ESG Scoring: It's All Relative

February 2021

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Introduction

ESG scoring is a fundamental building block in the ESG index construction process. These scores provide a means of assessing the ESG credentials of companies in a simplified, intuitive way. ESG scores can be embedded within the index construction process through either tilting towards companies with stronger ESG profiles or excluding those which have weaker ESG credentials. While many ESG indices rely on other criteria too within their index construction rules, these scores often provide a starting point for any security selection framework.

Beyond index construction, ESG scores have other important uses including manager due diligence and risk assessments. They can also be used to inform a portfolio construction process: whether referring to equity, fixed income or multi-asset. ESG scores can be used at either the security, sector or index level to construct portfolios which have more robust ESG characteristics.

But the use of ESG scores entails important choices which need to be understood. In this paper, we investigate how ESG scores can differ across providers and how these differences in turn may lead to biases in the index construction processes. Understanding the strengths and weaknesses of the ESG scoring system is important as the resulting portfolio will embed the inbuilt 'ESG philosophy' of the score provider.

We start with an introduction to ESG scoring methodologies comparing two of the household names in the field: MSCI and FTSE Russell. We look at the differences between their respective scores at the individual security, sector and country level using a broad universe of 4,250 companies which have ESG ratings available from both index providers. The aim is to try and identify similarities and differences in the output from their scoring methodologies which may inform us of any biases.

We observe that whilst there is general consistency between the ESG scores of these providers there are some notable biases of which readers should be aware:

- FTSE generally displays higher ESG scores across sectors and countries
- FTSE displays a positive scoring bias (its ESG scores are typically higher) towards large cap stocks; whilst MSCI displays a bias towards small cap stocks
- There is more dispersion within emerging market space than developed market space across ESG scores and FTSE has a notable positive scoring bias within its emerging market ESG scores
- Whilst ESG scores are generally correlated at the country and market cap level, this appears to be less so across sectors
- Correlations can vary widely across constituents within sectors and individual countries

The biases that both the FTSE and MSCI scores exhibit are probably due to a combination of analyst subjectivity, subtle differences in score computation, and varying data sources. However, it is difficult to tell how much of the bias is due to each of these factors given the ESG score construction process condenses a large volume of information into a single ESG score.

Having concluded our observation of the biases apparent within each method, we believe there is no right or wrong when it comes to choice of ESG scoring system. We are encouraged by the fact that, despite methodological differences, subjective input, and data variability, there is consistency between providers, though we would suggest that no one provider should be relied upon in isolation.

Notes:

1. We use the GICS sector classification throughout this paper
2. FTSE's ESG scores have been normalised such that they also follow a 0 to 10 scale for the purposes of this analysis
3. Analysis of data and techniques carried out in January 2021

What lies beneath?

We start with an overview of the MSCI and FTSE ESG scoring methodologies highlighting issues which can arise when interpreting their respective ESG scores. At a fundamental level, both methodologies start with the collation of data which is then used to compute scores for certain indicators. In MSCI's case, these indicators form the basis of what are termed 'Key Issue' scores (see Appendix 3), which are then in turn used to build 'Pillar' scores. For FTSE, these indicators are used to construct 'Theme' scores which are in turn used to create FTSE's version of 'Pillar' scores (see Appendix 2).

Both providers use a weighted average of the E, S and G 'Pillar' scores to calculate an overall ESG score. In the Appendix you can see in further detail how the ESG scores are constructed first through the aggregation of indicators to create 'Theme' scores (FTSE) or 'Key Issue' scores (MSCI), then the use of these to create 'Pillar' scores together with a high level summary of the methodologies. We note an analysis of the granular scoring criteria is beyond the scope of this note.

In Table 1 below we highlight some of the salient similarities and differences between the respective scoring methodologies when thinking about why biases might arise.

Table 1

ESG Score Methodology	FTSE	MSCI
Sector adjustments available	No	Yes
Sources used	Publically available	Publically available
Score scale and distribution	0-5	0-10
Treatment of missing data	Not extrapolated	Sector averages used
Calculation of aggregate ESG scores	Weighted average	Weighted average
Frequency of updates	Annual	Annual (with event override)

Source: FTSE Russell, MSCI, HSBC Global Asset Management. Data and analysis as at January 2021.

There are numerous points throughout the ESG score construction process where subjectivity can be introduced. At the start of the process, the choice of indicators relevant to each 'Theme' (FTSE) or 'Key Issue' (MSCI), how these metrics are scored (particularly when data provided by companies is of a non-standard form) and how they are weighted, all require some subjectivity. At the next stage, the choice of how to weight the 'Theme' (FTSE) or 'Key Issue' (MSCI) scores to create 'Pillar' scores, introduces another opportunity for subjectivity to enter the process.

Then there are other methodological differences which may also have an impact, such as MSCI choosing to categorise each indicator at the most granular level as either an 'Exposure' indicator or a 'Management' indicator (an assessment of the company's management of a specific item), each with an associated score. As mentioned, these indicators are then collectively used to build the 'Key Issues' scores. An assessment of a company's management of any item inherently requires some amount of subjective input. In fact, they go further by trying to identify if a specific 'Key Issue' is a risk or an opportunity, while also forecasting the period over which that risk or opportunity may materialise and adjusting their weighting of the 'Key Issue' score accordingly. By contrast, 'Theme' exposures and weights in FTSE's methodology do not directly involve such forecasts. This, combined with 'Theme' exposures only being classified into 3 categories (High, Medium and Low), reduces how much of an effect bias can have on the 'Pillar' scores used to construct the final FTSE ESG score.

When investigating biases, it is interesting to note that MSCI also offers two type of scores: industry un-adjusted and industry adjusted based on which industry a firm is in. This involves normalising the weighted average ESG score for a company depending on the industry that company falls into. This makes the industry adjusted score a reflection of how well a company scores relative to its peer group. The goal of this is to help remove any industry biases that are present thereby allowing identification of the top scoring companies within each sector using a consistent scale.

The impact of this is illustrated below in Table 2 where we show the difference in sector average ESG scores between MSCI's industry adjusted and non-industry adjusted scores. A positive number suggests that the MSCI adjusted ESG score is higher and a negative one suggests the MSCI un-adjusted score is higher. From this table, it can be seen that Financials, Industrials, Consumer Discretionary and Consumer Staples often get adjusted upwards while Real Estate is often adjusted downwards.

The consequence of this in an index construction process that uses the unadjusted scores and is designed to tilt towards higher ESG scores; is that less weight may be given to more cyclical sectors such as Financials, Industrials and Consumer Discretionary which will have style and factor implications for the resulting index. By contrast, if industry adjusted scores are used, indices may actually end up tilting more towards companies that have lower 'ESG credentials' in absolute terms. This assumes that the tilting process has attributed more weight to companies with lesser ESG credentials that have seen an uplift by virtue of their position in a specific sector.

Table 2

MSCI Industry Adjustment Differentials	Metric		
Sector	Average unadjusted score	Average adjusted score	Mean difference
Communication Services	4.65	4.67	0.02
Consumer Discretionary	4.50	4.98	0.48
Consumer Staples	4.42	5.03	0.61
Energy	4.68	4.63	-0.06
Financials	4.29	4.86	0.57
Health Care	4.93	4.87	-0.06
Industrials	4.90	5.36	0.46
Information Technology	4.54	4.78	0.24
Materials	4.30	4.54	0.24
Real Estate	4.73	4.38	-0.36
Utilities	5.35	5.50	0.14

Source: FTSE Russell, MSCI, HSBC Global Asset Management. Data and analysis as at January 2021.

What do we then observe when comparing FTSE and MSCI as ESG score providers? We think it is important to explore the difference these scoring methodologies make in practice when it comes to 'ranking' the underlying constituents of an index. The reason for this is that tilts and exclusions may be applied on the basis of the scores, so understanding if there are any inherent biases, which may lead to sector, country or market capitalisation skews in any resulting index weights is important.

Below we examine the cross sectional profile of ESG scores within a specific universe to try and understand how they may introduce biases when used as a filter for security selection. Because we are missing detail from both providers in terms of choices made regarding the applicability of theme and pillar scores, and associated weights, it is very difficult to directly attribute any biases to differences in methodology. Where we feel that identified differences in methodologies can be directly linked to certain observations, some description will be provided. Otherwise, and predominantly, the focus is on identifying the biases rather than fully explaining how they arose.

In the following analysis, please note that any reference to MSCI scores henceforth, refers to MSCI Industry adjusted scores. These are the scores typically used in index construction and hence relevant for the comparison to FTSE.

Correlations

We first take a look at correlations between providers ESG scores at the constituent, sector, country and market capitalisation levels.

Despite a cross sectional correlation of ESG scores across all companies in the sample of 0.53 at the granular company level, there are material differences in sector level correlations across the companies within individual sectors (Table 3) which we will call intra-sector correlations. These intra-sector correlations range from 0.43 amongst companies in the Healthcare sector to 0.70 amongst companies in the Consumer Staples sector. We note that interestingly the correlation between the average sector ESG scores, which we will call the inter-sector correlation, is 0.38 which is lower than any of the intra-sector correlations.

Table 3

MSCI vs FTSE Correlations	Intra-sector
Communication Services	0.61
Consumer Discretionary	0.44
Consumer Staples	0.70
Energy	0.60
Financials	0.60
Health Care	0.43
Industrials	0.46
Information Technology	0.58
Materials	0.44
Real Estate	0.68
Utilities	0.53

Source: FTSE Russell, MSCI, HSBC Global Asset Management. Data and analysis as at January 2021.

At the country level, the intra-country correlations range from close to 0.0 through to 1.0 but for the countries that account for the vast majority of the sample, the correlations are within the 0.3 to 0.45 range. However, the inter-country correlation between average country ESG scores is 0.73 which masks the wide dispersion in intra-country correlation numbers.

Finally, at the market capitalisation level we observe that the intra-cap correlations are steady, ranging from 0.48 for small caps to 0.56 for large caps. We note that when we aggregate ESG scores at the cap level and look at the inter-cap correlation it jumps to 0.83.

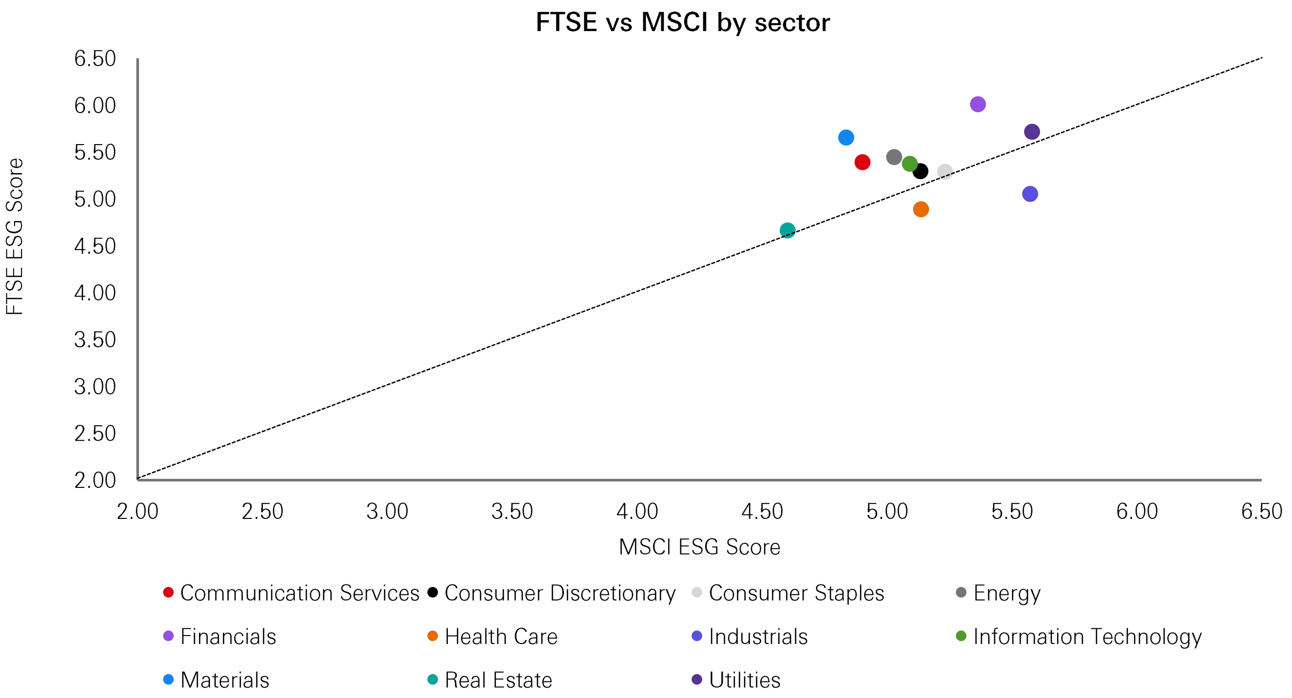
From this correlation analysis, we observe that while MSCI and FTSE scores display meaningful correlation at inter-market cap and inter-country levels, this is not necessarily the case at the inter-sector level, as shown by the low inter-sector correlation. We also note that these high-level correlations can also conceal differences at a more granular level e.g. intra-sector or intra-country.

Different perspectives

Sector stories

We start by investigating sector similarities and differences. There is a general linear relationship between provider ESG scores across global sectors (as per GICS classifications) as can be seen by Chart 1 but there is more to this than meets the eye.

Chart 1



Source: FTSE Russell, MSCI, HSBC Global Asset Management. Data and analysis as at January 2021.

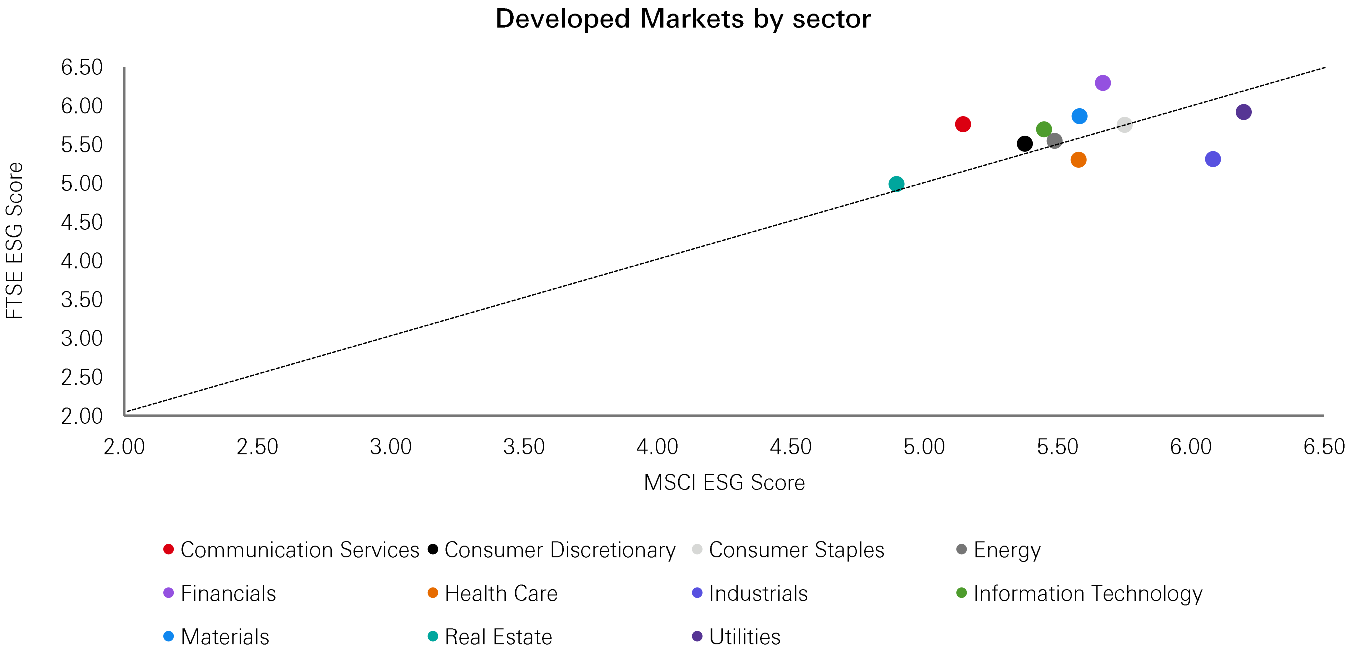
It is interesting to note that whilst the range of sector average ESG scores across sectors is very similar for both providers, FTSE generally has a higher sector average score, particularly in Materials, Financials, Consumer Services and Energy. MSCI on the other hand attributes a higher sector average score to Industrials and Healthcare. For the most part FTSE ESG scores are higher, consistent with our observations at the single stock level as noted later on.

As discussed earlier, when comparing the two methodologies, MSCI's weighting mechanism for 'Key Issues' has a forward-looking element associated with the timing of when risks/opportunities are likely to materialise for an industry. While quantitative factors can be used to predict this, it does require subjectivity. Certain industries e.g. Real Estate, Consumer Staples and Utilities are typically considered low volatility sectors, with companies in those sectors having more consistent and predictable revenue streams. This could make the prediction exercise easier leading to natural alignment between providers. This may provide some explanation as to why we see certain sectors aligned in their scores between FTSE and MSCI, while others deviate.

Applying a developed versus emerging market lens to the set of companies in our universe, and looking at the relationship between sector average ESG scores, reveals that whilst there is consistency between index providers across developed markets (Chart 2) there is meaningful dispersion within emerging markets (Chart 3). Greater dispersion within emerging market company ESG scores is a trend we observe throughout this article.

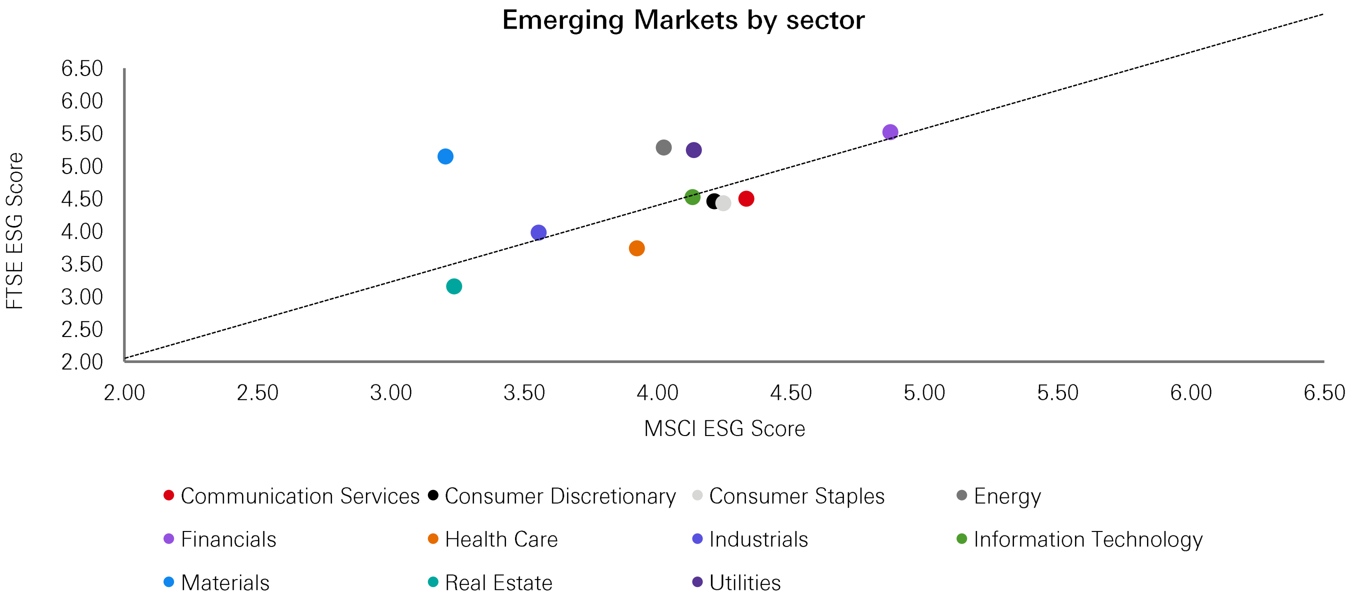
In particular, within the emerging market space, FTSE's sector average ESG score is higher for Materials, Energy, Utilities and Financials with MSCI showing no notable positive bias. In the developed market space, FTSE's sector average score is higher for Financials and Communication Services whilst MSCI displays a notably higher average sector score in Industrials.

Chart 2



Source: FTSE Russell, MSCI, HSBC Global Asset Management. Data and analysis as at January 2021.

Chart 3



Source: FTSE Russell, MSCI, HSBC Global Asset Management. Data and analysis as at January 2021.

Sticking with the geographic lens as applied to sectors, if we choose to look at the sector average ESG scores through a regional rather than developed versus emerging lens we notice additional differences between providers (Table 4).

These differences have been calculated by subtracting the FTSE score from the equivalent MSCI score. A blue value indicates the MSCI score is higher; an orange score indicates the FTSE score is higher. Going by region, at the one end, in Central and South America, we note that FTSE has higher sector average ESG scores across almost all sectors, except Energy. However, in Australasia, MSCI has consistently higher sector average ESG scores for almost all sectors, except Financials and Materials.

Again we see from Table 4 that sector average FTSE scores are consistently higher for the Financials and Materials sectors. Whilst MSCI doesn't show a consistent geographic bias across regions, we can clearly see a slight bias running across the Healthcare and Industrials sectors.

Table 4

	Geographic Classification					
Difference Sector	**Europe**	**North America**	**Central and South America**	**Asia**	**ME and Africa**	**Australasia**
Communication Services	-0.76	-1.05	-2.28	0.04	0.34	0.10
Consumer Discretionary	-0.05	-0.68	-2.21	0.11	-0.56	0.65
Consumer Staples	0.06	-0.40	-0.43	-0.05	0.23	0.79
Energy	-0.29	-0.29	0.29	-1.20	-0.04	0.37
Financials	-0.81	-1.09	-1.15	-0.23	-0.35	-0.47
Health Care	0.34	-0.06	-2.93	0.49	-0.31	1.08
Industrials	0.47	0.50	-0.42	0.54	-0.05	1.57
Information Technology	-0.08	-0.23	-0.30	-0.43	-0.25	0.61
Materials	-0.63	-0.82	-2.43	-0.65	-2.96	-0.16
Real Estate	0.30	-0.57	-1.77	0.17	0.68	0.03
Utilities	-0.16	0.64	-0.25	-1.03	0.25	1.84

Source: FTSE Russell, MSCI, HSBC Global Asset Management. Data and analysis as at January 2021.

When viewing sectors through a market capitalisation lens (Table 5), we see a clear bias towards higher sector average FTSE ESG scores for large cap stocks, and an MSCI bias towards higher sector average ESG scores for small cap stocks.

We see from Table 5 that sector average FTSE scores are consistently higher for the Communication Services, Financials, Energy and Materials sectors. MSCI shows a consistent market capitalisation bias within Industrials with less convincing consistency in Healthcare.

Table 5

Difference Sector	Market Cap Classification Micro	Small	Mid	Large
Communication Services	0.43	-0.51	-0.45	-0.52
Consumer Discretionary	0.10	0.63	-0.23	-0.56
Consumer Staples	0.93	0.59	0.02	-0.44
Energy	-0.35	-0.05	-0.16	-0.98
Financials	0.70	-0.31	-0.89	-0.57
Health Care	0.20	0.52	0.55	-0.08
Industrials	1.01	1.08	0.52	0.15
Information Technology	-0.58	0.15	-0.34	-0.32
Materials	0.70	-0.08	-0.86	-1.13
Real Estate	-0.19	-0.01	-0.11	0.01
Utilities	-2.30	-0.41	-0.32	0.13

Source: FTSE Russell, MSCI, HSBC Global Asset Management. Data and analysis as at January 2021.

Market capitalisation observations

We switch here from the sectoral lens of the last section and look at market cap differences in average ESG scores, noting that of the possible lenses through which to investigate market capitalisation, biases exist at the regional level. FTSE market cap average ESG scores tend to be higher for the Central and South America region whilst MSCI market cap average ESG scores tend to be higher for Australasia similar to the observations made via the sector lens as seen when comparing Table 4 to Table 6. It is also worth highlighting that MSCI tends to score micro-cap companies higher than FTSE across the vast majority of regions except North America. We also note that there is most consistency between providers when looking at European small and mid-caps in particular.

What is clear when applying this lens, however, is that FTSE tends to score large cap stocks better in contrast to MSCI's slight bias towards the smallest cap stocks.

Table 6

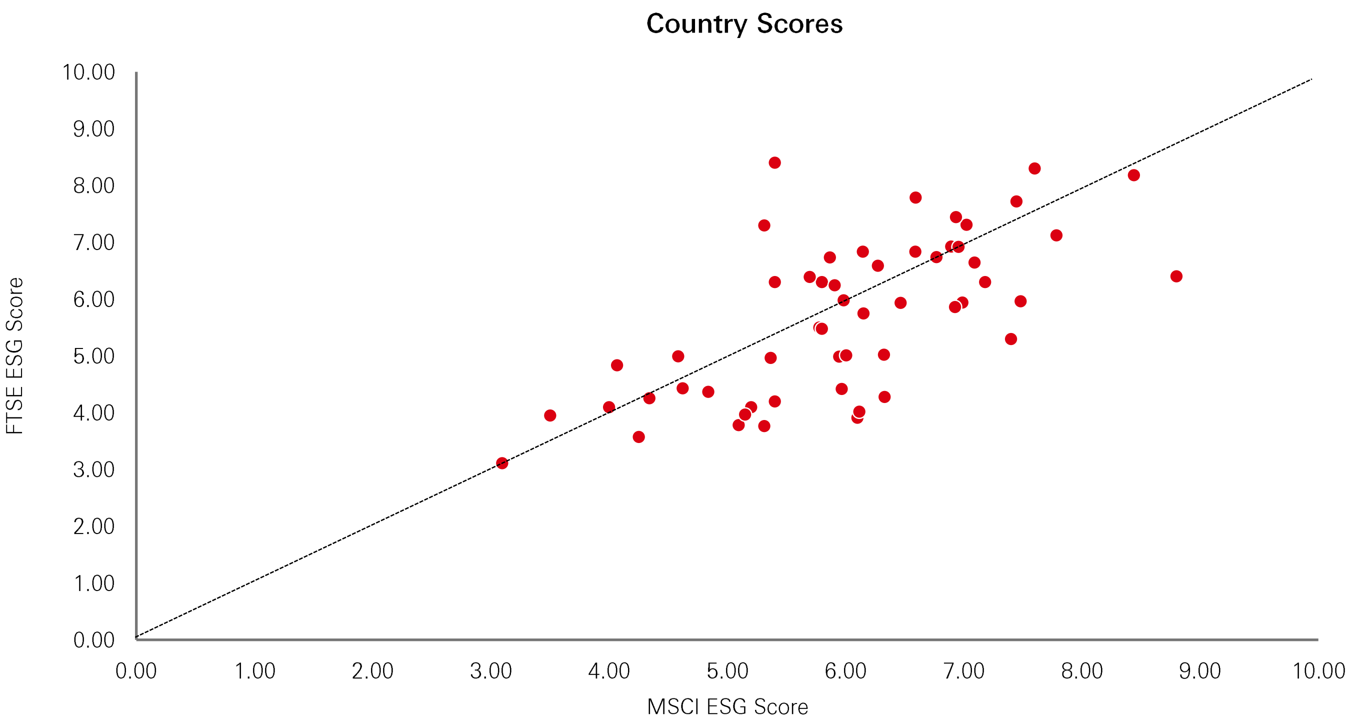
Difference Market Cap	Europe	North America	Central and South America	Asia	ME and Africa	Australasia
	Geographic Classification					
Micro	0.61	-0.89	0.70	-0.07	1.22	1.04
Small	-0.04	-0.26	-1.48	0.78	-0.78	0.52
Mid	-0.07	-0.38	-1.03	-0.16	-0.26	0.44
Large	-0.39	-0.37	-1.25	-0.31	-0.83	-0.25

Source: FTSE Russell, MSCI, HSBC Global Asset Management. Data and analysis as at January 2021.

Country comments

Whilst it is clearly the case that there are ESG scoring differences across countries, both index providers are consistent in terms of the ESG score they associate to a specific country, and which of those countries deserve higher versus lower ESG scores. As we can see from Chart 4 there is a clear relationship between the ESG scores attributed to the countries in our sample which displays a cross sectional correlation coefficient of 0.73.

Chart 4



Source: FTSE Russell, MSCI, HSBC Global Asset Management. Data and analysis as at January 2021.

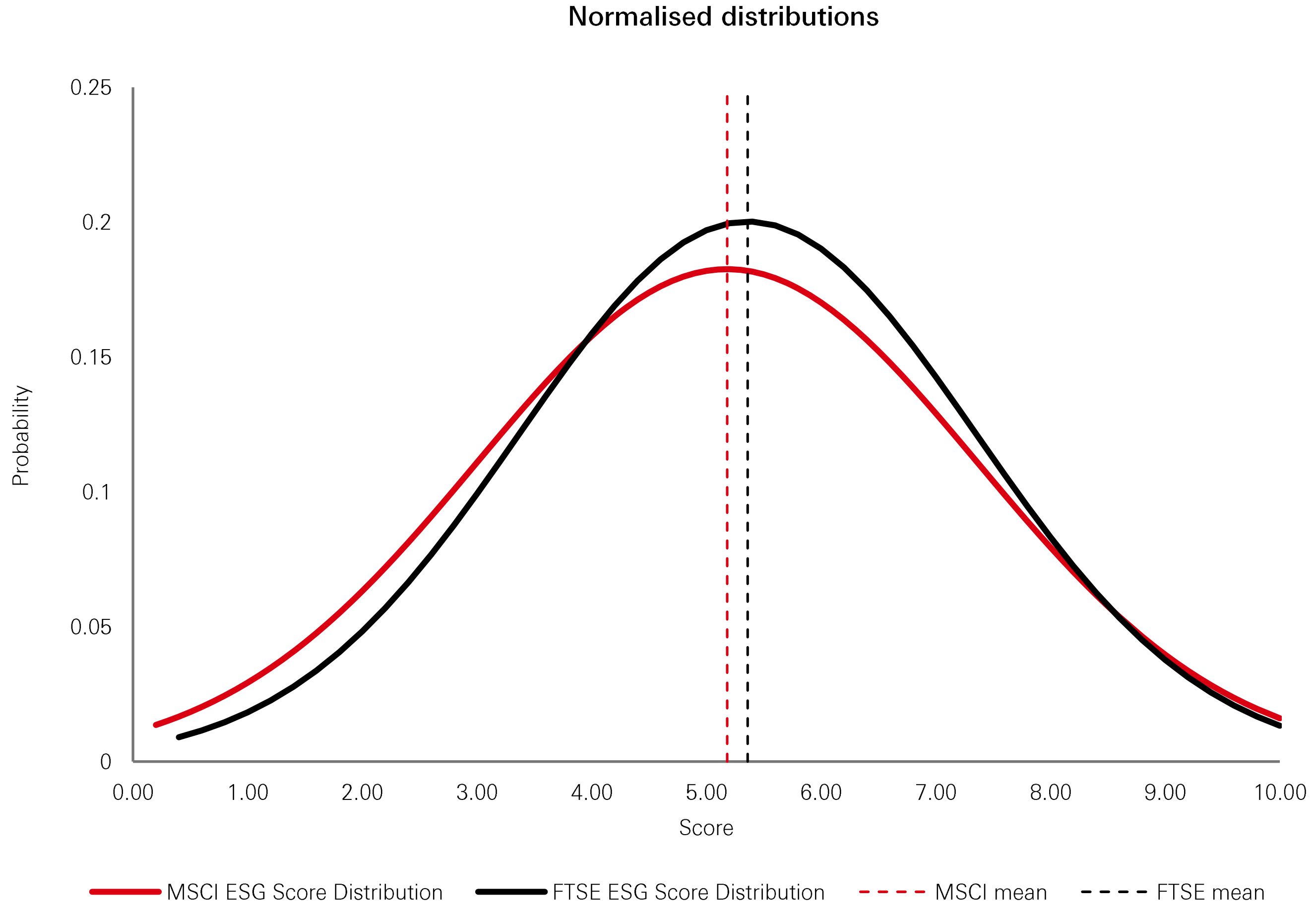
Going country by country (see Appendix 4 for full country by sector ESG scoring differentials) and looking for meaningful average ESG scoring differences within a particular country's sectors, we find that at this level of granularity MSCI generally has a bias towards some Scandinavian, Australasian and developed Asian countries in terms of ESG scoring. MSCI also has a bias towards Energy, Healthcare, Industrials and Real Estate at the sector level looking across all countries.

FTSE displays a notable bias towards some EM countries in particular including Brazil, Turkey and India whilst displaying generally higher sector average ESG scores across all other sectors.

Macro to micro

At the other extreme, when comparing the normalised distribution of the security level ESG scores by both providers in Chart 5 we see that the distribution of MSCI ESG scores displays a fatter left tail and a lower peak implying that MSCI tend to give more companies a lower rating than FTSE, and whilst providers 'mean' scores are very similar fewer companies manage to obtain the MSCI mean score. Nonetheless, FTSE's bias toward higher scores should be noted.

Chart 5

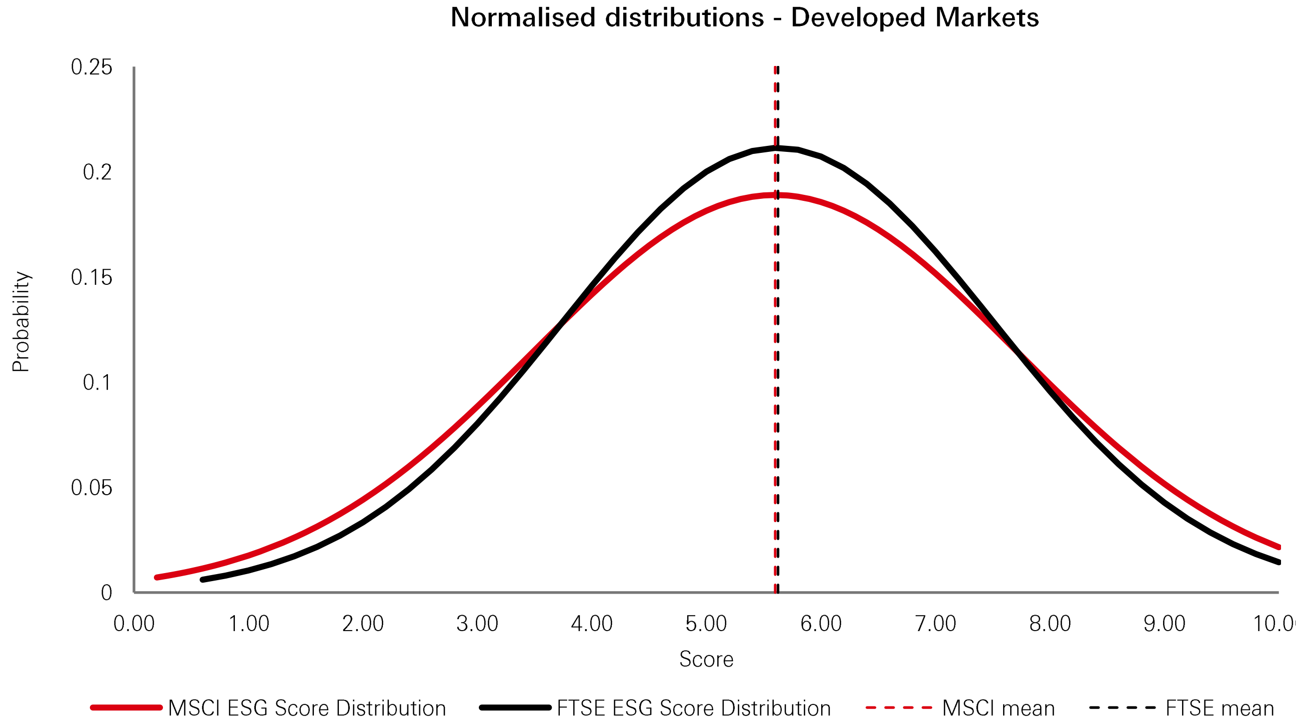


Source: FTSE Russell, MSCI, HSBC Global Asset Management. Data and analysis as at January 2021.

If we then go a step further and look at the normalised distribution of ESG scores at the developed and emerging market level, we also make some interesting observations.

In Chart 6, we see that for developed market stocks, the distribution of MSCI ESG scores displays a lower peak and slightly fatter tails. MSCI gives a larger proportion of developed market companies 'higher' and 'lower' scores than FTSE but fewer companies achieve a 'mean' ESG score compared to FTSE. This may be partially attributed to the fact that MSCI fills data gaps by using 'industry averages' for missing and undisclosed data points.

Chart 6



Source: FTSE Russell, MSCI, HSBC Global Asset Management. Data and analysis as at January 2021.

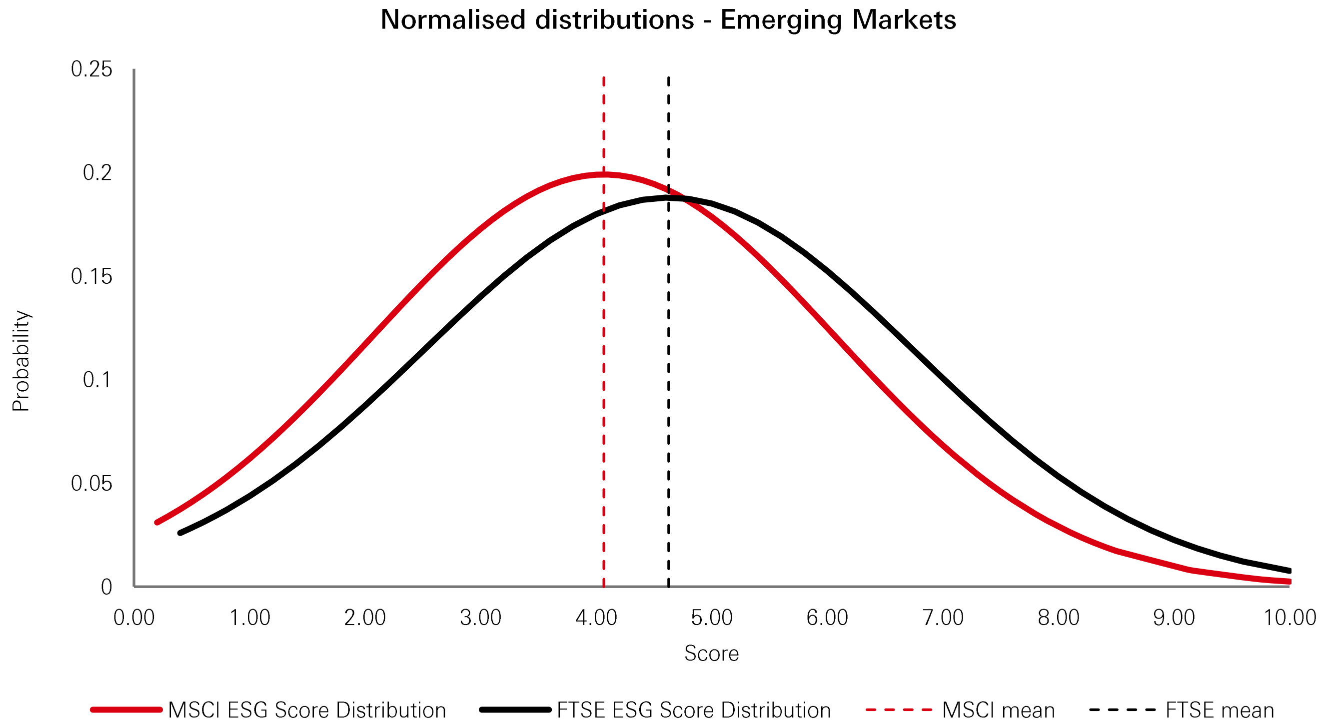
The story is very different for emerging markets. In Chart 7 we see that the normalised distributions of ESG scores diverge quite markedly between providers. The mean MSCI company ESG score is materially lower for MSCI and the left tail notably 'fatter'. Clearly MSCI has a bias toward significantly lower ratings for emerging market companies.

This, again, is likely to be a by-product of the subjective analyst input as we would, if anything, expect emerging market companies to disclose less information that can be used for scoring purposes which should mean that there are more 'zero scores' awarded by FTSE biasing their ESG scores in a downward direction. This is not what we observe in the data.

Another possibility could be related to the treatment of the governance factor by MSCI. MSCI calculates governance differently. Whilst FTSE calculates its G score in the same manner that it calculates its E and S score, MSCI employs a scoring system whereby each company is given the highest possible governance score (10) and then deductions are made based on how a company does on corporate governance and corporate behaviour.

EM countries may have less relevant data available for governance score calculations and equally, may have less strict reporting regulations. The absence of said regulations could discourage better scores for these governance metrics (or in MSCI's case, increase the size of deductions). Given MSCI appears to attribute more weight to these issues, this is likely to be one factor causing a lower MSCI ESG score for EM countries when comparing providers.

Chart 7



Source: FTSE Russell, MSCI, HSBC Global Asset Management. Data and analysis as at January 2021.

Conclusion

Comparing ESG scores across score providers is a difficult task as there is no right or wrong approach to constructing an ESG score. Methodological differences exist in the score construction process between providers and being aware of these differences is useful when thinking about index and portfolio construction exercises.

For example, with a given provider, a higher portfolio ESG score can theoretically be obtained by tilting towards companies in better scoring sectors or countries, or by simply excluding proportionately more stocks from lower scoring sectors or countries. Choosing a provider which has a wider range of scores within sectors and countries provides more scope for improving the ESG score of an overall portfolio through tilting. Similarly, choosing a provider which rates particular sectors, countries or companies with low scores offers the opportunity to immediately improve the ESG score of a portfolio by a relatively greater amount, through straight exclusions. This then runs the risk of introducing a selectivity bias when choosing a provider. While in practice this may not always be possible, we conclude that more than one score provider is used to mitigate such risk where the option to do so exists.

For asset allocators and fund selectors, awareness of ESG scoring biases across providers offers the ability to select certain country, sector or market cap funds which have better overall ESG scores through careful choice of which benchmarks those funds track. This may not always be in the best interest of end investors. Again, we feel it makes sense to cross-reference choices using multiple providers.

In short, we believe it is a positive that ESG providers have noticeable differences while also displaying broad consistency across scores. The former can indicate independence in the methodologies of the respective providers, while the latter helps increase confidence that the final ESG score is an accurate depiction of a company’s ESG credentials. On the one hand, if score providers substantially diverge in their scores, it becomes difficult for the end user of said score to judge which is accurate and which is not. On the other hand, if scores from different providers aligned almost exactly, it could raise questions over whether a score provider was gaming their methodology to match a peer. This could also raise questions over the reliability of such scores. Determining an optimal amount of divergence however, remains up for debate.

These are topics which warrant further investigative analysis in future papers.

Appendices

Appendix – 1: High Level comparison between the two methodologies

From analysis the methodologies of FTSE and MSCI, we believe the below table provides a summary of the main points from both. We also highlight some of the immediately noticeable differences between the two, however would caution that this list is by no means exhaustive. We believe the terms 'Metrics' by MSCI and 'Indicators' by FTSE to be analogous.

MSCI	FTSE
1. Data feeds into metrics, split into "Exposure Metrics" (how exposed companies are to industry issues) and "Management Metrics" (how is the company managing each key issue). 2. These feed into 35 "Key Issues" which get updated annually. 3. This then amalgamates into themes, which form 3 pillars: E, S and G. For E and S Key Issues, they are given a weight based on how relevant it is for the industry (per GICS), how much the industry contributes to that issue, and how long it takes for that issue (risk/opportunity) to materialise for the industry as a whole. For G, the weighting is fixed at a minimum of 33%. E and S Key Issues are identified on an industry-by-industry basis by evaluating quantitative and qualitative data. Businesses are accordingly scored on the exposure and management metrics that are relevant for each key issue. Factors such as a business' geography, business model and operations come into play when allocating a score to these metrics. An aggregated key issue score is then calculated based off the underlying management and exposure metrics. How this is computed varies based on whether the Key Issue is deemed a risk or opportunity, but is typically a function of both management and exposure. For example, for a Key Issue that is a risk, if exposure is high, a company will need to have a relatively higher management score to score the same as a company with a comparatively lower exposure. Key Issues that are opportunities are treated slightly differently, but nonetheless, a combination of exposure and management is used. For Governance, the computation is slightly different. Companies are given the highest possible score, and then deductions are then made based on how they score on certain	1. Data feeds into Indicator scores. A mix of qualitative and quantitative Indicators exist (some are sector and geography specific). Company management of the indicators and exposure to them comes into play here. 2. These feed into 14 "Themes" – exposure weightings are computed based on a number of different factors (described below), and scores are based on a combination of total % indicator score and theme exposure 3. These then feed into "Pillar Scores" and "Pillar Exposures" (this level is the E, S and G). For each theme, there are a number of considerations that affect how much exposure a company has to that theme. These include: ◆ Subsector (as per ICB) with impact being split into 3 categories (primary, secondary and tertiary); ◆ Geography (where do most operations take place) ◆ Revenue source ◆ Other theme exposures – the risk management theme is allocated based on how the company scores on other themes Accordingly, a company is ranked as having a high, medium or low exposure to that theme. A number of indicators are assigned to each theme. A percentage score is then calculated for each them i.e. how many indicator points the company achieved out of the total possible for that theme. As with MSCI, the greater exposure a company has to a theme, the higher they need to score to get a better indicator score and thus get a higher Theme score (scored from 0 to 5).

Corporate Governance and Corporate Behaviour metrics, e.g. board composition. These are the same for every company. Analysts also look at company controversies e.g. an oil spill, and if deemed to be material, this can deduct from the Key Issue score substantially. Controversies are rated based on scale and how damaging it can be. For E and S Key Issues, they are given a weight based on how relevant it is for the industry (per GICS), how much the industry contributes to that issue, and how long it takes for that issue (risk/opportunity) to materialise for the industry as a whole. These are then used to determine relative weightings for the E and S pillars. For G as a whole, the weighting is fixed at a minimum of 33%.	A weighted average score for each pillar is then computed. High exposure themes are given a weighting of 3, Medium is given a weighting of 2 and Low is given a weighting of 1. Pillars are then weighted based on how much weight the relevant themes for that particular pillar have vs the other pillars. A final ESG score is then computed based on these pillar weightings, and the previously calculated pillar score.
Data Sources Macro data from academic, government and NGO sources Company disclosures e.g. 10k reports Other data from government sources, 1600+ media outlets, NGOs etc. that might have specific info on companies	**Data Sources** Approximately 85 data sources from NGOs, major macro organisations e.g. World Bank, private company research, research houses and government sources.

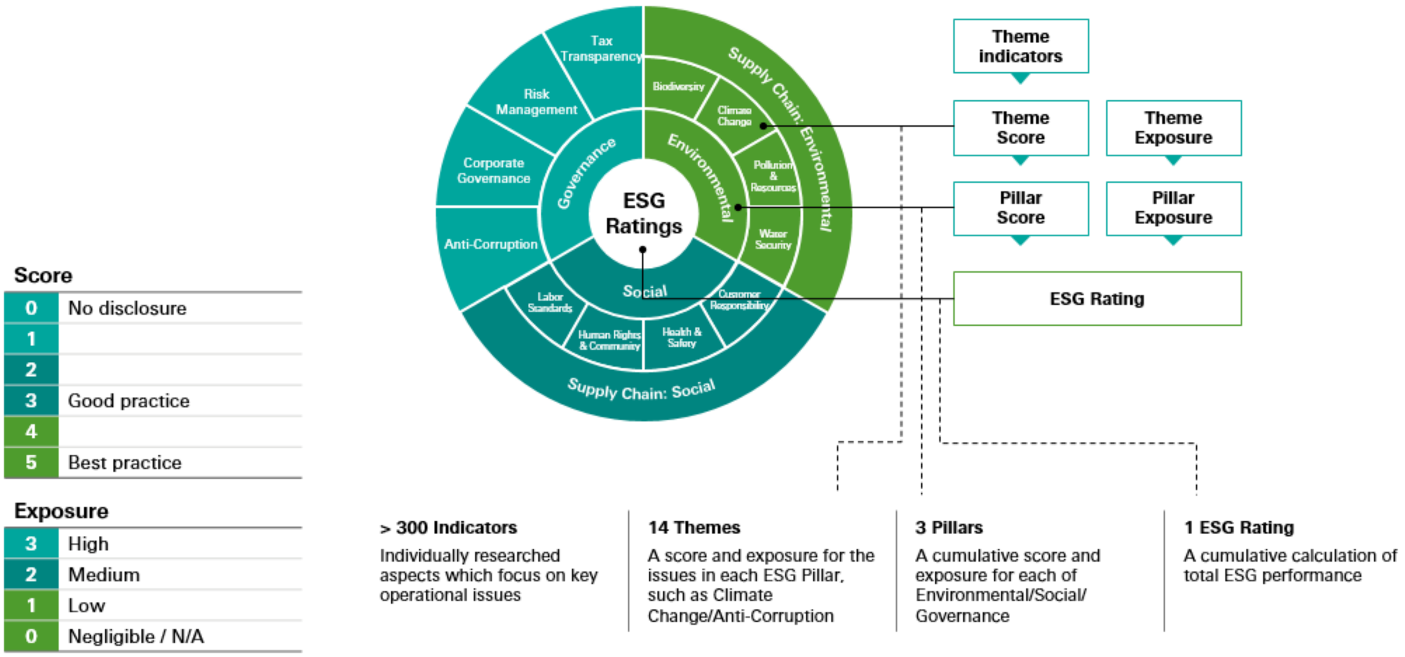
Source: FTSE Russell, MSCI, HSBC Global Asset Management. Data and analysis as at January 2021.

Key Points of Note

1. MSCI has a slight difference at the most granular level, i.e. indicators. MSCI has separate indicators that determine exposure and management ability. FTSE scores indicators taking into consideration management ability under the lens of how much exposure has to the theme that the particular indicator falls under.
2. There appears to be a difference in how weightings are computed, with MSCI appearing to include a more obvious forward-looking element in the setting of Key Weights.
3. Despite efforts to make the processes as quantitative as possible, subjectivity appears to be inherent to both MSCI and FTSE e.g. in terms of which indicators are ultimately relevant for each theme; how companies score on each indicator and also in some manner in how each theme is weighted.
4. MSCI treats Governance as a separate pillar requiring a minimum weighting of 33%. With FTSE this can vary quite meaningfully dependent on the bullets pointed listed in the FTSE section of the above table.
5. MSCI calculates Governance differently. FTSE calculates Governance in the same manner that it calculates E and S. MSCI on the other hand employs a scoring system whereby each company is given the highest score possible (10) and then deductions are incurred based on how a company does on corporate governance and corporate behaviour.
6. MSCI appears to use a wider range of data sources than FTSE, but appears to be less transparent over which, particularly with respect to non-macro data sources.
7. MSCI includes controversies analysis whereas FTSE does not.
8. MSCI scores out of 10, while FTSE scores out of 5. We feel that the choice of scale in itself does not create room for any meaningful differences between the two methodologies.

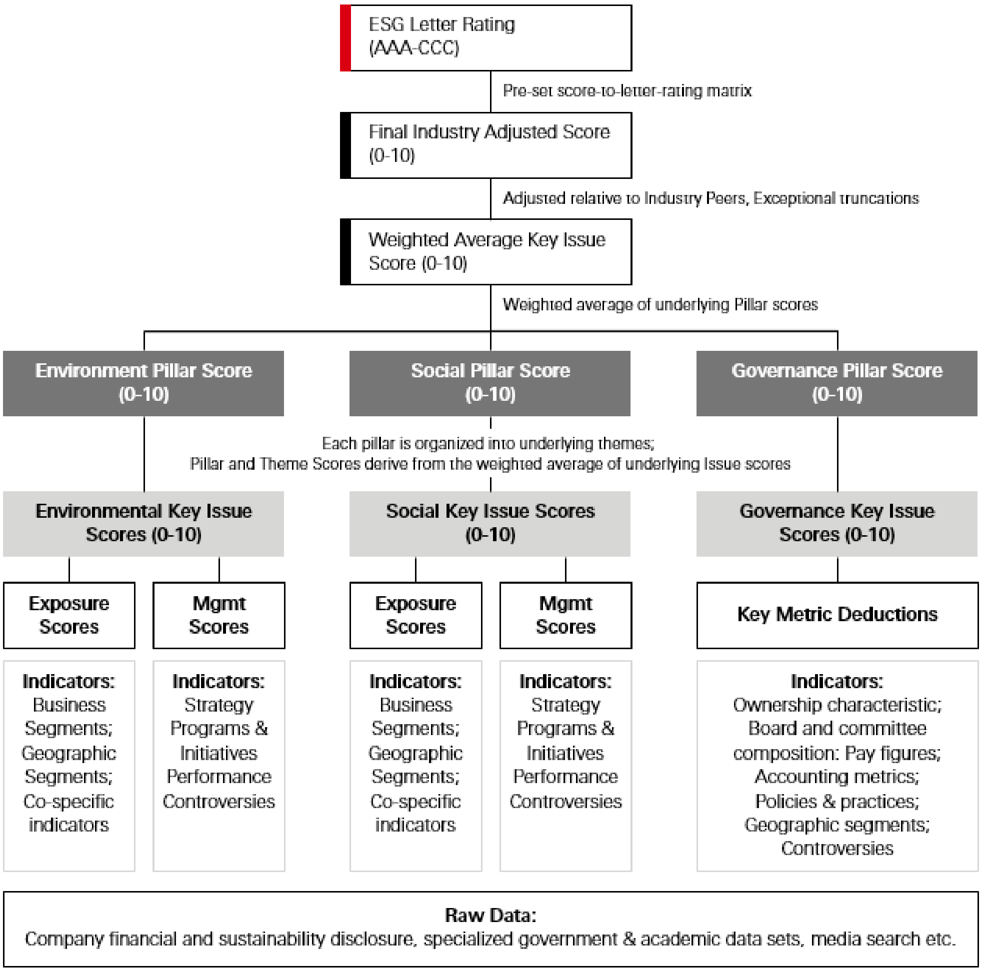
Appendix – 2: FTSE Methodology overview

Hierarchy	Description	Methodology	Output
ESG Rating (1)	Measure of the overall quality of a company's management of ESG issues	Calculated as he Pillar Exposure-weighted average of all three Pillar Scores	0-5 to 1 decimal point (where 5 is highest Rating)
			ICB Supersector relative Rating: 1-100 percentile (where 100 is highest percentile)
Pillars (3)	**Scores.** Measure of the quality of a company's respective management of ESG issues	Calculated as the Theme Exposure-weighted average of all applicable Theme Scores	0-5 to 1 decimal point (where 5 is highest Rating)
			ICB Supersector relative score: 1-10 decile (where 10 is highest decile)
	Exposure. Measure of the relevance for a company of respective ESG issues	Calculated by averaging the Exposure for all applicable Themes within that Pillar	1-3 to 1 decimal point (where 3 is highest Exposure, i.e. relevance)
Themes (14) 5 Environmental 5 Social 4 Governance	**Scores.** Measure of the quality of a company's management of the issues related to each Theme	Calculated based on the percentage of total available Indicator Points that a company has "met" in each Theme	0-5 as an integer (where 5 is highest Rating)
	Exposure. Measure of the relevance for a company of each Theme	Determined largely on industrial activity and operational presence	0-3 as an integer (where 3 is highest Exposure, i.e. relevance. and 0 indicates that the Theme is not relevant)
Indicators (+300)	Over 300 Indicators in the model with each Theme containing 10 to 35. An average of 125 Indicators are applied per company	(i) qualitative Indicators assessing quality of management and approach (ii) quantitative Indicators measuring corporate data disclosure (ia) sector specific Indicators tailored for different industrial sectors (iv) geography specific Indicators tailored for different countries (v) performance Indicators that use the quantitative data to make performance judgements	Points are assigned and are generally 0, 1, or 2 per Indicator. However, for highly significant Indicator, the scoring can be greater



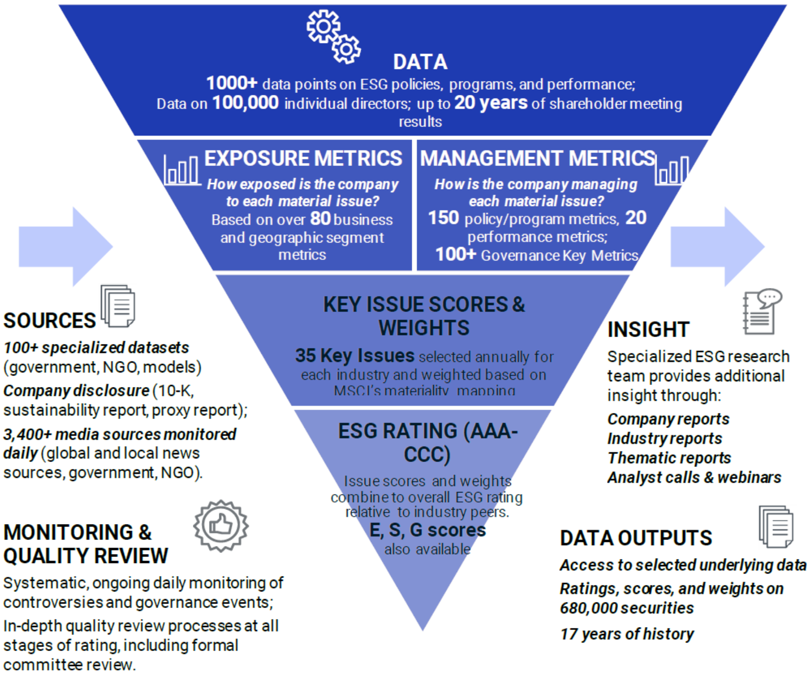
Source: FTSE Russell

Appendix – 3: MSCI Methodology overview



Source: MSCI

Exhibit 1 ESG Rating Framework and Process Overview



Source: MSCI

Appendix – 4: MSCI vs FTSE score differentials on a country by country basis, broken down by sector

A blue score (positive) means MSCI scores higher. An orange score (negative) means FTSE scores higher. The numbers in the tables show the amount by which the scores differ.

Difference	Europe														
	AUSTRIA	BELGIUM	UNITED KINGDOM	CYPRUS	CZECH	DENMARK	FINLAND	FRANCE	GERMANY	GREECE	GUERNSEY	HUNGARY	IRELAND	ITALY	JERSEY
Sector	AT	BE	GB	CY	CZ	DK	FI	FR	DE	GR	GG	HU	IE	IT	JE
Communication Services	0.10	-1.10	-0.43			-1.30	0.70	-1.15	-1.18	-2.80				-1.93	
Consumer Discretionary			0.60			2.60	0.00	-1.41	-0.30	-0.25			-0.30	-1.50	
Consumer Staples		1.05	-0.16			2.20	1.00	0.05	0.67				1.35	-1.00	
Energy	0.70		0.00				2.20	0.26				1.60		-2.75	
Financials	-1.76	0.78	-0.91		-0.30	-0.10	-0.90	0.13	-0.50	-2.15	-0.40	-0.60	-2.90	-0.67	0.30
Health Care		0.05	0.79			1.93	1.40	-0.44	-0.25			1.60	-0.55	1.07	
Industrials	3.00	-0.60	1.20			1.13	1.15	-0.53	0.39				1.65	-2.97	
Information Technology	1.30		-0.05		1.40		-1.60	-0.90	1.43				-1.50	1.70	
Materials	1.35	2.35	0.23	-2.40		1.25	-0.07	-0.90	-0.82				0.25	-1.10	0.70
Real Estate	1.70		0.03				0.95	-0.03	1.80		1.35				
Utilities	-0.30	2.30	0.74		-2.40	1.60	-3.20	-1.62	-0.57					-0.23	

Difference	Europe continued													
	JERSEY	LUXEMBOURG	MALTA	NETHER-LANDS	NORWAY	POLAND	PORTUGAL	ROMANIA	RUSSIA	SPAIN	SWEDEN	SWITZER-LAND	TURKEY	UKRAINE
Sector	JE	LU	MT	NL	NO	PL	PT	RO	RU	ES	SE	CH	TR	UA
Communication Services		0.50		-1.00	0.10	0.03			-0.05	-2.58	0.70	2.00	-0.70	
Consumer Discretionary				1.15		-1.20				-1.09	-0.61	0.10	-1.30	
Consumer Staples				-1.87	0.92	-1.60	-0.80		0.60	-2.40	1.70	-0.20	0.50	0.10
Energy		-1.80		0.72	0.80	-1.10	0.40		-2.01	0.90	0.50		-1.50	
Financials	0.30		-1.10	-1.41	0.20	-1.00	-0.50		-2.63	-1.11	0.69	-1.08	-2.71	
Health Care				-1.90						-0.13	0.17	0.60		
Industrials				0.83						-1.77	0.51	0.96	-2.38	
Information Technology				-0.43						-0.30	-1.25	-0.10		
Materials	0.70	-3.15		-0.93	-0.90	-1.60			-3.26	-1.00	1.68	-1.39	-3.20	
Real Estate		-0.85						3.00		-0.26	-0.15	1.47		
Utilities						-1.45	-0.20		-0.60	0.68				

Difference	North America		Central and South America							
	CANADA	UNITED STATES OF AMERICA	ARGENTINA	BERMUDA	BRAZIL	CHILE	COLOMBIA	MEXICO	PERU	PUERTO RICO
Sector	CA	US	AR	BM	BR	CL	CO	MX	PE	PR
Communication Services	-0.04	-1.15			-2.20	-0.20		-3.00		
Consumer Discretionary	-0.41	-0.69	0.90		-2.47	-0.50		-3.85		
Consumer Staples	-0.40	-0.40			-0.12	-1.45		-0.40		
Energy	0.42	-0.51		0.70	0.98	1.20	-3.80			
Financials	-0.28	-1.19		-1.83	-0.84	-1.33	-1.70	-0.07	1.10	-1.20
Health Care	3.60	-0.09			-2.93					
Industrials	-0.09	0.53			-1.76			0.92		
Information Technology	1.00	-0.26			-0.30					
Materials	-0.12	-0.95			-3.93	-0.35		-2.95	-1.27	
Real Estate	-0.95	-0.53			-2.40	1.30		-4.20		
Utilities	0.59	0.66			-0.67	0.18	-1.20	1.10		

Difference	Asia													
	CHINA	GEORGIA	HONG KONG	INDIA	INDONESIA	JAPAN	MACAU	MALAYSIA	PAKISTAN	PHILIPPINES	SINGAPORE	SOUTH KOREA	TAIWAN	THAILAND
Sector	CN	GE	HK	IN	ID	JP	MO	MY	PK	PH	SG	KR	TW	TH
Communication Services	0.01		-1.58	-2.58	0.40	0.37		1.10		-0.55	1.00	0.89	-0.90	-0.30
Consumer Discretionary	0.73		-1.39	-1.38	3.70	0.28	-0.53	-1.80			-2.00	-1.24	-0.50	1.83
Consumer Staples	-0.01		0.28	-0.66	-1.06	0.11		-0.21		-0.50	-2.10	0.78	0.83	-2.38
Energy	-1.78			-2.94	0.65	0.74		-0.30	-0.10	-2.20		0.20	-2.70	-2.77
Financials	-0.67	0.70	-0.71	-0.83	0.13	0.34		0.01	1.00	-1.35	0.77	-0.31	-0.01	-0.52
Health Care	0.38		-0.70	-2.79	3.80	0.96		1.46				0.46		1.65
Industrials	-0.10		0.21	-2.66		1.13		-1.01		-0.90	1.90	-0.51	-0.38	-1.77
Information Technology	0.50		0.87	-3.06		-0.45					-2.20	-1.42	-1.57	
Materials	-0.28		-0.45	-3.66	-1.25	0.09		-1.47				-1.58	-2.40	-2.03
Real Estate	0.22		0.32	-2.90		0.08		-2.90		-1.63	1.02		-0.30	0.95
Utilities	-0.41		-0.20	-3.04	-1.50	-0.52		-1.70		-1.60		-3.65		-2.17

Difference	ME and Africa									Australasia	
	BAHRAIN	EGYPT	ISRAEL	JORDAN	KUWAIT	QATAR	SAUDI ARABIA	SOUTH AFRICA	UAE	AUSTRALIA	NEW ZEALAND
Sector	BH	EG	IL	JO	KW	QA	SA	ZA	AE	AU	NZ
Communication Services			1.40		-3.30	2.30	0.40	-0.12	2.70	0.03	0.50
Consumer Discretionary							0.65	-0.86		0.65	
Consumer Staples		2.80					1.50	-0.41		0.80	0.70
Energy						2.10	-1.25	-1.90		0.37	
Financials	0.10	-1.70	0.58		-0.22	0.02	-0.26	-1.00	0.57	-0.47	
Health Care			-4.70	-0.50				0.60		0.71	3.65
Industrials		0.30	0.90		-3.00	-0.70		0.76	-3.40	1.58	1.20
Information Technology			-0.85					-0.60	1.30	0.42	2.70
Materials			-3.30				-0.27	-4.18		-0.16	
Real Estate			2.40			1.90	-0.40	0.70	0.15	0.03	
Utilities						0.10	0.40			1.40	2.50

Source: FTSE Russell, MSCI, HSBC Global Asset Management. Data and analysis as at January 2021.

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