Understanding MSCI ESG Indexes

Methodologies, facts and figures

Guido Giese

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Contents

Executive summary

In recent years, the field of environmental, social and governance-related indexes has seen immense growth in terms of both the number of ESG indexes launched and assets benchmarked against ESG indexes. Investors often aim to capture more than one objective through capital allocation to an ESG index: They often want to align their objectives to an investment policy by applying selective exclusions, and they want to improve risk-adjusted returns through the integration of financially relevant ESG factors. The third approach to ESG integration is impact investing, where investors aim to promote positive social change through investing. To cater to these needs and requirements, MSCI has developed a range of various ESG indexes. As these investment objectives are often intertwined, most ESG index methodologies offer a different combination of values-based or constraints-based consideration and integration of financially relevant MSCI ESG ratings.

This paper describes the different ESG indexes MSCI has developed to address these different investor needs. Values and constraints are always implemented by applying exclusionary screens to the parent benchmark portfolio before the integration of MSCI ESG ratings, which capture financially relevant ESG factors. The integration of ESG ratings can either use a weight-tilt methodology, a rank-and-select approach or optimization techniques.

While component-selection or component-weighting methodologies offer the advantage of simplicity and transparency, the use of optimization techniques in index construction can in some cases offer an advantage — for instance, when investors want to minimize the trade-off between ESG integration on the one hand and index diversification and tracking-error on the other hand, and/or to control for potential industry, country or style-factor exposures. Another area where optimization can be useful is when investors want to overlay ESG integration with another objective, e.g., the integration of equity style factors or the mitigation of carbon risks.

Impact investing, which is another way of integrating ESG considerations into a benchmark, is beyond the scope of this paper.

Looking at financial risk and performance results of the different indexes, we observed during the study period discussed in this paper that exclusions were effectively a portfolio constraint that showed a slightly adverse effect on the risk and return characteristics of the indexes. By contrast, the integration of MSCI ESG ratings showed a clear reduction in financial risk measures across all integration methodologies and a slight improvement in returns during the study period, which has more than offset the slight increase in risk caused by exclusions.

Introduction

The growth of ESG investing has led to a proliferation of ESG strategies, both active and passive. This reflects both a more diverse set of investor objectives and improved technical capability to implement more tailored solutions, as well as the increased breadth and quality of available ESG data. The purpose of this paper is to explain the different methodology variants one can use to integrate ESG considerations into a benchmark and to assess the differences of these approaches in terms of financial and ESG characteristics.

The integration of ESG into benchmarks enables investors to address their ESG-related investment objectives, which at a high level can be grouped into three categories (Exhibit 1):

1. **ESG integration**, which serves a financial objective where investors would like to incorporate ESG-related information into their investment process to identify companies that are better at managing ESG related risks and opportunities than their peers.
2. **Values and constraints**, which help investors align their portfolios with their values or investment constraints.
3. **Impact investing**, which focuses on investments in companies that can accelerate positive social change in areas that are important to the investor, instead of merely avoiding exposures to activities deemed socially negative through exclusions.

Exhibit 1: Objectives in ESG investing

In the financial industry, benchmarks are used at a strategic level (i.e., as policy benchmarks for defining the eligible investment universe of an investor or helping determine asset allocation), as well as at an implementation level (i.e., as a performance benchmark for actively or passively managed allocations or as a benchmark for financial products). Therefore, integrating ESG into an investor's set of benchmarks is one way to build a consistent framework for the integration of ESG across the entire portfolio.

MSCI ESG Indexes

This paper focuses on MSCI ESG Indexes, which incorporate values and constraints through exclusionary screens and apply techniques for ESG ratings integration that allow broader market exposure. All MSCI ESG Indexes follow transparent and fully rules-based index-construction methodologies that allow for cost-efficient index replication.

In principle, ESG indexes are based on a standard market-capitalization benchmark. Depending on investors' objectives, different ESG indexes can be designed using one or more of the following index-methodology components:

1. **Exclusions**: Removing certain companies from the underlying benchmark universe to align the portfolio with investors' values and constraints. All index methodologies discussed in this paper start with an exclusionary screen. It is important to mention that exclusions can follow different investor motivations:

    - Values-based reasons — e.g., divesting from weapons manufacturing or to comply with international standards such as the UN Global Compact.
    - Constraints — e.g., institutional investors who may face legal restrictions to invest in controversial weapons manufacturers.
    - Economic reasons — investors who may want to mitigate certain business risks, such as those who may want to avoid exposure to fossil fuels to mitigate the risk of stranded assets.

    It is important to mention that some of these exclusions can be industrywide — such as the exclusion of tobacco producers — whereas others are company-specific, such as the exclusion of companies that have breached the UN Global Compact.

2. **Selection** of the best-rated companies. The MSCI ESG Leaders Index selects the best-rated 50% of companies in terms of free-float market capitalization, whereas the MSCI SRI Index selects the best 25%. Both indexes perform the selection per GICS sector and sub-region to avoid regional and sector biases.
3. **Weight tilt** of companies within the benchmark universe. The MSCI ESG Universal Index tilts the market-cap weights of components using a scaling factor in the range between 0.5 and 2.0, which aggregates companies' MSCI

ESG rating and ESG-rating trend in a simple robust combined ESG score, as shown in Exhibit A1 in the appendix.

4. **Optimization:** The MSCI ESG Focus Index maximizes the index-level ESG score within the benchmark universe subject to a tracking-error constraint. In addition to this, optimization also offers the possibility to combine equity-style-factor exposures with ESG exposure (Alighanbari et al. 2017 and Giese et al. 2018b).

All MSCI ESG Indexes presented in this paper use the MSCI ACWI Index as the underlying universe and then draw on the following MSCI ESG datasets for integrating ESG:

- **MSCI ESG scores**[1] provide a forward-looking assessment on companies' exposure to financially relevant ESG-related risks and opportunities and their management's capability in managing those risks and opportunities. These MSCI ESG scores are mapped onto MSCI ESG ratings ranging from CCC to AAA.
- **MSCI controversy scores** provide an assessment of controversial events that have been linked to companies and their severity for stakeholders and financial relevance. Scores range between zero (very severe) to 10 (no recent incidents).
- **MSCI business-involvement screens** provide an analysis regarding the percentage of revenues companies derive from certain business activities such as alcohol or tobacco production.

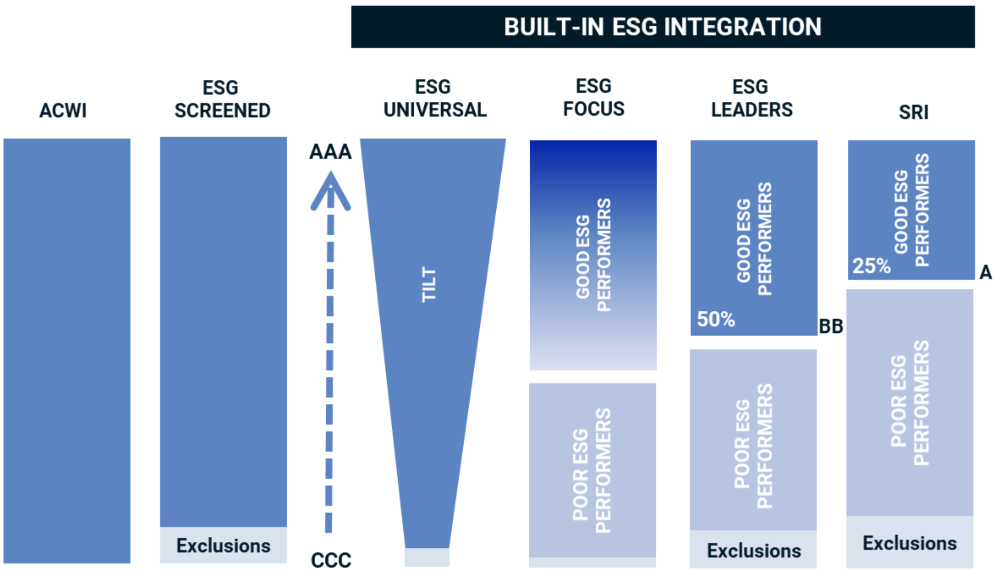
The integration of financially relevant ESG considerations is based on MSCI ESG scores, whereas exclusionary screens/index-eligibility criteria use MSCI controversy scores and MSCI business-involvement screens.

Exhibit 2 summarizes MSCI's standard ESG index series, which are based on the MSCI ACWI Index universe and use one or several of the four ESG integration methodologies described above.

It is interesting to note that all MSCI ESG Indexes shown in Exhibit 2 apply some exclusions, with controversial weapons representing the minimum level of exclusions across all indexes. This illustrates how in practice the achievement of financial objectives through ESG is almost always implemented alongside a reflection of social or reputational considerations. Exhibit A2 in the appendix provides an overview of the exact definition of exclusion screens for each index.

[1] The index methodologies and analysis presented in this paper use MSCI's industry-adjusted ESG scores.

Exhibit 2: MSCI ESG Indexes and their application



Source: MSCI. All of the above MSCI ESG Index methodologies apply certain exclusion screens (based on controversies and business-involvement screens) marked in gray. Light blue indicates companies that are not selected for the index due to low MSCI ESG ratings. Gradient fills denote indexes that use optimization techniques.

Exhibit 3 summarizes the index methodology for each of these standard ESG indexes. The range of MSCI ESG Indexes covers approaches that perform a best-in-class selection of MSCI ESG ratings and result in market-capitalization weights (the MSCI ESG Leaders Index and MSCI SRI Index); approaches that reflect MSCI ESG ratings and MSCI rating changes by tilting the market-capitalization weights of the benchmark's components toward better-rated companies and rating upgrades (MSCI ESG Universal Index); and approaches that use optimization techniques that focus on higher MSCI ESG ratings and change the weights away from market-capitalization weights (MSCI ESG Focus Index).

Exhibit 3: Standard MSCI ESG Indexes and construction methodology

Index	Index construction
MSCI ESG Screened	Market-capitalization weighted
MSCI ESG Universal	Market-cap weight-tilt from 0.5 to 2.0 depending on • MSCI ESG rating • MSCI ESG rating change (upgrade, neutral or downgrade)
MSCI ESG Focus	Optimize index-level ESG score under tracking-error and sector constraints
MSCI ESG Leaders	Best-in-class selection of top 50% of ESG-rated companies in terms of free-float market cap per • GICS sector and • Sub-region (to avoid regional or sector biases) Market-capitalization-weighted
MSCI SRI	Best-in-class selection of top 25% of ESG-rated companies in terms of free-float market cap per • GICS sector and • Sub-region (to avoid regional or sector biases) Market-capitalization-weighted

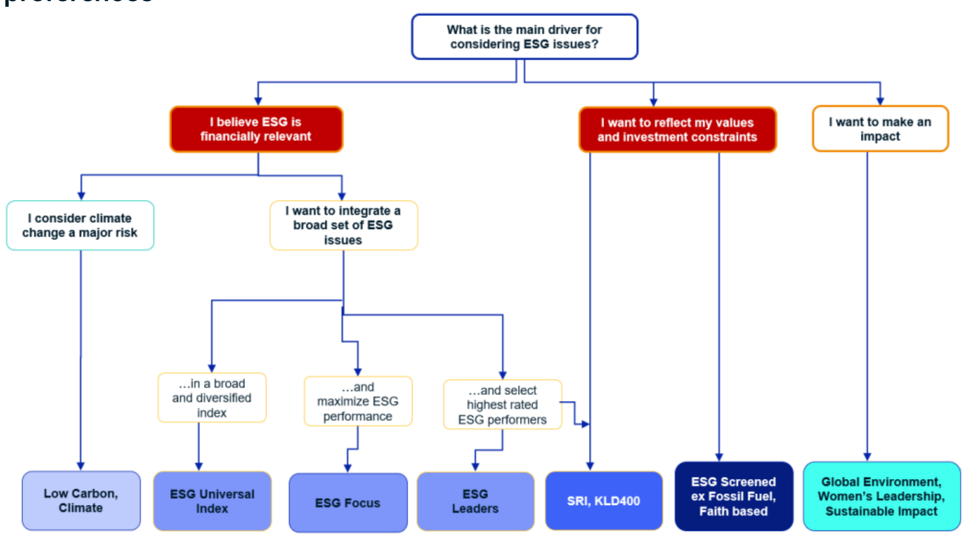
It is important to mention that MSCI's range of ESG index methodologies goes beyond the indexes discussed in this paper and includes indexes that relate to impact investing and address climate-transition risks. There is also an increasing number of investors who use customized MSCI indexes to combine ESG exposure with a climate-risk overlay and/or an overlay in equity style factors.

The different MSCI ESG Index methodologies reflect different investor preferences, which may be assessed using the following questions:

- **Objective**: What is my ESG-related investment objective? Do I want to reflect values or investment constraints by exclusionary screens only, or do I want to combine ESG-rating integration with exclusions?
- **Index methodology**: Do I want to use sophisticated portfolio optimization techniques to manage the trade-off between ESG integration and other variables (such as tracking error, country and sector deviations) efficiently? Or do I prefer simple and more transparent index methodologies based on component selection or component reweighting?
- **Breadth**: Do I prefer a broad ESG benchmark that keeps almost the full opportunity set of the benchmark in the index portfolio, or do I wish to focus my investments on a smaller number of companies with the highest MSCI ESG ratings?

These questions reflecting different investor preferences may be displayed in the form of a decision tree (Exhibit 4) that leads investors in a systematic way to the ESG-index approach that may be best suited to their needs. At a top level, investors may first want to decide their investment objective — e.g., whether they want to focus on a pure exclusionary screening approach, or whether they want to follow financial objectives by integrating MSCI ESG ratings. Afterward, they may want to decide on the index methodology they want to use and the desired breadth of the index.

Exhibit 4: Decision tree to choose an MSCI ESG Index based on investors' preferences



ESG characteristics

As mentioned above, the different standard MSCI ESG Indexes are addressing different types of investor preferences in terms of values- and constraints-based exclusions on the one hand and integration of MSCI ESG ratings on the other hand. To better understand how different MSCI ESG Indexes reflect values-based and financial objectives, we will take a closer look at the ESG profile of these MSCI ESG Indexes along two dimensions: the number of exclusions[2] (in terms of number of exclusions from the underlying MSCI ACWI Index universe and the related benchmark weights of these exclusions) as a measure for values-based

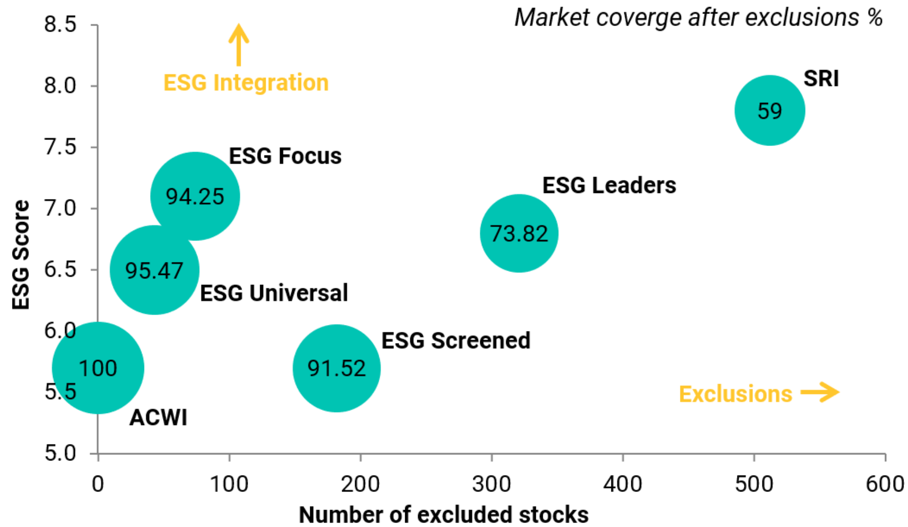
[2] Please note that the exclusions count shown in Exhibit 5 only counts exclusions based on business-involvement and controversy screens. However, the exclusion count does not include stocks that are not selected from the benchmark universe due to the ESG-ratings integration methodology — i.e., the optimization in the MSCI ESG Focus Index or the best-in-class selection in the MSCI ESG Leaders and MSCI ESG SRI indexes.

considerations and investment constraints and the index-level ESG score as a measure for financially motivated objectives. We use the number of exclusions (and the related benchmark weight) as a measure for values-based considerations, since it demonstrates the reduction in the benchmarks' opportunity set that is not driven by the financial objective of integrating MSCI ESG ratings.

Exhibit 5 shows this two-dimensional ESG quality-versus-exclusions profile for these indexes. We observe that for all standard MSCI ESG Indexes except the purely exclusion-based MSCI ESG Screened Index, the integration of financially relevant ESG factors is intertwined with values-/constraints-based considerations — i.e., these indexes showed a level of ESG integration along both dimensions compared to the benchmark during the study period, which is what they were designed to achieve.

We also see the product split between indexes that are primarily focused on integrating financially focused ESG factors (the ESG Universal Index and ESG Focus Index), indexes that focus solely on exclusions of socially negative activities (MSCI ESG Screened Index) and indexes that reach a significant level of ESG integration along both dimensions: the MSCI ESG Leaders Index and MSCI SRI Index.

Exhibit 5: ESG quality of constituents versus number of exclusions



As of December 2018, the MSCI ACWI Index rebalancing. Bubble sizes represent market coverage after exclusions but before the integration of MSCI ESG ratings.

To probe deeper into the ESG characteristics of these indexes, Exhibit 6 compares the exposure of each index to ESG Leaders (AAA- and AA-rated companies), ESG Average (A-, BBB- and BB-rated companies) and ESG Laggards (B- and CCC-rated companies). The result is quite intuitive: At the lower end of the ESG quality scale, the ACWI benchmark was predominately invested in ESG-average companies and showed a considerable exposure to ESG laggards. By contrast, at the upper end of the ESG scale the MSCI SRI Index was mainly invested in ESG leaders and showed no exposure to ESG laggards. The other MSCI ESG Indexes showed ESG exposures between these two extremes.

The indexes reflect different ways investors may wish to treat low-ESG-quality companies: Some investors may want to divest entirely from companies with low ESG ratings, which can be achieved by a best-in-class selection (the MSCI ESG Leaders Index or MSCI SRI Index). On the other hand, some investors may prefer to reduce their exposure (MSCI ESG Universal Index) and to engage with companies with low ESG quality.

Exhibit 6: ESG profile overview

Metrics	ACWI	ACWI ESG Screened	ACWI ESG Universal	ACWI ESG Focus	ACWI ESG Leaders	ACWI SRI
ESG Quality: Exposure in %						
ESG Leaders (AAA-AA)	23.2	24.2	39.6	50.0	38.5	63.6
ESG Average (A-BB)	65.7	65.0	56.3	47.8	61.5	36.4
ESG Laggards (B-CCC)	11.1	10.8	4.1	2.2	0.0	0.0
Values & constraints profile: Exposure in %						
Tobacco	0.9	0.0	0.9	0.0	0.0	0.0
Controversial Weapons	0.8	0.0	0.0	0.0	0.0	0.0
Orange Flag Controversies	24.1	23.7	21.8	21.8	13.8	12.1
Red Flag Controversies	3.6	0.7	0	0	0	0
Carbon footprint						
Carbon Intensity	232	156	212	171	202	141
Potential Emissions	3574	2146	2338	2421	1956	1794

As of Dec. 31, 2018. Carbon intensity is measured as tons of CO2 emissions per $M Sales. Potential emissions are measured as potential tons of CO2 emissions/USD 1 million Invested.

Next, we take a closer look at the values and constraints profiles of these standard ESG indexes with a focus on their exposure to tobacco production, controversial weapons and red- and orange-flag controversies (Exhibit 6). The results are quite intuitive and in line with the exclusionary screens explained in Exhibit A2 in the appendix: All standard MSCI ESG Indexes showed a considerable reduction in exposure to related companies, with the MSCI SRI Index showing the strongest exposure reduction to all of the aforementioned activities.

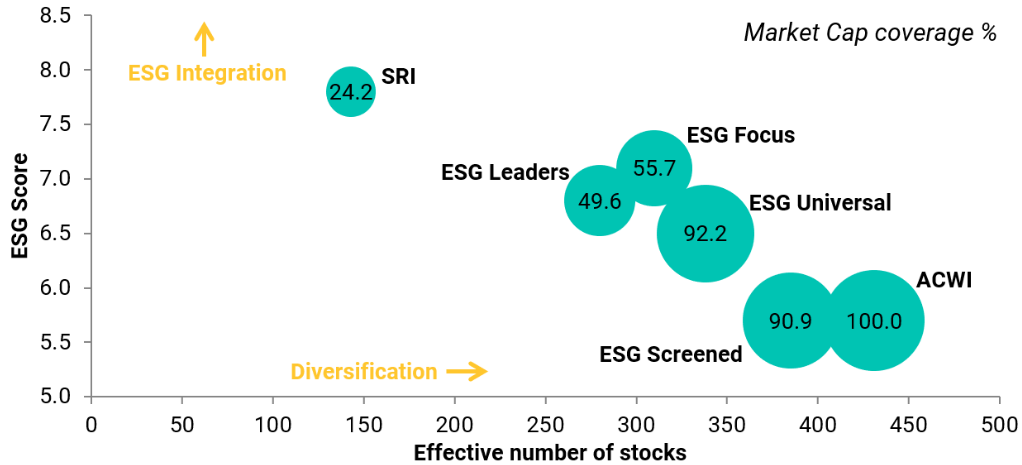
In addition, assessing carbon risks in investment portfolios has become increasingly important in recent years. Although none of these ESG indexes apply an explicit carbon methodology (except the MSCI ESG Screened Index which has an explicit screen for thermal coal and oil sands) and therefore are not designed (and don't guarantee) an improved carbon footprint, all MSCI ESG Indexes have shown an overall improved carbon profile at a global level in our study, as shown in Exhibit 6.

Index characteristics

In the following we look at the potential ESG quality-versus-diversification trade-off, as well as the ESG-quality-versus-tracking-error profile of the different ESG indexes.[3]

To start with, Exhibit 7 shows the trade-off between the level of ESG quality versus diversification (which we measure as the effective number of stocks[4] in the index) as well as the market-cap coverage of the respective indexes. Not surprisingly, the indexes with the lowest level of ESG quality (MSCI ESG Universal and MSCI ESG Screened) had the broadest and most diverse portfolios with market-cap coverage not far below 100%, whereas the MSCI SRI Index, with its 25% best-in-class selection, marked the other end of the scale with the highest level of ESG quality and the most concentrated portfolio. In the middle range of this trade-off, we can observe the relative advantage of using an optimization process in the index construction versus a simple best-in-class selection: The MSCI ESG Focus Index used index-weight optimization to achieve a considerably higher level of ESG quality, while maintaining a more diverse portfolio compared to the MSCI ESG Leaders Index, which is based on a 50% best-in-class selection per sector and sub-region and is market-capitalization-weighted. On the other hand, MSCI ESG Leaders follows a simpler and more transparent index-selection methodology.

Exhibit 7: ESG quality versus diversification and market coverage (MSCI ACWI)



As of Dec. 31, 2018. Bubble sizes represent the market coverage of the indexes.

It is worth highlighting that, in addition to improving the index-level ESG score, the MSCI ESG Universal Index also increases the exposure to companies with a positive

[3] We measure ESG quality as the index-level ESG score.

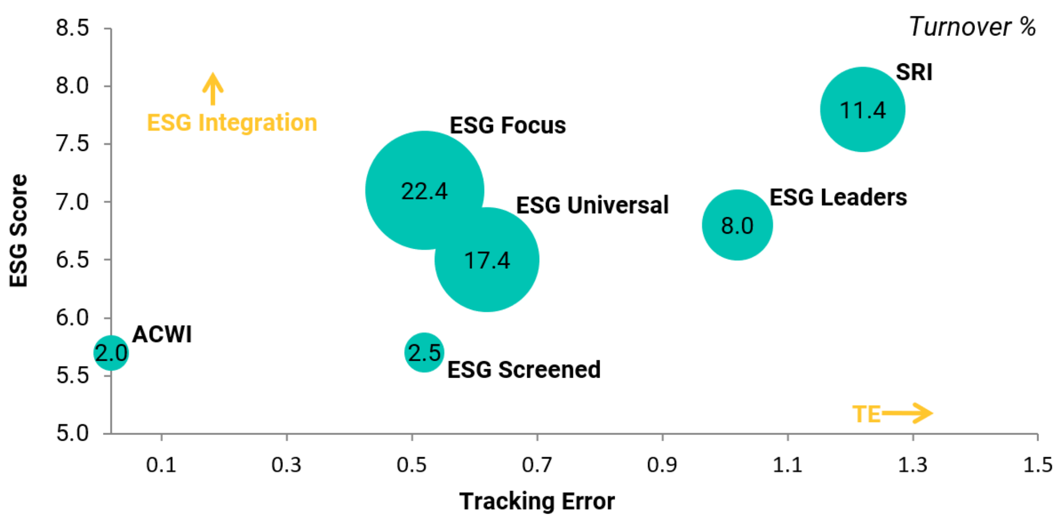
[4] The effective number of stocks of a portfolio is defined as 1 / Herfindahl index, which is a standard measure for portfolio diversification.

ESG rating trend by applying a weight-tilt factor based on both MSCI ESG ratings and MSCI ESG-rating change (Exhibit A1 in the appendix).

The ESG quality-versus-tracking-error analysis shown in Exhibit 8 shows a similar result: There was a clear trade-off between the level of ESG quality and tracking error. Again, the MSCI ESG Focus Index showed the advantage of optimization by achieving a higher level of ESG quality per unit of tracking error compared to the MSCI ESG Leaders Index, due to the use of an explicit tracking-error constraint in the optimization process. At the same time, Exhibit 8 shows that using an optimization process led to higher index turnover in the MSCI ESG Focus Index.

All ESG index methodologies showed higher levels of turnover than their parent benchmark, because they inherit the turnover from the parent and the turnover from the change of ESG characteristics. MSCI ESG Universal showed higher turnover than MSCI ESG Leaders and MSCI SRI, because its ESG tilt uses both MSCI ESG ratings and MSCI ESG momentum scores, which both drive turnover.

Exhibit 8: ESG quality versus tracking error and turnover (MSCI ACWI)



Period from May 31, 2013, to Dec. 31, 2018. Bubble sizes represent the turnover of the indexes.

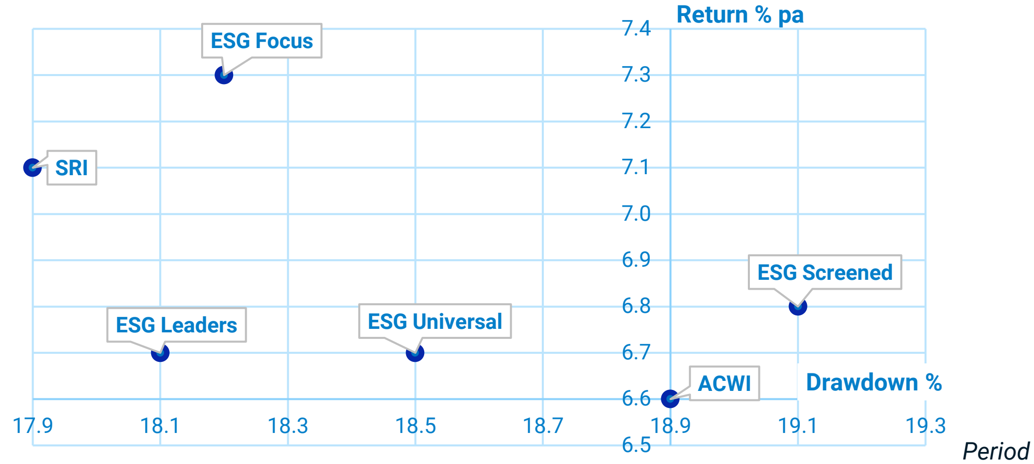
Financial risk profile

Exhibit 9 below compares the risk-return profile of these ESG indexes for the live track period of MSCI ESG Leaders and MSCI SRI from May 31, 2013, to Dec. 31, 2018. We use drawdowns as the risk measure to verify the argument found by academic researchers that companies with good ESG characteristics show lower levels of idiosyncratic tail risks and are more crisis-resilient when systematic shocks occur.[5]

We observe that MSCI ESG Universal, MSCI ESG Leaders, MSCI ESG Focus and MSCI SRI have shown a reduction in drawdown risk and a slight improvement in returns, which led to an overall improved risk-adjusted-return profile. ESG Screened has been very close to benchmark, with only slightly higher levels of risk but also slightly higher levels of returns.

In general, performance figures depend on the respective ESG-integration methodology. Nevertheless, five out of five ESG index methodologies have outperformed in the study period.

Exhibit 9: Risk-return chart of MSCI ESG Indexes



From May 31, 2013, to Dec. 31, 2018.

An important question for indexes combining an exclusionary screen as the first step, with a methodology to integrate financially driven ESG factors as a second step, is the financial impact of each of these two steps.

This question is also important in verifying two arguments brought forward by both academic researchers and industry practitioners.[6] First, the argument that exclusion

[5] Giese et al. (2019a).

[6] Hamilton et al. (1993), Luther et al. (1994) and Asness (2017).

screens effectively reduce the opportunity set for investing and therefore constitute a mathematical portfolio constraint, which cannot be beneficial from a risk-adjusted-return perspective. At best, similar financial results may be expected compared to investing in the full market.

Second, the argument that ESG integration is about incorporating financially relevant information into the portfolio-construction process, which may show a financial benefit.[7] These two arguments have also been referred to as “values versus value” in literature on ESG investing.[8]

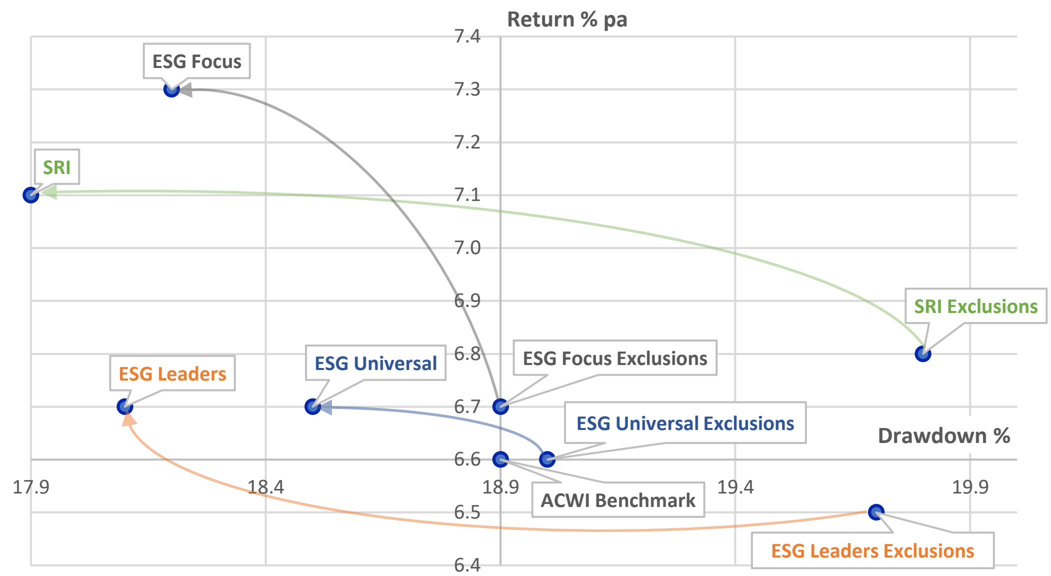
To assess these two arguments, we split the performance analysis shown in Exhibit 9 into the risk and return implications of applying the index-specific exclusionary screens only (step 1) and the risk-return characteristics of the combined methodology (step 1 + step 2). In the following, we focus on those indexes that combine an exclusionary screen with a financially focused ESG-integration step — i.e., MSCI ESG Universal, MSCI ESG Focus, MSCI ESG Leaders and MSCI SRI.

Exhibit 10 shows that, with the exception of the very light exclusion filters applied within the MSCI ESG Focus Index’s methodology, exclusionary screens have increased the risk of the index compared to MSCI ACWI during the study period. The increase in risk has been in line with the extent of exclusions: The exclusionary screens applied within the MSCI ESG Universal methodology have shown the lowest increase in risk and the exclusionary screens of the MSCI SRI Index methodology the highest increase in risk. In addition, for MSCI ACWI SRI the performance impact of the exclusionary screen has been slightly positive — while, for MSCI ACWI ESG Leaders, slightly negative.

[7] Giese et al. (2019a) and references therein.

[8] Eccles and Strohle (2018) explore the historical origins and recent evolution of various ESG-scoring and -rating approaches, highlighting a distinction between value-driven and values-driven approaches. A common library of ESG data and metrics can be used to reflect either normative preferences (such as scoring companies on contravention of different global norms or involvement in controversial business lines or practices) or financially driven considerations.

Exhibit 10: Risk-return contributions from both ESG-integration steps



Period from May 31, 2013, to Dec. 31, 2018. Each index is represented twice: first, the exclusions step and second the final index, combining exclusions with ESG integration. The arrows indicate the financial impact of the integration of MSCI ESG ratings.

By contrast, the step of integrating financially focused ESG factors has had a positive impact on both risk and return for all indexes — i.e., leading to slightly higher returns and lower levels of risk than the benchmark. For all indexes the decrease in risk has been in line with the level of ESG quality and has more than compensated for the increase in risk caused by step 1.

Overall, the MSCI ACWI SRI Index, which applies both the most stringent exclusionary screens and the strongest integration of higher ESG quality stocks, stands out with the largest risk increase caused by exclusions, by far the largest risk reduction and a clear performance enhancement due to ESG integration.

These results are in line with both aforementioned academic arguments: Exclusions are a portfolio constraint that leads to a less diversified portfolio, which has not been beneficial form a financial-risk perspective during our study period. By contrast, the integration of financially focused ESG factors has had a positive effect on risk-adjusted returns for all indexes during the study period and has outweighed the negative effect of the exclusions.

As noted in Giese et al. (2019b), performance characteristics of ESG indexes may differ across regions. The appendix of this report contains summary tables for performance and risk characteristics of global and regional ESG indexes.

Conclusion

MSCI has developed a range of ESG indexes to address the preferences of various investors. At a top level, these indexes can be classified along two dimensions or investment objectives:

1. The extent and nature of exclusions to reflect investors' values and investment constraints, which we measured as the number of companies and their weight excluded within MSCI ACWI based on index-specific exclusion criteria; and
2. The extent of integration of financially focused ESG scores and data, which we measured as the improvement in the index-weighted ESG score.

A third investment approach not elaborated in this paper is impact investing, which focuses on driving positive social change through investing.

The MSCI ESG Screened Index applies exclusions only, whereas on the other hand the MSCI ESG Focus Index has a strong profile of integrating ESG quality with relatively few exclusions. The MSCI ESG Leaders Index and MSCI ESG SRI Index are more narrow strategies with a broad set of exclusions and high levels of ESG quality.

It is important to emphasize that all MSCI indexes that implemented some level of financially focused ESG integration displayed a clear reduction in risks during our study period, especially tail risks compared to the benchmark, with higher levels of ESG quality showing stronger reduction in risks. All indexes showed better performance figures than their benchmark during the study period.

When integrating ESG we observed an apparent trade-off between ESG integration on the one hand and tracking error and index diversification on the other hand. This is where the MSCI ESG Focus showed the advantage of using an optimization technique, compared to simple index-construction methodologies, by achieving a better trade-off.

Looking at financial risk and performance results, we observed that exclusions were effectively a portfolio constraint that showed a slightly adverse effect on the risk and return characteristics of the indexes during the study period. By contrast, the integration of MSCI ESG ratings showed a clear reduction in financial risk measures across all integration methodologies and a slight improvement in returns during the study period, which more than offset the slight increase in risk caused by exclusions. Depending on investors' objectives, each index was designed to suit its purpose.

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Appendix

Exhibit A1: Combining ESG rating and ESG momentum into a scaling factor

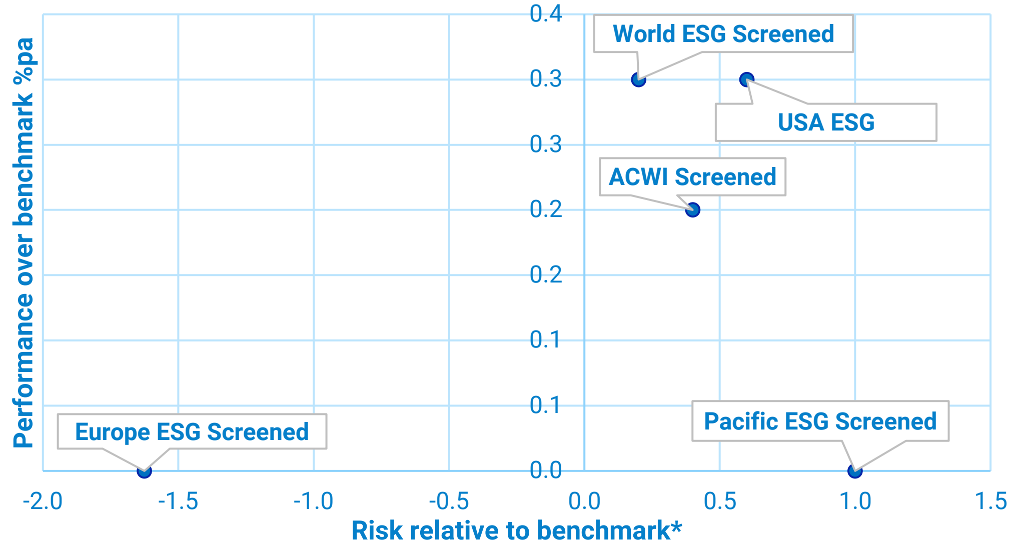
The chart illustrates how MSCI ESG ratings and MSCI ESG-rating changes are used to calculate a combined score.

Exhibit A2: Standard MSCI ESG indexes and exclusion screens

Screen	MSCI ESG Screened	MSCI ESG Universal	MSCI ESG Focus	MSCI ESG Leaders	MSCI SRI
ENVIRONMENTAL					
Nuclear power	√			>50%	>5%
Thermal coal	>5%				
Oil sands	>5%				
SOCIAL					
Alcohol				>50%	>5%
Gambling				>50%	>5%
Tobacco	>5%		√	>50%	>5%
Controversial weapons	√	√	√	√	√
Nuclear weapons	√				
Civilian firearms	>5%			>50%	>5%
GOVERNANCE					
Red-flag controversies		√	√	√	√
UN Global Compact	√				

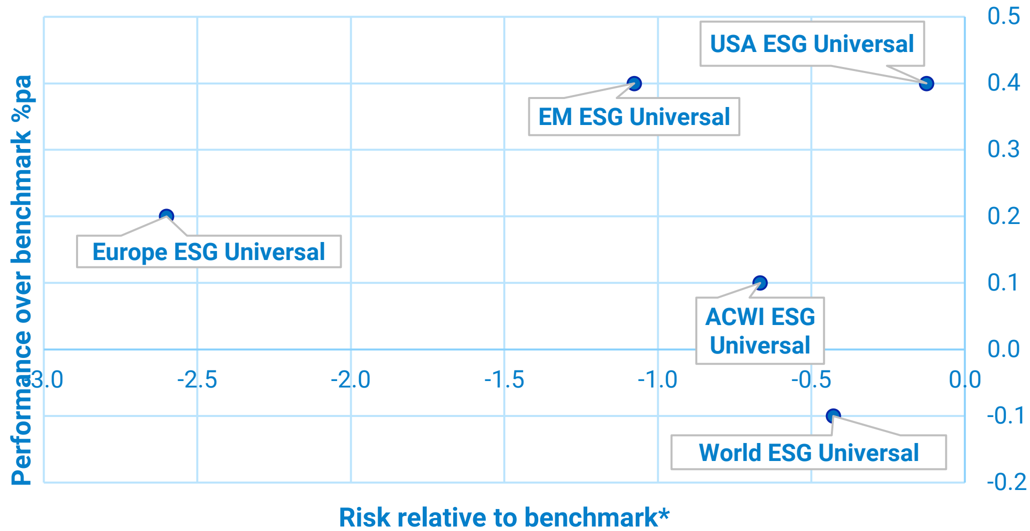
Percentage values indicate a revenue-threshold in the given business activity that triggers an exclusion.

Exhibit A3: Risk/return of MSCI ESG Screened Indexes relative to respective benchmark



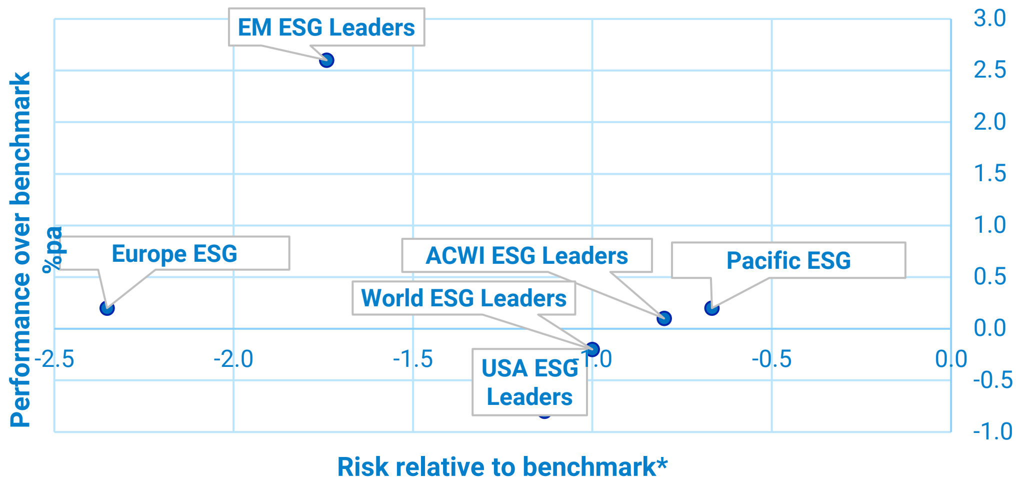
*Period from May 31, 2013, to Dec. 31, 2018. *Risk relative to benchmark is measured as drawdowns relative to benchmark divided by tracking error to benchmark. A negative figure indicates a lower level of risk compared to benchmark.*

Exhibit A4: Risk/return of MSCI ESG Universal Indexes relative to respective benchmark



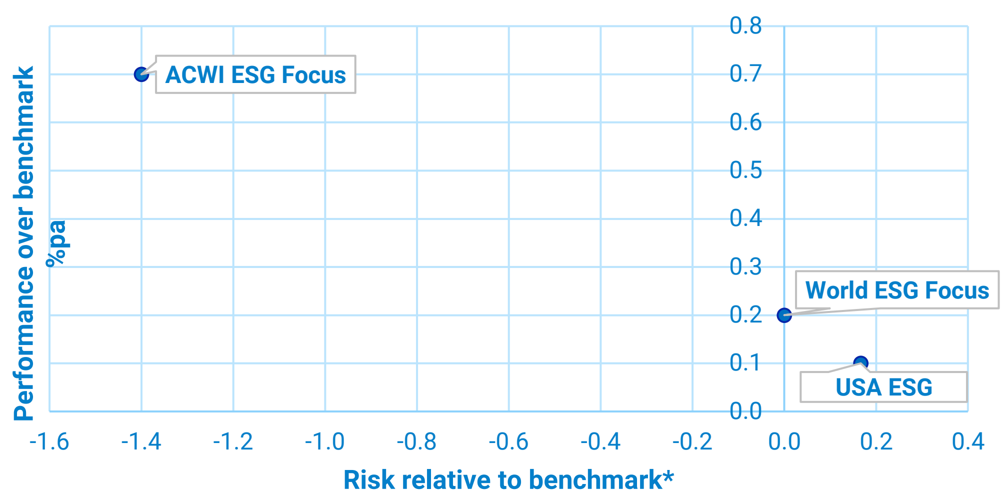
*Period from May 31, 2013, to Dec. 31, 2018. *Risk relative to benchmark is measured as drawdowns relative to benchmark divided by tracking error to benchmark. A negative figure indicates a lower level of risk compared to benchmark.*

Exhibit A5: Risk/return of MSCI ESG Leaders Indexes relative to respective benchmark



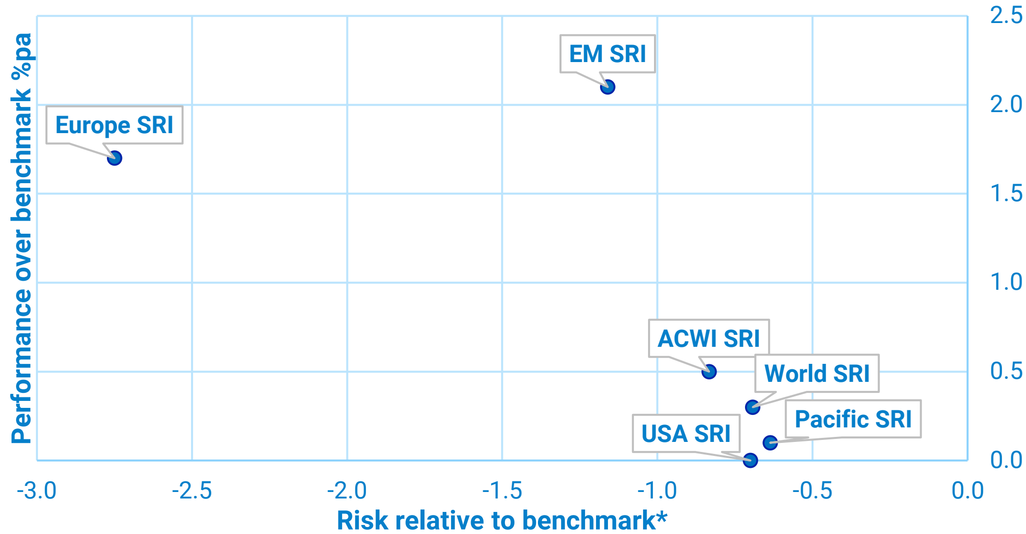
*Period from May 31, 2013 to Dec. 31, 2018. *Risk relative to benchmark is measured as drawdowns relative to benchmark divided by tracking error to benchmark. A negative figure indicates a lower level of risk compared to benchmark.*

Exhibit A6: Risk/return of MSCI ESG Focus Indexes relative to respective benchmark



*Period from May 31, 2013, to Dec. 31, 2018. *Risk relative to benchmark is measured as drawdowns relative to benchmark divided by tracking error to benchmark. A negative figure indicates a lower level of risk compared to benchmark.*

Exhibit A7: Risk/return of regional MSCI SRI Indexes relative to respective benchmark



*Period from May 31, 2013, to Dec. 31, 2018. *Risk relative to benchmark is measured as drawdowns relative to benchmark divided by tracking-error to benchmark. A negative figure indicates a lower level of risk compared to benchmark.*

Exhibit A8: Profile of global MSCI ESG Indexes

Metrics	MSCI ACWI	MSCI ACWI ESG Screened	MSCI ACWI ESG Universal	MSCI ACWI ESG Focus	MSCI ACWI ESG Leaders	MSCI ACWI SRI
Financial profile						
Total return (%)	6.6	6.8	6.7	7.3	6.7	7.1
Total risk (%)	10.9	11.0	11.0	11.0	10.7	10.7
Sharpe ratio	0.54	0.55	0.55	0.59	0.56	0.59
Tracking error (%)	0.0	0.5	0.6	0.5	1.0	1.2
Max drawdown (%)	18.9	19.1	18.5	18.2	18.1	17.9
Index profile						
Avg. no. of stocks	2501	2323	2255	504	1194	582
Parent-index coverage (%)	100.0	90.9	92.2	55.7	49.6	24.2
Turnover (%)	2.0	2.5	17.4	22.4	8.0	11.4
Weighted average ATVR (%)	103.4	105.0	98.8	102.7	99.5	97.7
ESG profile						
ESG score	5.7	5.7	6.5	7.1	6.8	7.8
ESG leaders (AAA-AA) (%)	23.2	24.2	39.6	50.0	38.5	63.6
ESG laggards (B-CCC) (%)	11.1	10.8	4.1	2.2	0.0	0.0
Carbon Intensity (t CO2e/USD 1 million sales)	232	156	212	171	202	141
Potential carbon emissions (t CO2e/USD 1 million invested)	3574	2146	2338	2421	1956	1794

Period from May 31, 2013, to Dec. 31, 2018.

Exhibit A9: Profile of developed-market MSCI ESG Indexes

Metrics	MSCI World	MSCI World ESG Screened	MSCI World ESG Universal	MSCI World ESG Focus	MSCI World ESG Leaders	MSCI World SRI
Financial profile						
Total return (%)	7.1	7.4	7.0	7.3	6.9	7.4
Total risk (%)	10.8	10.9	10.9	11.1	10.7	10.8
Sharpe ratio	0.59	0.61	0.58	0.59	0.58	0.62
Tracking error (%)	0.0	0.5	0.7	0.8	1.0	1.3
Max drawdown (%)	18.3	18.4	18.0	18.3	17.3	17.4
Index profile						
Avg. no. of stocks	1635	1525	1512	483	816	405
Parent-index coverage (%)	100.0	90.7	92.7	60.7	49.7	24.5
Turnover (%)	1.6	2.2	17.2	20.1	7.9	11.9
Weighted average ATVR (%)	102.9	104.7	99.3	102.2	101.2	100.0
ESG profile						
ESG score	5.8	5.9	6.6	7.4	7.0	7.9
ESG leaders (AAA-AA) (%)	25.0	26.0	41.6	53.1	41.3	66.3
ESG laggards (B-CCC) (%)	9.2	9.0	3.3	1.8	0.0	0.0
Carbon intensity (t CO2e/USD 1 million sales)	201	133	193	136	189	132
Potential Carbon Emissions (t CO2e/USD 1 million invested)	2349	1295	1521	2197	1432	1813

Period from May 31, 2013, to Dec. 31, 2018.

Exhibit A10: Profile of USA MSCI ESG Indexes

Metrics	MSCI USA	MSCI USA ESG Screened	MSCI USA ESG Universal	MSCI USA ESG Focus	MSCI USA ESG Leaders	MSCI USA SRI
Financial profile						
Total return (%)	10.2	10.5	10.6	10.3	9.4	10.2
Total risk (%)	10.9	11.1	10.9	11.1	10.7	11.1
Sharpe ratio	0.9	0.9	0.9	0.9	0.8	0.9
Tracking error (%)	0.0	0.5	0.8	0.6	1.5	2.0
Max drawdown (%)	19.50	19.80	19.40	19.60	17.80	18.1
Index profile						
Avg. no. of stocks	624	578	585	310	344	22.6
Parent-index coverage (%)	100.0	91.1	93.5	76.0	49.2	12.3
Turnover (%)	1.7	2.0	16.2	15.3	8.3	113.1
Weighted average ATVR (%)	111.7	113.5	109.9	110.5	110.6	7.5
ESG profile						
ESG score	5.4	5.4	6.1	6.4	6.6	0.0
ESG leaders (AAA-AA) (%)	17.8	18.0	31.0	32.0	31.5	138.0
ESG laggards (B-CCC) (%)	12.4	12.1	4.7	3.2	0.0	898
Carbon intensity (t CO2e/USD 1 million sales)	193.0	112.0	201.0	141.0	198.0	10.2
Potential carbon emissions (t CO2e/USD 1 million invested)	1041	855	803	905	629	11.1

Period from May 31, 2013, to Dec. 31, 2018.

Exhibit A11: Profile of Europe MSCI ESG Indexes

Metrics	MSCI Europe	MSCI Europe ESG Screened	MSCI Europe ESG Universal	MSCI Europe ESG Leaders	MSCI Europe SRI
Financial profile					
Total return (%)	2.8	2.8	3.0	3.0	4.5
Total risk (%)	13.1	13.2	13.1	12.9	12.9
Sharpe ratio	0.16	0.16	0.18	0.18	0.29
Tracking error (%)	0.0	0.8	1.0	1.7	2.4
Max drawdown (%)	25.5	24.2	22.9	21.5	18.9
Index profile					
Avg. no. of stocks	442	414	406	221	117
Parent-index coverage (%)	100.0	88.4	90.3	49.5	27.0
Turnover (%)	1.7	3.0	17.4	8.0	12.2
Weighted average ATVR (%)	78.8	79.6	78.7	76.2	74.1
ESG profile					
ESG score	7.1	7.3	7.7	8.1	8.8
ESG leaders (AAA-AA) (%)	45.9	50.8	66.0	67.5	82.1
ESG laggards (B-CCC) (%)	1.7	1.3	0.5	0.0	0.0
Carbon intensity (t CO2e/1 USD million sales)	192	161	181	172	138
Potential carbon emissions (t CO2e/USD 1 million invested)	4160	2797	2275	1449	2533

Period from May 31, 2013, to Dec. 31, 2018.

Exhibit A12: Profile of Pacific MSCI ESG Indexes

Metrics	MSCI Pacific	MSCI Pacific ESG Screened	MSCI Pacific ESG Leaders	MSCI Pacific SRI
Financial profile				
Total return (%)	4.2	4.2	4.4	4.3
Total risk (%)	11.8	11.9	11.8	11.8
Sharpe ratio	0.30	0.29	0.31	0.30
Tracking error (%)	0.0	0.5	1.5	2.2
Max drawdown (%)	24.6	25.1	23.6	23.2
Index profile				
Avg. no. of stocks	465	439	209	106
Parent-index coverage (%)	100.0	94.1	51.0	26.7
Turnover (%)	1.7	2.1	7.6	13.4
Weighted average ATVR (%)	108.6	109.3	105.4	99.5
ESG profile				
ESG score	5.9	5.9	7.0	8.0
ESG leaders (AAA-AA) (%)	22.3	23.0	42.3	77.6
ESG laggards (B-CCC) (%)	7.2	7.0	0.0	0.0
Carbon intensity (t CO2e/USD 1 million sales)	231	137	192	100
Potential carbon emissions (t CO2e/USD 1 million invested)	3419	540	2556	1140

Period from May 31, 2013, to Dec. 31, 2018.

Exhibit A13: Profile of emerging-market MSCI ESG Indexes

Metrics	MSCI Emerging Markets	MSCI Emerging Markets ESG Universal	MSCI Emerging Markets ESG Leaders	MSCI Emerging Markets SRI
Financial profile				
Total return (%)	2.0	2.4	4.6	4.1
Total risk (%)	15.1	14.8	14.6	14.3
Sharpe ratio	0.09	0.12	0.26	0.24
Tracking error (%)	0.0	1.3	2.7	5.0
Max drawdown (%)	35.2	33.8	30.5	29.4
Index profile				
Avg. no. of stocks	866	743	378	177
Parent-index coverage (%)	100.0	87.6	48.8	21.9
Turnover (%)	5.0	25.6	9.3	7.0
Weighted average ATVR (%)	107.1	98.8	86.1	76.6
ESG profile				
ESG score	4.4	5.1	5.6	6.9
ESG leaders (AAA-AA) (%)	10.3	18.9	17.6	40.9
ESG laggards (B-CCC) (%)	25.4	12.6	0.1	0.3
Carbon intensity (t CO2e/USD 1 million sales)	430	370	289	203
Potential carbon emissions (t CO2e/USD 1 million invested)	12677	10130	5782	1631

Period from May 31, 2013, to December 31, 2018.

Contact us

clientservice@msci.com

AMERICAS

Americas	1 888 588 4567 *
Atlanta	+ 1 404 551 3212
Boston	+ 1 617 532 0920
Chicago	+ 1 312 675 0545
Monterrey	+ 52 81 1253 4020
New York	+ 1 212 804 3901
San Francisco	+ 1 415 836 8800
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EUROPE, MIDDLE EAST & AFRICA

Cape Town	+ 27 21 673 0100
Frankfurt	+ 49 69 133 859 00
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Milan	+ 39 02 5849 0415
Paris	0800 91 59 17 *

ASIA PACIFIC

China North	10800 852 1032 *
China South	10800 152 1032 *
Hong Kong	+ 852 2844 9333
Mumbai	+ 91 22 6784 9160
Seoul	00798 8521 3392 *
Singapore	800 852 3749 *
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Taipei	008 0112 7513 *
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