Sparrows Capital - White Paper

Sustainable Investing using Exchange Traded Funds

September 2018

There is much confusion around the subject of sustainable investing. Additional layers of complication arise through a lack of standardisation and a proliferation of semi-technical terms, each attempting to address a particular nuance of philosophy and approach.

In this document, we attempt to provide the reader with a framework for visualising the sustainable investing universe, and an understanding of current thought processes, available products and their implications for efficient portfolio construction. We close by looking at Sparrows Capital's approach to constructing sustainable passive evidence-based portfolios.

Sustainable investing is a developing discipline and the concepts, processes and products described herein will continue to evolve. This document reflects a snapshot in time, and readers should expect the concepts and solutions to continue to change rapidly over the coming years.

The core concept of sustainable investing is that a responsibly managed company will be a more robust business that contributes towards sustaining the environment and the health of society and by nature of this contribution becomes a sustainable business in its own right.

Sustainable investing is not just about identifying companies that will survive the economic cycle, but involves taking specific account of underlying trends in society. It involves adjusting investment behaviour in relation to such matters as honesty and ethics in business, air and water quality, and the evolving interaction between labour, land and capital. Clients increasingly want their money not just to generate a return, but to do something positive at the same time.

It is useful to think of sustainable investing as a spectrum, with one end bounded by traditional financial investment filters, and the other bounded by philanthropy.

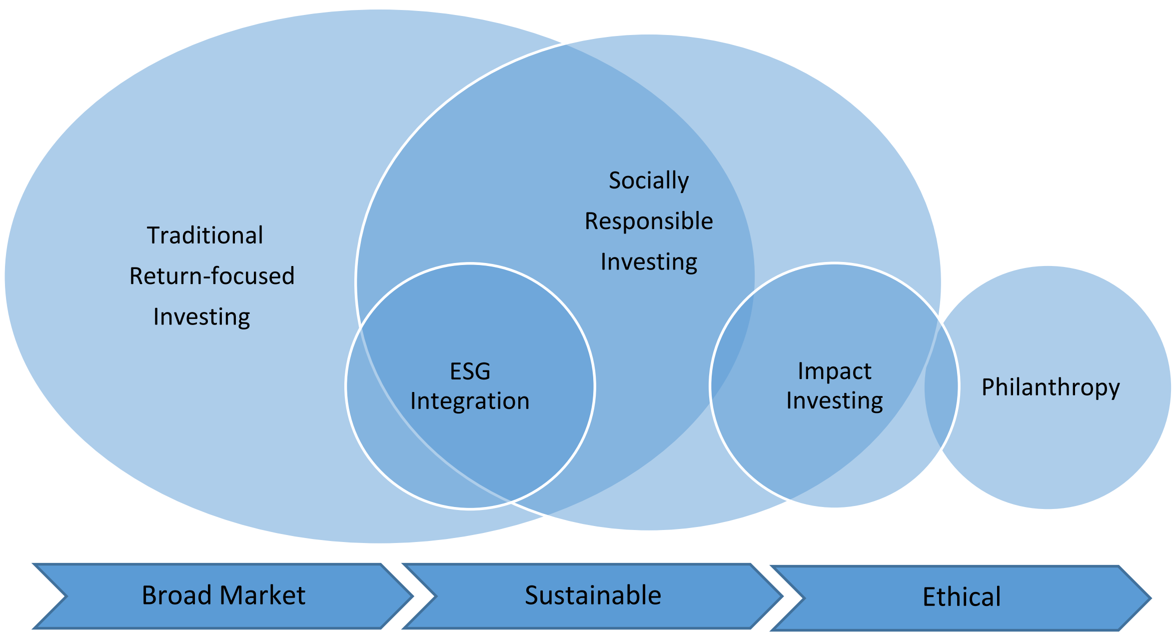

Table 1: The sustainability continuum

Environmental, Social and Governance (ESG) Criteria

The first identifiable sustainability discipline on the continuum at Table 1 is Environmental, Social and Governance (ESG) integration. ESG considerations are an addition to the usual financial and macroeconomic drivers reviewed by analysts.

The approach looks to enhance traditional investment due diligence processes by adding specific assessment criteria focussing on ESG risks and management's response to them. Importantly, an ESG scoring approach does not specifically look to exclude or include specific companies or industries.

> *Examples of ESG screening:*
>
> *An example of* ***Environmental*** *screening might be an analysis of changes in government regulations (Clean Air Act) or tax regimes (e.g. carbon tax) on a company involved in a polluting industry. Other focus areas might be water and energy consumption and waste management.*
>
> *The* ***Social*** *criteria address such matters as workplace health and safety record and resulting impact (positive or negative) on staff morale. Employee satisfaction, diversity, and human rights are other examples.*
>
> ***Governance*** *addresses the quality of managerial and board level leadership, and reviews such items as strategic vision, board composition, independence and leadership, succession planning and remuneration.*

ESG scoring addresses a framework of qualitative risks and the actions a company has taken to address those risks. A forestry company might merit a low environmental score through reckless deforestation or might achieve a high score through managed replanting and land conservation. Similarly, such a company might be awarded a low social score for exploiting the local populace, or a higher outcome through building schools and infrastructure to assist development within the region.

The ESG discipline attempts to identify and penalise unaddressed risks, and at the same time to identify and reward those companies that are less exposed to, or in a position to benefit from, ESG elements. This analysis adds a layer to investment selection, addressing management quality and the specific environment in which the company operates. A pure ESG weighting approach is sometimes referred to as a "best in class" approach to sustainable investing.

Any assessment of qualitative risks and reactions is by nature subjective. The use of third party agencies to perform scoring and raking functions goes some way to address this, but investors should be aware that any measure of non-financial risk introduces human judgement into the investment process. Rule-based does not necessarily mean objective.

The primary intention of a pure ESG screen is to improve the risk return profile of a portfolio. In many instances, this process favours socially responsible companies but it is important to recognise that such improvement is a by-product rather than a primary aim. An ESG weighted portfolio may therefore contain exposure to industries deemed undesirable by some investors unless further screens are applied.

The ESG definitions and associated key issues used by MSCI are shown in Table 2.

3 Pillars	10 Themes	37 ESG Key Issues	
Environment	**Climate Change**	**Carbon Emissions***	Financing Environmental Impact
		Product Carbon Footprint	Climate Change Vulnerability
	Natural Resources	**Water Stress***	Raw Material Sourcing
		Biodiversity & Land Use	
	Pollution & Waste	**Toxic Emissions & Waste***	Electronic Waste
		Packaging Material & Waste	
	Environmental Opportunities	Opportunities in Clean Tech	Opp's in Renewable Energy
		Opportunities in Green Building	
Social	**Human Capital**	**Labor Management***	Human Capital Development
		Health & Safety*	Supply Chain Labor Standards
	Product Liability	Product Safety & Quality	Privacy & Data Security
		Chemical Safety	Responsible Investment
		Financial Product Safety	Health & Demographic Risk
	Stakeholder Opposition	Controversial Sourcing	
	Social Opportunities	Access to Communications	Access to Health Care
		Access to Finance	Opp's in Nutrition & Health
Governance	**Corporate Governance***	**Board****	**Ownership****
		Pay**	**Accounting****
	Corporate Behavior	**Business Ethics***	Corruption & Instability
		Anti-Competitive Practices*	Financial System Instability
		Tax Transparency*	

** indicates "universal" issues assessed for all companies in the MSCI World Index*

*** Board, Pay, Ownership, and Accounting carry weight in the ESG Rating model for all companies. Currently, they contribute to the Corporate Governance score directly and 0-10 sub-scores are not available.*

Table 2: MSCI ESG Definitions

Socially Responsible Investing (SRI)

SRI investment processes lie further to the right in Table 1, being a more aggressive set of disciplines taking into account the effects of investing and of the behaviour of investee companies. The intention is to avoid socially irresponsible or unethical activities. Adherents believe that socially responsible stewardship and governance will positively influence investee companies' performance over time while helping to preserve and enhance the world in which they operate.

While an SRI portfolio may employ ESG criteria as an underlying framework for analysing companies, the discipline takes a more prescriptive, values-based approach. It will specifically exclude sectors, industries and companies associated with activities deemed undesirable.

The expectation of a premium return for SRI relies on the premise that less responsible "vice" companies will suffer over time from withdrawal of capital, from regulatory restrictions and / or from legal action, reducing shareholder returns and in some cases resulting in the demise of the company. The evidence surrounding this premise is complex, and the actual outcome of SRI investing will depend heavily on the specific policies adopted.

An SRI filter can reduce the investible universe substantially, resulting in significant portfolio concentrations and deviations relative to the capitalisation-weighted market.

Impact Investing

A more radical approach to ensuring positive societal outcomes is impact investing. The primary focus of this discipline is on achieving specific positive impact through investing. A positive return on investment is targeted, but financial outcomes are generally subordinated to the portfolio's impact objectives. Performance measures and reporting will take account of and measure both social and financial outcomes. Many impact funds now measure themselves against the UN's Sustainable Development Goals (SDGs) promulgated in 2015.

There is a wide spread of financial expectations in the impact investing sector. Approximately two thirds of investors target market equivalent returns, with the remainder actively accepting below-market performance.[1]

Examples of impact investing include emerging market microfinance activities, developmental agricultural funds and certain social infrastructure and healthcare funds.

Impact investing may be particularly suited to charities and endowments who wish to ensure that their investment activities are actively aligned with their charitable objectives.

Relative to ESG and SRI portfolios, an impact portfolio will result in further substantial restriction of the investible universe, into companies and activities somewhat less focussed on financial outcomes. Investors should expect increased associated tracking error and underperformance.

Constructing a Sustainable Portfolio

For the majority of investors, a move toward sustainable investing will involve incorporating ESG criteria and possibly SRI filters into an underlying theme, sector or strategy, and this is reflected in the range of available investment products.

ESG scoring for actively managed portfolios can be performed in-house or by third party scoring agencies. Index and ETF construction relies on third party scoring processes carried out by ESG rating agencies.

Criteria, relevance and weightings are very subjective and vary between agencies, which can result in unexpected outcomes at times. ESG rating agencies produce scores and rankings across the entire liquid equity universe.

Asset managers and index providers acquire these ESG scores for inclusion in their selection and weighting processes. For ESG ETFs, index providers build the scores into their methodology as a weighting mechanism. For SRI ETFs, the index providers will add further elimination screens according to the specific mandate.

ETF fund providers will then structure an ETF product around the resulting index. The same process is used for fixed income products as for equity.

[1] Global Impact Investing Network – 2017 Annual Impact Investor Survey

Relevant Investible Universe	• Mandated theme, strategy, factor, sector and / or region
ESG Rating Agency	• Define criteria, weights and scoring process • Analyse, score and rank the investible universe
ESG / SRI Index Provider	• Incorporate ESG scores into investment ranking and selection process • Apply exclusion screens consistent with mandate
Fund Manager / ETF Provider	• Construct index portfolio in line with ETF methodology

Table 3: Typical ESG ETF flow process

<u>ESG Rating Agencies</u>

Institutional investors, asset managers, financial institutions and other stakeholders increasingly rely on rating reports to assess and measure companies' ESG performance over time.

The market is awash with ESG rating and information provider agencies and with sustainability indices. Most international and domestic public (and many private) companies are evaluated and rated on their ESG performance by various third party providers of reports and ratings.

Some well-known third party ESG report and ratings providers include:

Bloomberg ESG Data Service
Corporate Knights Global 100
Dow Jones Sustainability Index (DJSI)
FTSE Russell
Institutional Shareholder Services (ISS)
MSCI ESG Research
Oekom
RepRisk
Sustainalytics
Thomson Reuters ESG Research Data.

ESG rating agencies may be independent (e.g. Sustainalytics, Oekom) or, like MSCI ESG, may be associated with index providers (MSCI, FTSE Russell).

These ESG rating organisations study companies in terms of sustainability along ESG criteria. A recent paper[2] presents an exhaustive overview of the different criteria for evaluation used by ESG agencies. The results suggest that the methods currently being used by agencies remain inconsistent and demonstrate a lack of standardisation.

A recent study[3], posted on Harvard Law School Forum on Corporate Governance and Financial Regulation, looked into the rating scale, methodology, reputation and usage of the main agencies listed above. This is summarised at Appendix 1.

MSCI ESG Research is one of the largest independent providers of ESG ratings. As part of the MSCI Group, they provide ESG ratings for over 6,000 global companies and more than 400,000 equity and fixed income securities. MSCI ESG ranks companies according to 37 issues feeding down from the three pillars of ESG, as shown in Table 2.

Definitional differences and data challenges

The definition of socially responsible activity is particularly subjective and varies by rating organisation and by investor. Index providers use inconsistent proprietary definitions, and the weightings of ESG ETFs can vary substantially.

Even those indices that rely on the same criteria, such as a MSCI ESG rating, may apply it differently. As a result, some ETFs will invest across the full spectrum applying an ESG weighting, while others will not invest below a defined minimum threshold score.

Industries excluded by most SRI indices include alcohol, tobacco, gambling, armaments, adult entertainment and nuclear power.

There is considerable inconsistency in the treatment of fossil fuels. Certain indices define a fossil fuel company as one that holds fossil fuel reserves, others only exclude those that produce ‘more carbon-intensive fossil fuels’, while others exclude companies with a ‘significant interest in’ fossil fuels.

Index providers have varying definitions of emerging and frontier markets. ESG related data for scoring companies in emerging markets can be challenging to access, gather and aggregate, further adding to the divergence in ratings.

Fixed income also provides significant data collection challenges. Bonds may not be subject to the same disclosure requirements as listed equities, and much trading is effected off-exchange.

Index Construction

There are three principal types of sustainability index:

1. **Broad sustainability (ESG) indices** – created top-down by filtering a conventional market index through broad-based sustainability (often ‘best-in-class’) screens. These may include the whole market adjusted to take account of ESG rating, or may exclude shares with an ESG rating below a predefined percentile.

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[2] *Socially responsible investing: sustainability indices, ESG rating and information provider agencies: International Journal of Sustainable Economy, Volume 2, Issue 4; Elena Escrig-Olmedo, Maria Jesus Munoz-Torres, Maria Angeles Fernandez-Izquierdo, 2010.*

[3] https://corpgov.law.harvard.edu/2017/07/27/esg-reports-and-ratings-what-they-are-why-they-matter/

2. **Ethical exclusion (SRI) indices** - screen out companies exposed to 'undesirable' industries and business activities or companies that contravene religious principles. This screen is usually applied in addition to an ESG bias or filter.
3. **Specialist thematic indices** – constructed from bottom-up by identifying stocks positively exposed to specific beneficial activities. Renewable and clean tech indices are common as inclusion criteria; climate change indices are also becoming more evident. There are also a number of esoteric single-issue indices (e.g. human capital management indices etc.).

There are also variations on these indices, often created at the request of ETF providers with a view to creating differentiated product lines. Examples include indices targeting 'ESG Trend Leaders' which adjust weightings based on rate of improvement relative to ESG criteria.

<u>Stewardship</u>

The third most common strategy in Europe (and the single most common in the UK) for implementing an SRI strategy is voting and engagement – active stewardship involving dialogue with both investee companies and with fellow investors.[4]

Stewardship sits alongside ESG criteria and requires significant organisational resource and commitment.

Asset managers address their stewardship responsibilities in different ways. At one end of the scale, some providers pay lip service to the issue, and simply delegate the function to proxy voting services such as ISS. At the other end of the scale, some managers invest heavily in standalone governance and stewardship capabilities and take their fiduciary responsibilities very seriously.

ETF providers are generally focussed on cost reduction, and will tend to address stewardship through proxy services. Exceptions include Blackrock, who have made a conscious investment in improving their performance in this area.

The larger providers, particularly those that span the full active and passive universe, are best placed to address stewardship due to their combined economies of scale.

Stewardship can also play an important role in impact investing. An activist approach can involve investment in miscreant companies with the intention of engaging with and influencing the board to achieve a positive outcome. Such an approach may in certain cases result in an uplift in performance and valuations.

<u>ETF product range</u>

In the United States there exists a wide range of products catering for quite specific investor needs. In part, this reflects the development of sustainable investing demand over time, and many products are now experiencing falling AuM as the discipline comes of age.

In Europe the product range is more limited and arguably more reflective of current investor demand. There are currently only two broad ESG ETFs in listed equities in Europe (UBS and

[4] *Source: Eurosif European SRI Study 2016*

Xtrackers), while there are 36 SRI products listed from seven providers.[5] There are no listed Impact Investing ETFs in impact space at the point of writing.

As at November 2017 sustainability focused ETFs represented 0.78% of European ETF AuM at €4.95bn, while in the US the percentage was lower still at 0.01% ($4.28bn)[6]. These numbers underline the fact that sustainability is still a nascent market. They also illustrate that Europe is currently leading the way.

The product range incorporates various thematic options which either specifically exclude or actively target specific industries. There are no factor based ESG ETF offerings at this stage.

Factor or Filter

Sustainable investing is a relatively new trend, and there is therefore only a limited performance data set available; as a result, very few serious academic studies have been published to date.

There is an abundance of marketing literature which uses recent performance data to suggest that both ESG and SRI approaches are associated with outperformance relative to the market portfolio. Investors should approach such claims with caution, since the analysis is both biased and influenced by the flow of capital into 'sustainable' assets associated over recent years.

It could be argued that, once such flows have stabilised, non-ESG shares will be priced at an effective discount and will need to provide a higher return in order to attract capital. In fact, historical analysis suggests that 'vice' stocks have historically outperformed over the long term, although this premium may simply be a reflection of increased business, legal and regulatory risks.[7]

In the shorter term, regulatory intervention may increase the relative flow of capital into sustainable assets. The European Commission, for example, adopted a package of measures announced in its action plan on sustainable finance, with a view to aligning financial flows with the UN 2030 Agenda and Sustainable Development Goals[8].

This builds on the good work of the UNPRI, an association of institutional investors who have signed up to a set of principles launched by the UN in 2006. These principles require the incorporation of ESG principles into analysis, decision-making and stewardship processes.

More data is needed, together with more academic analysis in order to develop a clearer picture of the effect of limiting the investible universe via ESG and / or SRI mechanisms. In the meantime, investors should prudently take the approach that these approaches behave more as filters than as factors, and that a move from left to right along the spectrum shown at Table 1 is *likely* to be accompanied by increased portfolio concentration, a bias toward large cap stocks, increased tracking error and reduced long-term portfolio performance.

Responsible investors are likely to take the view that such a trade-off is worthwhile.

[5] *Source: Trackinsight.com, Morningstar, London Stock Exchange*

[6] *Source: Deutsche Bank, Bloomberg LP*

[7] *Source: Dimson, Marsh and Staunton. Responsible Investing – does it pay to be bad? 2015*

[8] *https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance_en#commission-action-plan-on-sustainable-finance*

Sparrows Capital's Approach to ESG Portfolio Design

Sparrows Capital uses ETFs as building blocks in constructing diversified portfolios across asset classes and geography. With the recent availability of ESG ETFs, Sparrows Capital is able to incorporate ESG principles efficiently into portfolio construction.

As a baseline, we focus on broad ESG indices, which filter conventional market indices through broad-based screens, as opposed to applying thematic (e.g. carbon emissions) or single issue (e.g. boardroom gender diversity) themes. This approach naturally favours companies with higher ESG ratings.

In selecting ESG ETFs, we prefer those that rely on MSCI ESG research scores without formal exclusion criteria.

Indexes	Description
MSCI ESG Leaders Indexes	These indexes target the highest ESG-rated companies making up 50% of the adjusted market capitalization in each sector of the underlying index. The indexes are designed for investors seeking exposure to companies with strong sustainability profiles with relatively low tracking error to the underlying equity market and are reconstituted annually. The MSCI ESG Leaders Indexes includes the MSCI ACWI ESG Leaders Index, MSCI World ESG Leaders Index and MSCI EM ESG Leaders Index.
MSCI SRI Indexes	These indexes consist of companies with the highest ESG ratings making up 25% of the adjusted market capitalization in each sector of a parent MSCI index, after excluding companies involved in alcohol, tobacco, gambling, civilian firearms, military weapons, nuclear power, adult entertainment and genetically modified organisms (GMOs). In addition to MSCI ACWI SRI Index, MSCI World SRI Index and MSCI EM SRI Index, region and country sub-indexes are available. It also includes the MSCI KLD 400 Social Index, which was launched in May 1990 and is one of the first SRI indexes.
MSCI ESG Universal Indexes	The MSCI ESG Universal Indexes are created by re-weighting free-float market cap weights based upon certain ESG metrics tilting away from free-float market cap weights, the indexes enhance exposure to those companies that demonstrate both a higher MSCI ESG Rating and a positive ESG trend, while maintaining a broad and diversified investment universe. Current suite of indexes include - MSCI ACWI ESG Universal, MSCI World ESG Universal, MSCI EM ESG Universal, MSCI Europe ESG Universal and MSCI USA ESG Universal Index.
MSCI ACWI Sustainable Impact Index	This index is comprised exclusively of companies whose core business addresses at least one of the world's social and environmental challenges, as defined by the United Nations Sustainable Development Goals. To be eligible for inclusion in the Index, companies must generate at least 50% of their sales from one or more of the Sustainable Impact categories and maintain minimum environmental, social and governance (ESG) standards. The parent index is MSCI ACWI.
Barclays MSCI ESG Fixed Income Indices	The Barclays MSCI ESG Fixed Income Indices comprise more than 500 standard and custom ESG fixed income indices representing the most widely used ESG strategies and investment objectives. It includes the Barclays MSCI Green Bond, Socially Responsible, Sustainability, and ESG Weighted Indices.

Table 4: MSCI Index Categories[9]

[9] *Source: MSCI*

MSCI makes a distinction in terminology between ESG and SRI indices, with the latter characterised by active exclusion criteria and a more aggressive weighting construction. ESG Universal Indices exclude a number of stocks but maintain a beta of 1.0 to the parent index.

For the equity asset class we currently select ETFs based on the MSCI Global SRI Indexes, while for the fixed income asset class we select ETFs based on the Barclays MSCI SRI Fixed Income Indices.

Note that within the fixed income asset class, ESG ETFs relate only to corporate debt, not to sovereign debt.

There are currently no ESG ETFs for the REITs and commodities asset classes available.

Examples of ETFs that meet Sparrows Capital's current criteria are presented below:

Equity	ETF Name	Index Name
US	iShares MSCI USA SRI UCITS ETF	MSCI USA SRI Net Total Return Index
Europe	iShares MSCI EUROPE SRI UCITS ETF	MSCI EUROPE SRI Net Return Index
Developed Asia-Pacific	UBS ETF MSCI PACIFIC SRI UCITS ETF	MSCI PACIFIC SRI Net Total Return Index
Emerging Markets	iShares MSCI EM SRI UCITS ETF	MSCI EM (EMERGING MARKETS) SRI Net Total Return Index
Fixed Income	ETF Name	Index Name
US Corp Bonds	UBS ETF BM US LIQ. C. SUST.UCITS	Bloomberg Barclays MSCI US Liquid Corporates Sustainable SRI TR Index
Euro Corp Bonds	iShares EUR CORP SRI 0-3Y UCITS	Bloomberg Barclays MSCI Euro Corporate 0-3 Sustainable SRI TR Index Unhedged EUR

Conclusion

Sustainable investing remains a fledgling discipline but one that is rapidly gaining traction, supported and encouraged by governments and non-governmental organisations (NGOs). Europe leads the world in terms of implementation.

The key portfolio approach within the UK is the exclusion of undesirable sectors and / or companies, usually across the top of an ESG weighted, top sliced approach. Unsurprisingly, the ETF offerings available to European investors reflect this methodology.

The application of SRI to ETFs presents challenges, but some providers have satisfactorily addressed these. The range of instruments available is currently quite restricted, but new listings are now being announced on a regular basis.

A product provider's approach to stewardship, and commitment to integrating ESG considerations into that approach, should be critical to any screening process in this area.

It is now possible to produce a bespoke, efficient, screened, sustainable ETF portfolio; however, as with all investing, the design process is simple in concept but complex in execution.

Sparrows Capital has developed sustainable portfolio construction models, which can be fine-tuned to specific investor criteria.

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APPENDIX

ESG Report Provider	Background	Rating Scale	Methodology	Usage and Reputation
Bloomberg ESG Data	Collects ESG Data for over 9,000 companies Integrated into Bloomberg Equities and Intelligence Services International scope	Out of 100 Provides scores from third-party rating agencies	Looks at 120 ESG indicators	In 2016, Bloomberg had over 12,200 ESG Customers
Corporate Knights Global 100	Publishes an annual index of the Global 100 most sustainable corporations in the world	Out of 100 Ranked against other companies in their industry group	14 key performance indicators Companies only scored on relevant performance indicators for specific industry	Out of the top 10 corporations listed on the 2017 "Global 100", 4 out of 10 companies had published a press release regarding this listing
DJSI	First global index to track sustainability-driven companies based on RobecoSAM's ESG analysis Broken down into: DJSI World, DJSI Regions and DJSI Country International scope	Out of 100 Ranked against other companies in their industry	Industry specific questionnaire, covering relevant economic, environmental and social factors 80-120 questions Updated annually	Partnered with RobecoSAM Out of 10 Industry Group Leaders listed on the 2016 DJSI, all 10 companies published a press release regarding this listing
ISS	Acquired Ethix SRI and partnered with RepRisk to provide ESG and SRI research ISS's solutions also include climate change data and analytics from its recent acquisition of Climate Neutral Investments ISS QualityScore provides corporate governance reports on over 5,600 public companies ISS-Ethix partnered in July 2017 with CDP to launch the world's first climate impact rating for investment funds, called Climetrics, which tool can empower investors to make climate-friendly investments International Scope	ISS QualityScore: 1-10 Climetrics Score: 1 to 5 green leaves	ISS QualityScore: Covers board structure, compensation/remu-neration, shareholder rights, and audit & risk oversight Updated on an ongoing basis ISS-Ethix: Provides research, screening and analysis on SRI topics.	A leading provider

MSCI ESG	Provides ratings for over 6,000 companies and 350,000 equity and fixed income securities International scope	AAA to CCC	Looks at 37 Key ESG Issues Data collected from publicly available sources Companies monitored on an ongoing basis Annual in-depth review	iShares MSCI EAFE ESG Select ETF and MSCI EM ESG Select ETF Institutional investors, including Legal and General Investment Management, Morgan Stanley, Northern Trust Asset Management, and PIMCO
RepRisk	Founded in 1998 Provides ESG reports for more than 84,000 private and public companies across 34 sectors International scope	AAA to D	Looks at 28 ESG issues, which map onto the Ten Principles of the UN Global Compact Also looks into "Hot Topics" (currently a list of 45) Updated daily	Partnered with the United Nations-supported Principles of Sustainable Investment Institutional investors, including Amundi and APG Partnered with Institutional Shareholder Services Inc. (ISS)
Sustainalytics	2008 consolidation of DSR, Scoris and AIS Covers over 6,500 companies across 42 sectors International scope	Out of 100 Sector/industry based comparison	Looks at industry-specific ESG indicators, covers at least 70 indicators in each industry Also looks at systems to manage ESG risks and disclosure of ESG issues and performance	Strategic relationships with BNY Mellon, City of London Investment Management (CLIM), Columbia Threadneedle, Norwegian Government Pension Fund, and Prudential Fixed Income
Thomson Reuters ESG Research Data	Thomson Reuters acquired Asset4 in 2009 Provides ESG data on over 6,000 companies International scope	Percentile rank scores (available on both percentages and letter grades from D- to A+)	Covers 400 different ESG metrics, electing 178 of the most relevant data points Categories are weighted Updated every 2 weeks	Comprehensive database ESG Scores are available on Thomson Reuters Eikon platform

Appendix: ESG Report/Ratings Summary Table

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