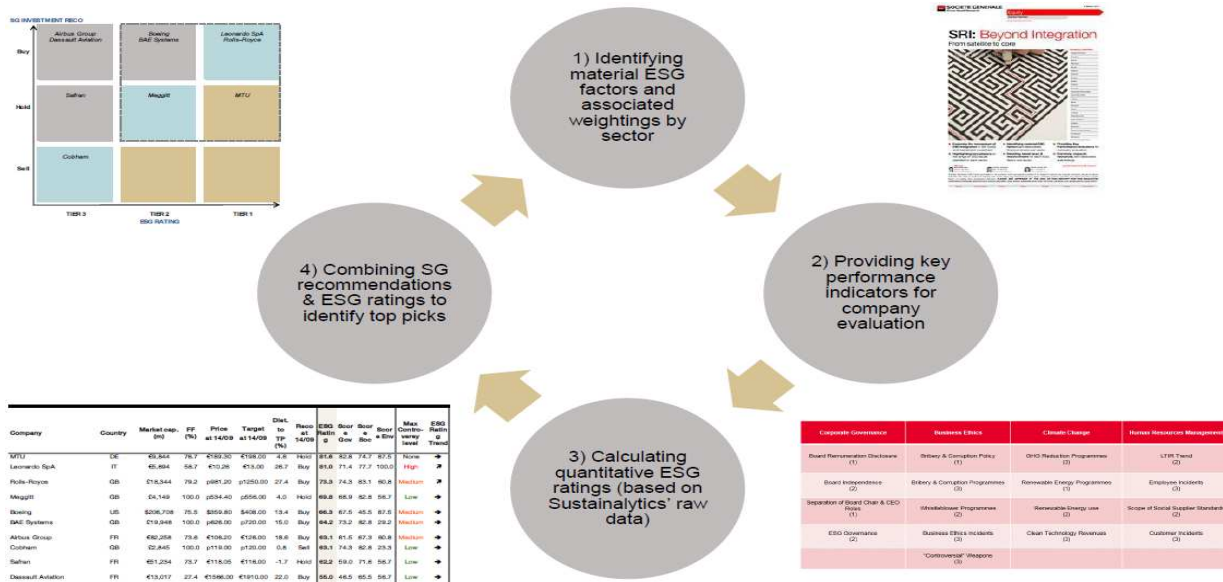
Performance of stocks from March 15 2013 to Jan 15 2019
Past performance is no guide to future returns.
Source: SG Cross Asset Research/ESG

¹ For the full description of our SRI Beyond Integration method see link [here](#)

ESG ratings: How do we calculate them and do they enhance performance?

When we started our ESG integration analysis in 2012 we found little enthusiasm among investors for the idea (i.e. what 'financial' value-add could there be other than ethical, marketing or philosophical positioning?). Back then the idea was to provide investors with warning flags on companies that rated poorly on ESG performance, and to reassure them about investing in companies that rated well. Our theory was that companies with strong ESG policies and good structures in place are less likely to produce unwelcome surprises. Such companies should inspire greater investor confidence and so be preferred over the long run. Since then, investor interest in ESG has grown massively, while the **top 10% of ESG-rated stocks have outperformed STOXX 600 by 27.7% (see our [SRI beyond integration report](#)).**

Evaluating ESG rating – SRI beyond integration



Source: SG Cross Asset Research/ESG

So how do we do it? To rate our stocks we use a mix of qualitative, quantitative and engagement-based approaches. As shown in the above chart, to compute ESG ratings, we identify material ESG themes for each sector and assign weights to the key indicators based on their materiality, before combining the quantitative ESG rating with our analysts' financial recommendations. Our raw data comes from Sustainalytics. In this report, we focus only on the quantitative aspect – scoring each company on environmental, social and governance indicators to calculate their overall ESG rating.

For each sector we focus on 15-20 material indicators based on relevant themes. We try to avoid a generalist approach that might take all universally available indicators into consideration given the need to understand their relevance within the sector. Nowadays, there are hundreds of indicators available across ESG rating/data providers to analyse ESG rating of companies. However, we find it better to focus on a small number of relevant indicators for each sector to avoid losing sight of what really counts from a financial perspective.

Sector example: By way of illustration, we have here broken down the ESG rating evaluation of the **Aerospace & Defence sector**. In this sector, we qualitatively select and analyse the 17 most material indicators based on four relevant ESG themes and weight each indicator between 1-3 based on its degree of materiality. We score each indicator between 0-100 and based on the weights assigned to each indicator, we assign each company an overall ESG rating between 0-100.

Example, for this sector, MTU scores the highest ESG rating of 81.6 and Dassault Aviation is at the bottom of the table with a score of 55. We further combine the ESG rating with the financial recommendations of our sector analysts. We repeat this across 26 sectors, rating the approx. 500 stocks covered by our equity research team.

ESG rating evaluation: Aerospace and defence

Corporate Governance	Business Ethics	Climate Change	Human Resources Management
Board Remuneration Disclosure (1)	Bribery & Corruption Policy (1)	GHG Reduction Programmes (3)	LTIR Trend (2)
Board Independence (2)	Bribery & Corruption Programmes (3)	Renewable Energy Programmes (1)	Employee Incidents (3)
Separation of Board Chair & CEO Roles (1)	Whistleblower Programmes (2)	Renewable Energy use (2)	Scope of Social Supplier Standards (2)
ESG Governance (2)	Business Ethics Incidents (3)	Clean Technology Revenues (3)	Customer Incidents (3)
	"Controversial" Weapons (3)		

Source: SG Cross Asset Research/ESG, Sustainalytics, Companies, Media. Note: Number in brackets are weights of the KPIs in ESG rating

ESG and financial integration: Aerospace and defence

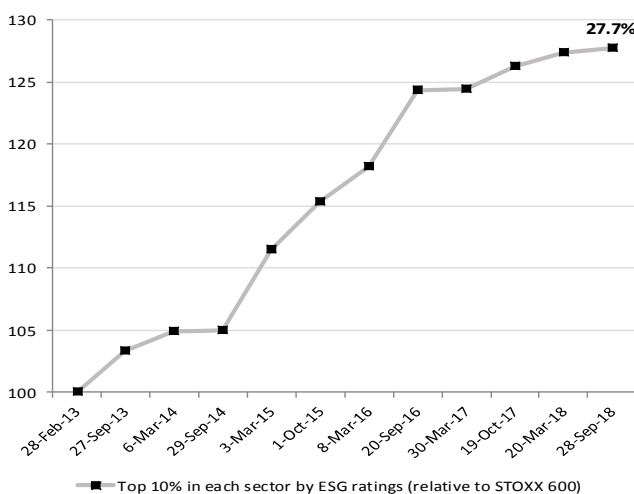
Company	Country	Market cap. (m)	FF (%)	Price at 14/09	Target at 14/09	Dist. to TP (%)	Reco at 14/09	ESG Rating	Score Gov	Score Soc	Score Env	Max Controversy level	ESG Rating Trend
MTU	DE	€9,844	76.7	€189.30	€198.00	4.6	Hold	81.6	82.8	74.7	87.5	None	→
Leonardo SpA	IT	€5,894	58.7	€10.26	€13.00	26.7	Buy	81.0	71.4	77.7	100.0	High	↗
Rolls-Royce	GB	£18,344	79.2	p981.20	p1250.00	27.4	Buy	73.3	74.3	83.1	60.8	Medium	↗
Meggitt	GB	£4,149	100.0	p534.40	p556.00	4.0	Hold	69.8	68.9	82.8	56.7	Low	→
Boeing	US	\$206,708	75.5	\$359.80	\$408.00	13.4	Buy	66.3	67.5	45.5	87.5	Medium	→
BAE Systems	GB	£19,948	100.0	p626.00	p720.00	15.0	Buy	64.2	73.2	82.8	29.2	Medium	→
Airbus Group	FR	€82,258	73.6	€106.20	€126.00	18.6	Buy	63.1	61.5	67.3	60.8	Medium	→
Cobham	GB	£2,845	100.0	p119.00	p120.00	0.8	Sell	63.1	74.3	82.8	23.3	Low	→
Safran	FR	€51,234	73.7	€118.05	€116.00	-1.7	Hold	62.2	59.0	71.6	56.7	Low	→
Dassault Aviation	FR	€13,017	27.4	€1566.00	€1910.00	22.0	Buy	55.0	46.5	65.5	56.7	Low	→

Source: SG Cross Asset Research/ESG, Sustainalytics, Companies, Media

Does it work?

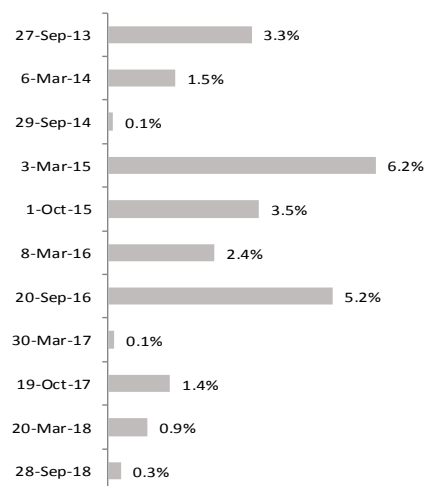
Using this approach we find that the stocks that have been in the top 10% of ESG-rated companies in each sector have collectively outperformed the STOXX600. From March 2013 to September 2018, we find that using our bi-annual publications to buy these top companies in ESG ratings would have generated a **cumulative alpha of 27.7%**.

Top 10% of ESG rated stocks outperformed STOXX600 by 27.7%



*Performance from March 2013 to Sept 2018 relative to STOXX 600
Past performance is no guide to future returns.
Source: SG Cross Asset Research/ESG

... and outperformed in 11 out of 11 periods



*Performance from March 2013 to Sept 2018 relative to STOXX 600
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Source: SG Cross Asset Research/ESG

Can momentum on ESG ratings lead to stock outperformance?

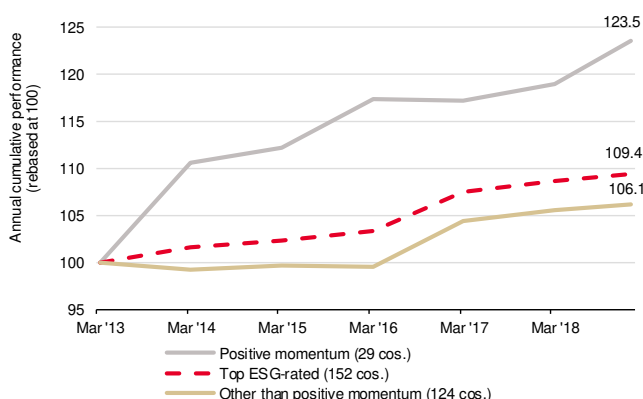
Now that we have shown that the better-positioned ESG-rated companies did well, we are going one step further to see whether an *improving* ESG rating can enhance this performance. And indeed we have found that **within the top ESG-rating portfolio (of approx. 150 stocks), those names that showed an annual positive change in ESG rating of more than 10% (approx. 30 names in all) did perform better than those with either neutral or negative momentum (approx. 120 companies) over our performance period.**

Methodology: We define **Positive** ESG rating momentum as when a company's ESG rating has improved by more than 10% on the previous year. We define **Negative** ESG rating momentum as where a company's ESG rating has fallen by more than 10% on the previous year; and **Neutral** momentum where our rating has not changed or remained in a -10% to +10% range. Our analysis is based on the ESG ratings published in our 'SRI beyond integration' reports, which have gone out twice a year since March 2013.

We are mindful that selecting stocks from among just the top 10% ESG-rated names (approx. 50 companies) would have resulted in only a few names to analyse with improving ESG ratings, so we expanded the scope of analysis to the top 30% of stocks (approx. 150 names) in the ESG universe from each sector.

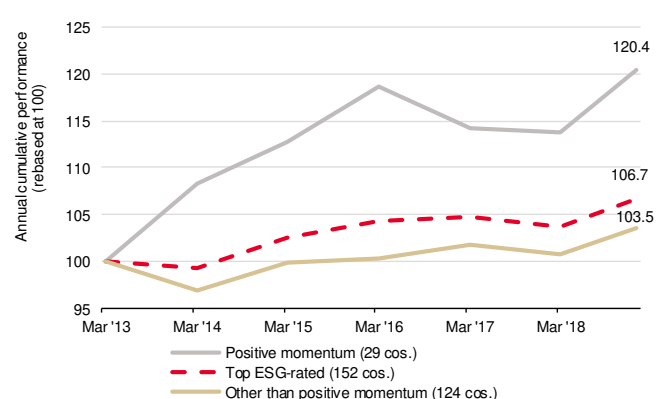
We found that the positive momentum stocks within the top 30% of the ESG-rating universe generated a cumulative outperformance of +23.5% vs STOXX600, and +20.4% vs the SRI beyond integration universe between Mar 2013-Jan 2019. This is much higher than the performance of the top ESG-rated 30% of stocks from each sector (+9.4% vs STOXX600 and +6.7% vs universe), or for those that do not meet the positive momentum criterion (+6.1% vs STOXX600 and +3.5% vs our ESG universe).

Positive momentum companies outperformed the top 30% ESG rated companies as well as the STOXX 600...



*Performance from March 15 '13 to Jan 15 '19 relative to STOXX 600
Past performance is no guide to future returns.
Source: SG Cross Asset Research/ESG

...and also the SRI beyond integration universe



*Performance from March 15 '13 to Jan 15 '19 relative to SRI beyond integration universe
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Source: SG Cross Asset Research/ESG

Below we present the above charts in table format, showing the annual performance over the period. We see that the positive-ESG-momentum companies, i.e. **those with ESG ratings that improved by more than 10% vs previous year outperformed the ‘other than positive momentum’ companies in five out of those six years.**

The average outperformance of these companies with improved ESG ratings vs STOXX600 or the overall universe is more than 3% in each of those years and the cumulative outperformance is more than 20%.

Performance of top 30% companies from each sector based on ESG rating

	Company count		Performance vs STOXX600		Performance vs Universe	
	Positive momentum	Other than positive momentum	Positive momentum	Other than positive momentum	Positive momentum	Other than positive momentum
Mar 13	29	108	10.6%	-0.8%	8.3%	-3.1%
Mar 14	41	113	1.4%	0.5%	4.1%	3.1%
Mar 15	42	118	4.7%	-0.2%	5.3%	0.5%
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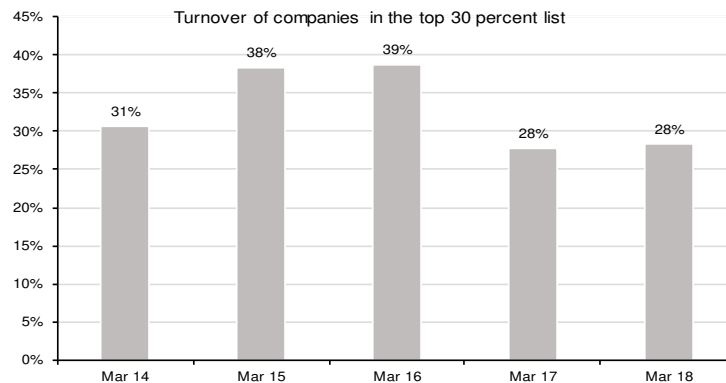
*Performance from March 15 2013 to Jan 15 2019 relative to STOXX 600 and SRI beyond integration universe
Past performance is no guide to future returns.
Source: SG Cross Asset Research/ESG

The reason we measure ‘other than positive momentum’ stocks and do not break it down between neutral and negative momentum is that the **negative momentum companies are too few to analyse** (on average, only four companies showed negative momentum on our ratings criteria, and for this reason, the performance of negative momentum companies is quite volatile. Surprisingly, on this basis over this period, the negative momentum companies showed a relative performance of +15.6% vs STOXX600 and +12.4% vs universe. This was better than the neutral momentum stocks (+5.7% vs STOXX600 and +3.1% vs universe), but the cumulative performance of the negative momentum stocks is still below the positive momentum stocks (+23.5% vs STOXX600 and +20.4% vs universe).

Turnover

In the analysis below, we highlight that the **turnover of the top 30% of stocks is 33% on average for the 2013-18 period** (see table below). Also the turnover of stocks with improving ESG ratings within the top 30% would be close to 100% as this list is made up of companies that are improving their ESG rating on an annual basis. For this reason, a company that appears on the list one year due to a 10% positive change in its ESG rating has a lower chance of appearing again the following year with a consecutive change of +10%.

Percentage of companies that were replaced yo/y in the top 30% ESG universe



Source: SG Cross Asset Research/ESG

Sector and country breakdown

A deep dive into each sector or country is quite difficult as the number of companies that have positive ESG rating momentum is low: overall, on average, there are only 29 positive momentum companies, ranging from 8-42 stocks, over the 2013-19 period. With such a low number, we cannot expect all sectors or countries to feature on the list, and even if they do, the count will be low. Still, based on the available information, we have calculated the performance of these 8-42 positive momentum stocks every year vs their respective sector or country universe and then counted how many times out of the six years in question the sector or country did well.

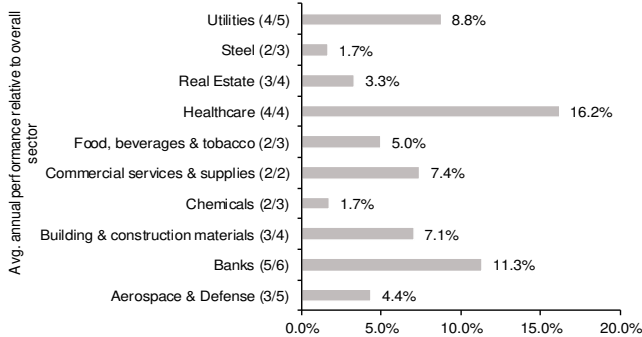
For example, Aerospace & Defence sector companies showed up on the ~30 positive momentum companies list in five years of the six, and outperformed their sector in three of those years, with an average annual outperformance of 4.4% against the sector. On the other hand, the Automobiles & Components sector outperformed in only one out of three years and the average annual underperformance was 10.3%.

There were no conclusive results when we analysed the positive momentum companies based on market cap.

Our findings on which sectors or countries contributed positively or negatively to the positive momentum stock performance is as follows:

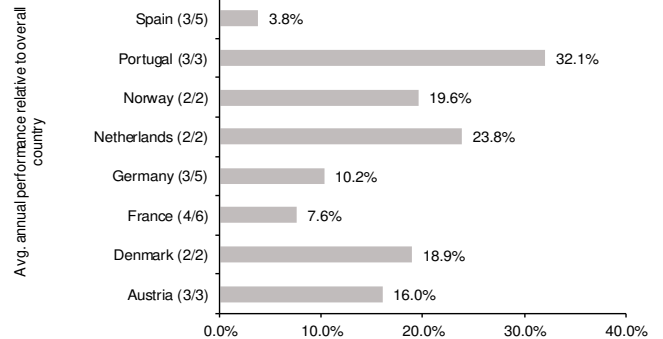
- **Sectors that performed well:** Aerospace & Defense, Banks, Building & construction materials, Chemicals, Commercial services & supplies, Food, beverages & tobacco, Healthcare, Real Estate, Steel, Utilities
- **Countries that performed well:** Austria, Denmark, France, Germany, Netherlands, Norway, Portugal, Spain
- **Sectors that did not perform well:** Automobiles & auto components, Capital goods, Diversified financials, Food & Staples retailing, Hotel, Restaurants & Leisure, Insurance, Media & Internet, Mining, Technology hardware & equipment
- **Countries that did not perform well** – Italy, Sweden, United Kingdom

Sectors in which the top 30% companies with positive momentum outperformed in most years



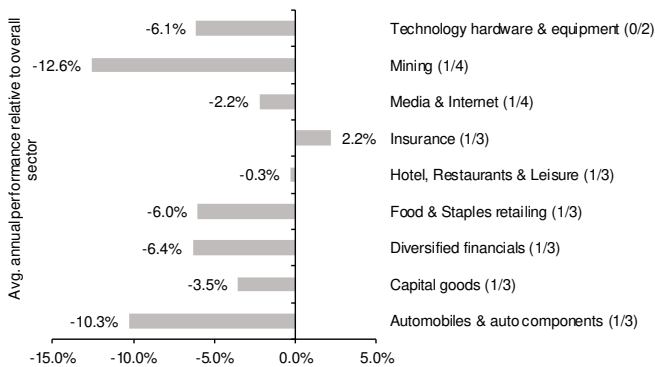
Note the number in brackets in the above chart is the number of years the positive momentum companies in each sector outperformed out of overall years
Source: SG Cross Asset Research/ESG.

Countries in which the top 30% companies with positive momentum outperformed in most years



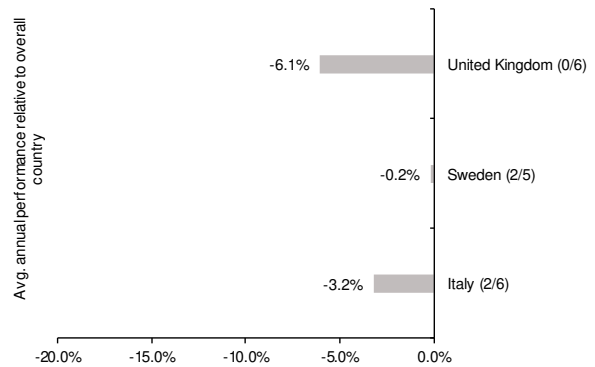
Note the number in brackets in the above chart is the number of years the positive momentum companies in each country outperformed out of overall years
Source: SG Cross Asset Research/ESG.

Sectors in which the top 30% companies with positive momentum underperformed in most years



Note the number in brackets in the above chart is the number of years the positive momentum companies in each sector outperformed out of overall years
Source: SG Cross Asset Research/ESG.

Countries in which the top 30% companies with positive momentum underperformed in most years



Note the number in brackets in the above chart is the number of years the positive momentum companies in each country outperformed out of overall years
Source: SG Cross Asset Research/ESG.

In our analysis, we are mindful of the fact that STOXX600 rebalances every quarter, while our SRI beyond integration reports rebalances ESG ratings only twice a year. **Below is a summary of the sector composition of the top 30% of stocks (approx. 150 names) and those with a positive change in ESG rating (approx. 30 names) versus the STOXX 600.**

Composition of top 30% ESG-rated and 'positive-ESG-rating-change' companies by sector vs STOXX600

	Distribution of top 30% companies on ESG rating by sector						Distribution of companies with positive ESG rating change y-o-y							STOXX600
	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18	Feb 19	
Aerospace & Defense	3%	3%	3%	3%	3%	3%	7%	5%	0%	3%	11%	25%	2%	
Automobiles & auto components	4%	3%	3%	3%	3%	3%	10%	2%	2%	0%	0%	0%	3%	
Banks	9%	10%	11%	10%	9%	11%	14%	12%	17%	15%	6%	38%	8%	
Building & construction materials	4%	3%	3%	3%	3%	3%	7%	5%	10%	0%	6%	0%	4%	
Capital goods	5%	5%	5%	6%	5%	5%	0%	7%	7%	9%	0%	0%	8%	
Chemicals	3%	3%	3%	5%	4%	3%	0%	5%	2%	3%	0%	0%	4%	
Commercial services & supplies	1%	1%	1%	1%	1%	2%	0%	0%	5%	0%	6%	0%	5%	
Diversified financials	4%	3%	3%	3%	3%	3%	14%	0%	0%	15%	0%	13%	5%	
Food & Staples retailing	0%	1%	2%	2%	2%	2%	0%	0%	2%	3%	6%	0%	2%	
Food, beverages & tobacco	5%	5%	8%	8%	8%	8%	0%	2%	2%	9%	0%	0%	5%	
Healthcare	4%	5%	2%	3%	5%	5%	3%	7%	5%	0%	6%	0%	9%	
Hotel, Restaurants & Leisure	1%	1%	1%	1%	1%	1%	0%	2%	2%	0%	0%	13%	2%	
Household & personal products	1%	2%	3%	3%	3%	3%	3%	0%	2%	0%	0%	0%	4%	
Insurance	4%	3%	3%	3%	3%	3%	0%	2%	7%	0%	0%	13%	6%	
Luxury goods	0%	2%	2%	2%	2%	2%	0%	0%	2%	0%	0%	0%	2%	
Media & Internet	4%	4%	6%	5%	6%	5%	3%	7%	2%	6%	0%	0%	3%	
Mining	4%	4%	3%	3%	3%	2%	7%	2%	2%	0%	6%	0%	2%	
Oil & Gas	17%	16%	13%	10%	11%	10%	3%	7%	17%	0%	22%	0%	4%	
Real Estate	5%	5%	5%	5%	5%	6%	0%	7%	2%	6%	17%	0%	5%	
Retailing	2%	2%	3%	2%	2%	1%	3%	0%	0%	0%	0%	0%	2%	
Software & services	4%	4%	4%	4%	3%	4%	3%	2%	0%	3%	11%	0%	3%	
Steel	2%	3%	2%	2%	2%	1%	3%	0%	2%	6%	0%	0%	1%	
Technology hardware & equipment	3%	3%	3%	1%	1%	1%	0%	5%	0%	3%	0%	0%	2%	
Telecommunication services	4%	5%	4%	4%	5%	5%	0%	10%	0%	0%	0%	0%	4%	
Transportation	1%	1%	1%	2%	2%	3%	0%	0%	0%	0%	0%	0%	3%	
Utilities	7%	6%	6%	6%	5%	5%	17%	7%	7%	18%	6%	0%	5%	

Source: SG Cross Asset Research/ESG

'Real money' consensus vs. Societe Generale ESG ratings

In addition, we would draw your attention to a report we published in November: [How contrarian are our ESG ratings? - Checking SG ESG ratings against real world ESG portfolios.](#)

In this report, we identify the best or worst ESG-rated companies in our model to see how they overlap with the investments favoured by ESG funds using the 'Responsible Investor Consensus' provided by Beyond-Ratings. We did this because investors regularly seek 'colour', in other words, do our ratings in some way clash with financial ratings, because at the end of the day, financial ratings must be taken into account.

What did we find overall? Well, in general, we found a good alignment between our own in-house top ESG ratings and the stocks held by RI's 'Beyond Ratings' funds.

We think this cross-check provides investors with a value-added tool given that some of our ESG recommendations are only partly integrated into the RI Consensus data (as of course some of these investors use our data to make decisions), while in other cases our ESG ratings appear not be taken into account in their portfolios at all.

Addendum 1

List of top 30 percent companies on ESG rating based on our SRI beyond integration publication (1/4)

	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18
1	= BAE Systems PLC	↑ Airbus SE	↓ Airbus SE	= Bombardier Inc	↑ BAE Systems PLC	= Leonardo SpA
2	↑ Boeing Co	= Bombardier Inc	= Bombardier Inc	= Cobham PLC	↑ Leonardo SpA	↑ Meggitt PLC
3	= Bombardier Inc	= Cobham PLC	= Cobham PLC	= MTU Aero Engines AG	= MTU Aero Engines AG	↑ MTU Aero Engines AG
4	↑ Thales SA	↑ Leonardo SpA	= Rolls-Royce Holdings PLC	↑ Thales SA	= Thales SA	= Thales SA
5	↑ Bayerische Motoren Werke AG	= Bayerische Motoren Werke AG	= Bayerische Motoren Werke AG	= Bayerische Motoren Werke AG	= Continental AG	= Bayerische Motoren Werke AG
6	↑ Michelin SCA	↑ Daimler AG	= Daimler AG	= Daimler AG	= Peugeot SA	= Continental AG
7	= Pirelli & C SpA	= Pirelli & C SpA	= Pirelli & C SpA	= Peugeot SA	= Porsche Automobil Holding SE	= Peugeot SA
8	↑ Valeo SA	= Renault SA	↑ Porsche Automobil Holding SE	= Valeo SA	= Renault SA	= Renault SA
9	= Volkswagen AG	= Volkswagen AG	= Valeo SA	↑ Aareal Bank AG	= Valeo SA	= Valeo SA
10	↑ Banco Bilbao Vizcaya Argentaria SA	= Banco Bilbao Vizcaya Argentaria SA	= Banco Bilbao Vizcaya Argentaria SA	= ABN AMRO Group NV	= ABN AMRO Group NV	= ABN AMRO Group NV
11	= BNP Paribas SA	↑ BNP Paribas SA	↑ Commerzbank AG	↑ Banco de Sabadell SA	= Credit Agricole SA	= Caixabank SA
12	↑ Caixabank SA	= Caixabank SA	= Credit Agricole SA	= Caixabank SA	= Danske Bank A/S	= Credit Agricole SA
13	= Credit Agricole SA	= Citigroup Inc	↑ Danske Bank A/S	= Credit Agricole SA	= DNB ASA	= Danske Bank A/S
14	= Credit Suisse Group AG	↑ Credit Agricole SA	= DNB ASA	= Danske Bank A/S	= Erste Group Bank AG	= DNB ASA
15	= DNB ASA	= DNB ASA	= Erste Group Bank AG	↑ DNB ASA	= Goldman Sachs Group Inc	= Erste Group Bank AG
16	= HSBC Holdings PLC	↑ Erste Group Bank AG	= Goldman Sachs Group Inc	= Erste Group Bank AG	= KBC Groep NV	= ING Groep NV
17	= ING Groep NV	= HSBC Holdings PLC	= ING Groep NV	= ING Groep NV	↑ Natixis SA	↑ Intesa Sanpaolo SpA
18	↑ Intesa Sanpaolo SpA	= ING Groep NV	↑ KBC Groep NV	= KBC Groep NV	↓ Nordea Bank Abp	= JPMorgan Chase & Co
19	= Nordea Bank Abp	= Intesa Sanpaolo SpA	= Morgan Stanley	= Nordea Bank Abp	= Raiffeisen Bank International AG	= KBC Groep NV
20	= Royal Bank of Scotland Group PLC	= Natixis SA	= Nordea Bank Abp	↑ Raiffeisen Bank International AG	= Skandinaviska Enskilda Banken AB	↑ Lloyds Banking Group PLC
21	↑ Standard Chartered PLC	= Nordea Bank Abp	↑ Raiffeisen Bank International AG	= Skandinaviska Enskilda Banken AB	= Svenska Handelsbanken AB	= Natixis SA
22	↑ Compagnie de Saint Gobain SA	↑ Skandinaviska Enskilda Banken AB	↑ Skandinaviska Enskilda Banken AB	↑ Standard Chartered PLC	↓ Swedbank AB	= Nordea Bank Abp
23	= CRH PLC	↑ Standard Chartered PLC	↑ Svenska Handelsbanken AB	= Svenska Handelsbanken AB	= UBS Group AG	= Raiffeisen Bank International AG
24	= Imerys SA	= Swedbank AB	↑ Swedbank AB	= Swedbank AB	↑ Abertis Infraestructuras SA	= Skandinaviska Enskilda Banken AB
25	↑ LafargeHolcim Ltd	↑ Atlantia SpA	= UBS Group AG	= Compagnie de Saint Gobain SA	= Compagnie de Saint Gobain SA	= Svenska Handelsbanken AB
26	= Vinci SA	= Compagnie de Saint Gobain SA	= UniCredit SpA	= CRH PLC	= CRH PLC	↑ Swedbank AB
27	= AB SKF	= CRH PLC	= Compagnie de Saint Gobain SA	= Geberit AG	= Geberit AG	= Compagnie de Saint Gobain SA
28	= Atlas Copco AB	↑ Ferrovia SA	↑ CRH PLC	= Imerys SA	= LafargeHolcim Ltd	= CRH PLC
29	= Fiat Industrial SpA	= Imerys SA	↑ Ferrovia SA	= LafargeHolcim Ltd	= AB SKF	= Ferguson PLC
30	= Koninklijke Philips NV	= AB SKF	↑ HeidelbergCement AG	= AB SKF	= ABB Ltd	= Geberit AG
31	= Sandvik AB	↑ ABB Ltd	↑ Imerys SA	= ABB Ltd	= Assa Abloy AB	= AB SKF
32	= Schneider Electric SE	= Atlas Copco AB	↑ AB SKF	↑ Assa Abloy AB	= Atlas Copco AB	= ABB Ltd
33	= Volvo AB	↑ Imensys Ltd	↑ ABB Ltd	= Atlas Copco AB	= Koninklijke Philips NV	= Assa Abloy AB
34	= Air Liquide SA	= Koninklijke Philips NV	= Atlas Copco AB	= CNH Industrial NV	= Legrand SA	= Legrand SA
35	= Akzo Nobel NV	↑ Siemens AG	= Koninklijke Philips NV	= IMI PLC	= Osram Licht AG	= Osram Licht AG
36	= Clariant AG	= Volvo AB	↑ Legrand SA	= Koninklijke Philips NV	= Schneider Electric SE	= Sandvik AB
37	= Praxair Inc	= Akzo Nobel NV	= Schneider Electric SE	= Legrand SA	= Akzo Nobel NV	= Schneider Electric SE
38	= Neopost SA	↑ BASF SE	= Siemens Gamesa Renewable Energy SA	↑ Osram Licht AG	= Clariant AG	= Volvo AB
39	= SGS SA	= Praxair Inc	= Volvo AB	↑ Schneider Electric SE	= Covestro AG	= Akzo Nobel NV
40	↑ Aberdeen Asset Management PLC	↑ Syngenta AG	= Akzo Nobel NV	= Akzo Nobel NV	= Koninklijke DSM NV	= Clariant AG

Source: SG Cross Asset Research/ESG. Note: Up arrow = Positive ESG momentum (>+10% change); Down arrow = Negative ESG momentum (<-10% change); Equal symbol = Neutral ESG momentum

List of top 30 percent companies on ESG rating based on our SRI beyond integration publication (2/4)

	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18
41	↑ Ashmore Group PLC	= Neopost SA	= BASF SE	= Clariant AG	= Linde AG	= Croda International PLC
42	↑ BMO Asset Management Holdings PLC	= SGS SA	↑ Clariant AG	= Croda International PLC	= Praxair Inc	= Koninklijke DSM NV
43	↑ Janus Henderson Group PLC	= Aberdeen Asset Management PLC	= Linde AG	= Evonik Industries AG	↑ Bureau Veritas SA	= Praxair Inc
44	= Jupiter Fund Management PLC	= Ashmore Group PLC	= Praxair Inc	= Koninklijke DSM NV	↓ SGS SA	= Bureau Veritas SA
45	= Coca-Cola European Partners PLC	= BMO Asset Management Holdings PLC	↑ Bureau Veritas SA	↑ Linde AG	= Aberdeen Asset Management PLC	= Elis SA
46	= Danone SA	= Janus Henderson Group PLC	↑ SGS SA	= Praxair Inc	= Ashmore Group PLC	= SGS SA
47	= Diageo PLC	= Jupiter Fund Management PLC	= Aberdeen Asset Management PLC	= Neopost SA	= Deutsche Boerse AG	↑ 3i Group PLC
48	= Imperial Brands PLC	= Carrefour SA	= Ashmore Group PLC	= SGS SA	= Eurazeo SE	= Ashmore Group PLC
49	= Nestle SA	= Tesco PLC	= Deutsche Boerse AG	↑ Aberdeen Asset Management PLC	= Janus Henderson Group PLC	= Eurazeo SE
50	= Pernod Ricard SA	= British American Tobacco PLC	= Jupiter Fund Management PLC	↑ Ashmore Group PLC	= Casino Guichard Perrachon SA	= Jupiter Fund Management PLC
51	= Swedish Match AB	= Carlsberg A/S	= London Stock Exchange Group PLC	↑ Deutsche Boerse AG	↑ Dia SA	= Schroders PLC
52	↑ AstraZeneca PLC	= Coca-Cola European Partners PLC	= J Sainsbury PLC	↑ Eurazeo SE	= Metro AG	= Carrefour SA
53	= Elekta AB (publ)	= Danone SA	↑ Koninklijke Ahold Delhaize NV	↑ Janus Henderson Group PLC	= British American Tobacco PLC	= Dia SA
54	= EssilorLuxottica SA	= Diageo PLC	= Tesco PLC	↑ Carrefour SA	= C&C Group PLC	= J Sainsbury PLC
55	= GlaxoSmithKline PLC	= Nestle SA	= British American Tobacco PLC	= J Sainsbury PLC	= Coca Cola HBC AG	↓ Coca Cola HBC AG
56	= Novartis AG	↑ Pernod Ricard SA	= Coca Cola HBC AG	= Koninklijke Ahold Delhaize NV	= Coca-Cola European Partners PLC	= Dairy Crest Group PLC
57	= Smith & Nephew PLC	= Swedish Match AB	= Coca-Cola Co	↑ Britvic PLC	= Danone SA	= Danone SA
58	= Accor SA	= AstraZeneca PLC	↑ Coca-Cola European Partners PLC	↑ C&C Group PLC	= Diageo PLC	= Davide Campari Milano SpA
59	↑ Beiersdorf AG	↑ Biomerieux SA	= Diageo PLC	↑ Coca Cola HBC AG	= Heineken NV	= Glanbia PLC
60	= Henkel AG & Co KgaA	= Elekta AB (publ)	= General Mills Inc	= Coca-Cola European Partners PLC	= Kellogg Co	= Greencore Group PLC
61	= Aegon NV	= EssilorLuxottica SA	= Kellogg Co	= Diageo PLC	= Molson Coors Brewing Co	= Kellogg Co
62	= Allianz SE	↑ Merck KGaA	= Nestle India Ltd	= Heineken NV	= Nestle SA	= Nestle SA
63	↓ Aviva PLC	= Novartis AG	= Nestle SA	= Kellogg Co	= Pernod Ricard SA	= PepsiCo Inc
64	= Delta Lloyd NV	↑ Sanofi SA	= PepsiCo Inc	= Molson Coors Brewing Co	= Swedish Match AB	= Pernod Ricard SA
65	= Munich Re	= Smith & Nephew PLC	= Pernod Ricard SA	= Nestle SA	= Bayer AG	= Refresco Group NV
66	= Dentsu Aegis Network Ltd	= Accor SA	= Swedish Match AB	= PepsiCo Inc	= Chr Hansen Holding A/S	= Swedish Match AB
67	= Lagardere SCA	↑ Club Med SAS	= Biomerieux SA	= Pernod Ricard SA	= EssilorLuxottica SA	↓ Bayer AG
68	= Pearson PLC	= Henkel AG & Co KgaA	↑ Chr Hansen Holding A/S	= Swedish Match AB	= GlaxoSmithKline PLC	= Biomerieux SA
69	= Relx PLC	= L'Oreal SA	↑ EssilorLuxottica SA	= AstraZeneca PLC	= Johnson & Johnson	= Chr Hansen Holding A/S
70	↑ Vivendi SA	= Unilever PLC	= Accor SA	= Biomerieux SA	= Merck & Co Inc	= Merck & Co Inc
71	= WPP PLC	= Aegon NV	↑ Sodexo SA	= Chr Hansen Holding A/S	= Merck KGaA	↓ Merck KGaA
72	= Anglo American PLC	= Allianz SE	= Henkel AG & Co KgaA	= Merck KGaA	↑ Novo Nordisk A/S	= Novo Nordisk A/S
73	↑ Iamgold Corp	= AXA SA	= Hindustan Unilever Ltd	= Sanofi SA	= Melia Hotels International SA	= Pfizer Inc
74	= Lonmin PLC	↑ Munich Re	= L'Oreal SA	= Accor SA	= Sodexo SA	= Sanofi SA
75	↑ Randgold Resources Ltd	= Kering SA	↑ SEB SA	↓ Sodexo SA	= Henkel AG & Co KgaA	↑ Accor SA
76	= Xstrata Ltd	= The Swatch Group AG	↑ Assicurazioni Generali SpA	= Henkel AG & Co KgaA	= Kimberly-Clark Corp	= Sodexo SA
77	= Artec Foster Wheeler Ltd	= Tod's SpA	↑ Aviva PLC	= SEB SA	= SEB SA	= Henkel AG & Co KgaA
78	= Baker Hughes A GE Co	↑ Havas SA	= AXA SA	= Societe BIC SA	= Societe BIC SA	= Kimberly-Clark Corp
79	= BG Group Ltd	↑ Lagardere SCA	= Munich Re	= Svenska Cellulosa SCA AB	= Svenska Cellulosa SCA AB	= SEB SA
80	= Bourbon Corporation SA	↑ Relx PLC	↑ Swiss Re AG	= Allianz SE	= Allianz SE	= Societe BIC SA

Source: SG Cross Asset Research/ESG. Note: Up arrow = Positive ESG momentum (>+10% change); Down arrow = Negative ESG momentum (<-10% change); Equal symbol = Neutral ESG momentum

List of top 30 percent companies on ESG rating based on our SRI beyond integration publication (3/4)

	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18
81	= Cenovus Energy Inc	= RTL Group SA	= Salvatore Ferragamo SpA	= AXA SA	= AXA SA	= Tarkett SA
82	= CGG SA	= Vivendi SA	= Titan Company Ltd	= Legal & General Group PLC	= Munich Re	= AXA SA
83	= ConocoPhillips	= WPP PLC	= ↑ Tod's SpA	= Munich Re	= Swiss Re AG	= Legal & General Group PLC
84	= Eni SpA	= Anglo American PLC	= ↑ Axel Springer SE	= Swiss Re AG	= Compagnie Financiere Richemont SA	= Munich Re
85	= Equinor ASA	= ↑ Antofagasta PLC	= Havas SA	= Compagnie Financiere Richemont SA	= Salvatore Ferragamo SpA	= Swiss Re AG
86	= FMC Technologies Inc	= BHP Group PLC	= Informa PLC	= Salvatore Ferragamo SpA	= Tod's SpA	= ↑ Zurich Insurance Group AG
87	= Hess Corp	= Lonmin PLC	= Lagardere SCA	= Tod's SpA	= Daily Mail and General Trust P L C	= Compagnie Financiere Richemont SA
88	= Marathon Oil Corp	= Norsk Hydro ASA	= Relx PLC	= Axel Springer SE	= Havas SA	= Kering SA
89	= Neste Oyj	= Rio Tinto PLC	= Schibsted ASA	= Havas SA	= Informa PLC	= Moncler SpA
90	= Oceaneering International Inc	= Amec Foster Wheeler Ltd	= Sky PLC	= Informa PLC	= JCDecaux SA	= Daily Mail and General Trust P L C
91	= OMV AG	= Baker Hughes A GE Co	= Wolters Kluwer NV	= ↑ Lagardere SCA	= Lagardere SCA	= ↓ Informa PLC
92	= Petrofac Ltd	= BG Group Ltd	= WPP PLC	= Schibsted ASA	= Relx NV	= JCDecaux SA
93	= ↑ Polski Koncern Naftowy Orlen SA	= BP PLC	= Anglo American PLC	= Sky PLC	= Relx PLC	= Lagardere SCA
94	= Repsol Oil & Gas Canada Inc	= ↑ Cairn Energy PLC	= ↑ Glencore PLC	= ↑ Vivendi SA	= Sky PLC	= Relx NV
95	= Repsol SA	= Cenovus Energy Inc	= Lonmin PLC	= Wolters Kluwer NV	= Wolters Kluwer NV	= Relx PLC
96	= Royal Dutch Shell PLC	= CGG SA	= Norsk Hydro ASA	= Anglo American PLC	= Anglo American PLC	= Sky PLC
97	= Technip SA	= ConocoPhillips	= ↑ Amec Foster Wheeler Ltd	= BHP Group PLC	= BHP Group PLC	= Wolters Kluwer NV
98	= Total SA	= Equinor ASA	= ↑ Baker Hughes A GE Co	= Glencore PLC	= Rio Tinto PLC	= ↓ Anglo American PLC
99	= Tullow Oil PLC	= ↑ Exxon Mobil Corp	= BG Group Ltd	= Rio Tinto PLC	= ↑ South32 Ltd	= BHP Group PLC
100	= British Land Company PLC	= FMC Technologies Inc	= ↑ Bourbon Corporation SA	= ↓ Amec Foster Wheeler Ltd	= ↑ Amec Foster Wheeler Ltd	= ↓ Rio Tinto PLC
101	= Covivio SA	= Lundin Petroleum AB	= Cairn Energy PLC	= Baker Hughes A GE Co	= Baker Hughes A GE Co	= Cenovus Energy Inc
102	= Gecina SA	= Neste Oyj	= Cenovus Energy Inc	= BG Group Ltd	= Cenovus Energy Inc	= Eni SpA
103	= Great Portland Estates PLC	= ↑ Occidental Petroleum Corp	= CGG SA	= Cenovus Energy Inc	= Eni SpA	= Equinor ASA
104	= Hammerson PLC	= OMV AG	= ConocoPhillips	= Eni SpA	= Equinor ASA	= Exxon Mobil Corp
105	= Land Securities Group PLC	= Petrofac Ltd	= Equinor ASA	= Equinor ASA	= Galp Energia SGPS SA	= Galp Energia SGPS SA
106	= WFD Unibail Rodamco NV	= Polski Koncern Naftowy Orlen SA	= ↑ Galp Energia SGPS SA	= Galp Energia SGPS SA	= Neste Oyj	= Marathon Oil Corp
107	= ↑ H & M Hennes & Mauritz AB	= Repsol Oil & Gas Canada Inc	= Neste Oyj	= Neste Oyj	= Occidental Petroleum Corp	= Neste Oyj
108	= Industria de Diseno Textil SA	= Repsol SA	= ↑ Occidental Petroleum Corp	= Occidental Petroleum Corp	= OMV AG	= ↓ OMV AG
109	= Marks and Spencer Group PLC	= Royal Dutch Shell PLC	= OMV AG	= OMV AG	= Petroleum Geo Services ASA	= Repsol SA
110	= Accenture PLC	= Technip SA	= Polski Koncern Naftowy Orlen SA	= Petroleum Geo Services ASA	= Saipem SpA	= Royal Dutch Shell PLC
111	= Gemalto NV	= Total SA	= Repsol Oil & Gas Canada Inc	= Repsol SA	= SBM Offshore NV	= Saipem SpA
112	= Groupe Steria SA	= Tullow Oil PLC	= Repsol SA	= Saipem SpA	= ↑ Schlumberger NV	= Total SA
113	= ↑ International Business Machines Corp	= Vestas Wind Systems A/S	= ↑ Saipem SpA	= Saipem SpA	= ↑ Total SA	= Tullow Oil PLC
114	= SAP SE	= British Land Company PLC	= Technip SA	= Vallourec SA	= Vestas Wind Systems A/S	= ↓ Vestas Wind Systems A/S
115	= ArcelorMittal SA	= ↑ Covivio SA	= Tullow Oil PLC	= Vestas Wind Systems A/S	= ↑ Weatherford International PLC	= Weatherford International PLC
116	= ↑ Thyssenkrupp AG	= ↑ Gecina SA	= ↑ Vestas Wind Systems A/S	= British Land Company PLC	= British Land Company PLC	= ↓ British Land Company PLC
117	= voestalpine AG	= ↑ Great Portland Estates PLC	= British Land Company PLC	= ↑ Derwent London PLC	= ↑ Covivio SA	= Covivio SA
118	= Apple Inc	= Hammerson PLC	= ↑ Corio NV	= Gecina SA	= ↑ Gecina SA	= Derwent London PLC
119	= ASML Holding NV	= Land Securities Group PLC	= Covivio SA	= Great Portland Estates PLC	= Great Portland Estates PLC	= Gecina SA
120	= STMicroelectronics NV	= WFD Unibail Rodamco NV	= Gecina SA	= Hammerson PLC	= Hammerson PLC	= Great Portland Estates PLC

Source: SG Cross Asset Research/ESG. Note: Up arrow = Positive ESG momentum (>+10% change); Down arrow = Negative ESG momentum (<-10% change); Equal symbol = Neutral ESG momentum

List of top 30 percent companies on ESG rating based on our SRI beyond integration publication (4/4)

	Mar 13	Mar 14	Mar 15	Mar 16	Mar 17	Mar 18
121	= Telefonaktiebolaget LM Ericsson	= Debenhams PLC	= Great Portland Estates PLC	↑ Icade SA	= Icade SA	= Hammerson PLC
122	= BT Group PLC	= H & M Hennes & Mauritz AB	= Hammerson PLC	= WFD Unibail Rodamco NV	↑ Land Securities Group PLC	= Icade SA
123	= Deutsche Telekom AG	= Industria de Diseno Textil SA	= Land Securities Group PLC	= H & M Hennes & Mauritz AB	= WFD Unibail Rodamco NV	= Land Securities Group PLC
124	↓ Koninklijke KPN NV	↑ Groupe Steria SA	= WFD Unibail Rodamco NV	= Kingfisher PLC	= Kingfisher PLC	= WFD Unibail Rodamco NV
125	= Orange SA	= HCL Technologies Ltd	= H & M Hennes & Mauritz AB	= Marks and Spencer Group PLC	= Marks and Spencer Group PLC	= Kingfisher PLC
126	= Swisscom AG	= Infosys Ltd	= Industria de Diseno Textil SA	= Accenture PLC	= Steinhoff International Holdings NV	= Marks and Spencer Group PLC
127	= Telekom Austria AG	= SAP SE	= Kingfisher PLC	↑ Atos SE	↑ Accenture PLC	= Accenture PLC
128	= Air France KLM SA	= Tata Consultancy Services Ltd	= Steinhoff International Holdings NV	↓ Gemalto NV	= Atos SE	= Atos SE
129	↑ EDP Energias de Portugal SA	= Wipro Ltd	= Gemalto NV	= Indra Sistemas SA	↑ Capgemini SE	= Capgemini SE
130	↑ Electricite de France SA	= ArcelorMittal SA	= HCL Technologies Ltd	= International Business Machines Corp	↑ International Business Machines Corp	= International Business Machines Corp
131	↑ Iberdrola SA	= EVRAZ plc	= Infosys Ltd	= SAP SE	= SAP SE	= SAP SE
132	= Pannon Group PLC	= Magnitogorsk Iron and Steel Works	= International Business Machines Corp	↑ Aperam SA	↓ Aperam SA	= Worldline SA
133	↑ Red Electrica Corporacion SA	= Thyssenkrupp AG	= SAP SE	= ArcelorMittal SA	= ArcelorMittal SA	= Aperam SA
134	↑ Rubis SCA	↑ Alcatel Lucent SA	= Tata Consultancy Services Ltd	↑ Thyssenkrupp AG	↑ Thyssenkrupp AG	↓ ArcelorMittal SA
135	= Severn Trent PLC	= Apple Inc	= Wipro Ltd	↑ Ingenico Group SA	= Ingenico Group SA	= Ingenico Group SA
136	↓ Terna Rete Elettrica Nazionale SpA	= ASML Holding NV	= ArcelorMittal SA	= Telefonaktiebolaget LM Ericsson	= Bouygues SA	= Telefonaktiebolaget LM Ericsson
137	= Veolia Environnement SA	↑ BlackBerry Ltd	= Thyssenkrupp AG	= Bouygues SA	= Deutsche Telekom AG	= Bouygues SA
138		↑ Deutsche Telekom AG	↑ voestalpine AG	= Deutsche Telekom AG	= Orange SA	= Deutsche Telekom AG
139		= Koninklijke KPN NV	= Alcatel Lucent SA	= Telecom Italia SpA	= Swisscom AG	= Orange SA
140		= Orange SA	= ASML Holding NV	= Telefonica Deutschland Holding AG	= Telecom Italia SpA	= Swisscom AG
141		↑ Proximus NV	= Nokia Oyj	= Telenet Group Holding NV	= Telefonica SA	= Telecom Italia SpA
142		= Telefonica Deutschland Holding AG	= Telefonaktiebolaget LM Ericsson	= Vodafone Group PLC	= Telenet Group Holding NV	= Telefonica SA
143		↑ Telekom Austria AG	= Deutsche Telekom AG	= Aeroports de Paris SA	= Aeroports de Paris SA	= Telia Company AB
144		↑ Telenor ASA	= Swisscom AG	= Fraport AG	= Fraport AG	= Aeroports de Paris SA
145		= Ansaldo STS SpA	= Telecom Italia SpA	= Getlink SE	= Getlink SE	= Bpost SA
146		= EDP Energias de Portugal SA	= Telefonica Deutschland Holding AG	= Centrica PLC	= Centrica PLC	= Deutsche Post AG
147		= Electricite de France SA	↓ Telekom Austria AG	↑ EDP Energias de Portugal SA	= EDP Energias de Portugal SA	= Getlink SE
148		= Enel SpA	= Telenor ASA	= EDP Renovaveis SA	↑ EDP Renovaveis SA	= EDP Energias de Portugal SA
149		↑ EVN AG	= Vodafone Group PLC	↑ Enagas SA	= Enagas SA	= EDP Renovaveis SA
150		= Iberdrola SA	= Air France KLM SA	↑ Enel Green Power SpA	= Terna Rete Elettrica Nazionale SpA	= Electricite de France SA
151		= Naturgy Energy Group SA	= Centrica PLC	= Enel SpA	= United Utilities Group PLC	= Enagas SA
152		↓ Red Electrica Corporacion SA	= EDP Energias de Portugal SA	↑ Red Electrica Corporacion SA	= Verbund AG	= Iberdrola SA
153		↑ Terna Rete Elettrica Nazionale SpA	= Endesa SA	↑ Suez SA		= Red Electrica Corporacion SA
154		↑ Veolia Environnement SA	↑ Enel Green Power SpA	↑ Terna Rete Elettrica Nazionale SpA		= Terna Rete Elettrica Nazionale SpA
155			↑ Enel SpA	= Verbund AG		= Verbund AG
156			= Engie SA			
157			= Terna Rete Elettrica Nazionale SpA			
158			↑ United Utilities Group PLC			
159			= Veolia Environnement SA			
160			= Verbund AG			

Source: SG Cross Asset Research/ESG. Note: Up arrow = Positive ESG momentum (>+10% change); Down arrow = Negative ESG momentum (<-10% change); Equal symbol = Neutral ESG momentum

Addendum 2 – About Sustainalytics

- SG has partnered with Sustainalytics, an independent provider of ESG data, research and support services, to gather the ESG data used in this publication
- Sustainalytics is an independent provider of ESG research, analysis and support services. Sustainalytics' mission is to help clients turn vast quantities of environmental, social and governance information into insightful, value-added analysis to enable more informed investment and business decisions. The company employs more than 120 analysts and has operations in Amsterdam, Boston, Frankfurt, Paris, Timisoara and Toronto, and representatives in Copenhagen, Bogotá, Brussels, London, San Francisco and Bucharest
- Sustainalytics is not affiliated with SG
- SG uses data and analysis from Sustainalytics in relation to ESG generally for this report. SG takes no responsibility for the completeness or accuracy of Sustainalytics' analysis and data

www.sustainalytics.com

Report completed on 4 Mar. 2019 17:31 CET

APPENDIX

ANALYST CERTIFICATION

The following named research analyst(s) hereby certifies or certify that (i) the views expressed in the research report accurately reflect his or her or their personal views about any and all of the subject securities or issuers and (ii) no part of his or her or their compensation was, is, or will be related, directly or indirectly, to the specific recommendations or views expressed in this report: **Yannick Ouaknine, Nimit Agarwal**

The analyst(s) who author research are employed by SG and its affiliates in locations, including but not limited to, Paris, London, New York, Hong Kong, Tokyo, Bangalore, Frankfurt, Madrid, Milan, Geneva, Seoul, Warsaw and Moscow

SG EQUITY RESEARCH RATINGS on a 12 month period

BUY: absolute total shareholder return forecast of 15% or more over a 12 month period.

HOLD: absolute total shareholder return forecast between 0% and +15% over a 12 month period.

SELL: absolute total shareholder return forecast below 0% over a 12 month period.

Total shareholder return means forecast share price appreciation plus all forecast cash dividend income, including income from special dividends, paid during the 12 month period. Ratings are determined by the ranges described above at the time of the initiation of coverage or a change in rating (subject to limited management discretion). At other times, ratings may fall outside of these ranges because of market price movements and/or other short term volatility or trading patterns. Such interim deviations from specified ranges will be permitted but will become subject to review by research management.

Sector Weighting Definition on a 12 month period:

The sector weightings are assigned by the SG Equity Research Strategist and are distinct and separate from SG equity research analyst ratings. They are based on the relevant MSCI.

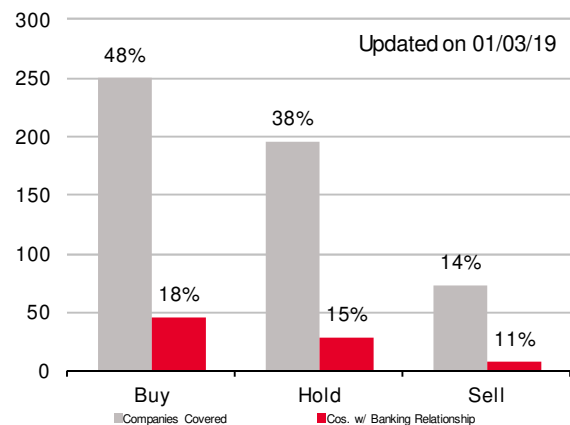
OVERWEIGHT: sector expected to outperform the relevant broad market benchmark over the next 12 months.

NEUTRAL: sector expected to perform in-line with the relevant broad market benchmark over the next 12 months.

UNDERWEIGHT: sector expected to underperform the relevant broad market benchmark over the next 12 months.

The Preferred and Least preferred stocks are selected by the covering analyst based on the individual analyst's coverage universe and not by the SG Equity Research Strategist.

Equity rating and dispersion relationship



Source: SG Cross Asset Research/Equity

All pricing information included in this report is as of market close, unless otherwise stated.

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