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An Evolution in ESG Indexing

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EXECUTIVE SUMMARY

BlackRock is projecting global Sustainable ETF assets to grow to \$400 billion by 2028.

Despite the rapid growth of sustainable investing in recent years, investors and asset managers must overcome a lack of clear standards if the industry is to achieve scale. The emergence of more sophisticated Environmental, Social, and Governance (ESG) research and the increased reporting by public companies have created the potential for increased structure and standardization.

ESG-based indexes have benefited from the abundance of data and research. As benchmarks, they help define both the ESG and market structure around sustainable investing. The investment solutions that seek to track them can provide cost-effective, standardized alternatives to customized, potentially higher cost investments that may not be accessible to many investors. ESG indexes are becoming essential building blocks of asset allocations for institutional, wealth management, and personal investors.

This paper examines the evolution of indexing as a tool for sustainable investing over the past three decades, the explosion of data that has led to the development of ESG ratings, and the use of ESG ratings in the construction of ESG indexes that find their ways into portfolios today. The paper concludes with case studies that illustrate how some investors are applying ESG indexes to seek both financial and sustainable objectives.

CHAPTER 1

Indexed investing and ESG

Global ETF assets could reach \$12 trillion over the next five years. The future growth of ETFs is likely to be driven by trends like increasing use of ETFs as building blocks in asset allocation,¹ increasing cost sensitivity, and a transition to fee-based advisory models.² ETFs are expected to play an important role in the future growth of sustainable investing as investors seek the benefits of daily liquidity, tax efficiency, low cost³ and holdings transparency offered by ETFs.

Indexing makes markets more accessible, credible, and structured for investors. The primary uses for indexes are: performance benchmarks, the basis for passive investment funds such as ETFs, and investment policy benchmarks for large asset owners such as pension funds. In addition to these traditional applications, ESG indexes also define universes that meet specific ESG criteria for use by asset managers, and standards for ESG characteristics to compare with the underlying market.

Sustainable investing incorporates analysis of risks and opportunities associated with ESG issues that may be overlooked in traditional investment processes. In contrast to the short-term focus of financial markets, these risks and opportunities tend to be associated with issues, such as climate change and human capital management, that have medium- to long-term impacts on companies.

Sustainable investing falls into two broad categories: “Avoid” and “Advance”.

Avoid: Eliminate exposures to companies or sectors that pose certain risks or violate the investor’s values (examples may be tobacco, firearms or fossil fuels).

Advance: Align capital with certain desired sustainable outcomes while pursuing financial returns. There are many ways to advance. Sustainable investing generally uses ESG scores as an additional layer in the traditional investment process, primarily to identify ESG-related risks. Thematic investing focuses on capturing specific opportunities in areas such as low-carbon energy. Impact investing seeks tangible non-financial outcomes, such as promoting energy or water savings, in addition to returns.

¹ Source: Investor.gov. Asset allocation involves dividing an investment portfolio among different asset categories, such as stocks, bonds, and cash. ² Source: BlackRock. Four Big Trends to Drive ETF Growth. May 2018. ³ Source: Morningstar. The average net expense ratio of ETFs classified as socially conscious by Morningstar is 47 bps, as compared with 94 bps for actively managed mutual funds classified as socially conscious by Morningstar, as of 10/03/2018.

Avoid and advance

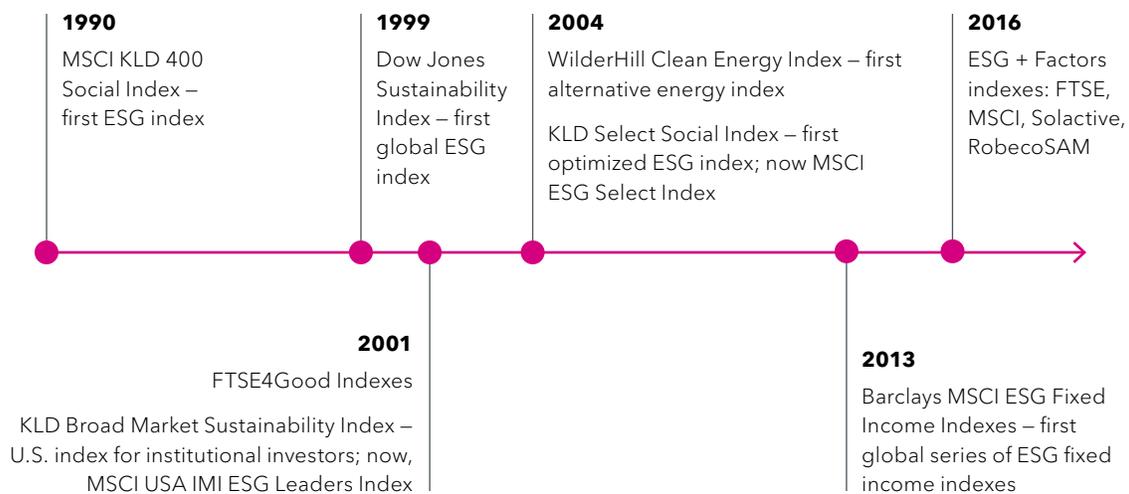
Sustainable investing styles

AVOID		ADVANCE	
Screened	ESG	Thematic	Impact
Objective			
Remove specific companies/industries associated with objectionable activities	Invest in companies based on ESG scores/rating systems	Focus on particular E, S or G issues	Target specific non-financial outcomes along with financial returns
Applications			
Screening out producers of weapons, fossil fuels and/or tobacco	Optimised ESG benchmarks; active strategies overweighting strong ESG performers	Environmental focus (low carbon or renewable energy); social focus (diversity)	Specific green bond or renewable power mandates
Examples			
S&P 500 Fossil Fuel Free Index	Bloomberg Barclays MSCI US Corporate ESG Focus Index	MSCI Low Carbon Target Indexes	MSCI ACWI Sustainable Impact Index

Source: BlackRock. The above table is for illustration purposes only. It serves as a general summary and is not exhaustive.

Historically, sustainable investing was the domain of active equity managers since there were a relatively small number of ESG indexes or index funds. In recent years, this has changed as the momentum behind ESG investing has intersected with the trend toward passive investment, and particularly investors' preferences for ETFs.⁴ We have also seen the development of fixed income indexes as sustainable investment is implemented in other asset classes.

The origins of ESG indexes



⁴ Increasing asset flows into factor (“smart beta”) index funds also reflects the market’s growing acceptance of gaining indexed exposure to new investment strategies like ESG, especially through optimized and other non-capitalization weighted benchmarks.

The first ESG index,⁵ the *Domini 400 Social Index* (now, *MSCI KLD 400 Social Index*), was launched by KLD Research & Analytics in 1990. Today, there are over 1,000 ESG indexes, reflecting the growing appetite of investors for ESG products and the need for measurement tools that accurately reflect the objectives of sustainable investors.

The index governance of KLD 400 was historically maintained by a committee that balanced ESG, size, and sector weighting considerations. In addition, it considered how investors' perspectives on ESG issues were evolving and whether new issues warranted consideration. Today, instead of relying on a committee, the KLD 400 is governed by a transparent set of quantitative rules that reference ESG ratings, ESG controversy scores, targets for relative sector representation, and treatment of corporate events. It is rebalanced quarterly and constituents are capitalization weighted. With a track record of more than 28 years, the KLD 400 is widely cited in academic and practitioner literature examining the impact of investing sustainably on financial performance.⁶

The evolution of the KLD 400 illustrates how ESG indexes have led to improvements in ESG research, enabling the transition from committees making qualitative judgments to ESG ratings that support consistent, transparent index decisions.

Investment Growth of MSCI KLD 400 Social vs. S&P 500



Source: Morningstar. Data from 5/1/1990 to 6/30/2018. MSCI KLD 400 Social Index Inception date : 5/1/1990
Index performance is for illustrative purposes only. Index performance does not reflect any management fees, transaction costs or expenses. Indexes are unmanaged and one cannot invest directly in an index. Past performance does not guarantee future results. Index performance does not represent actual iShares Fund performance. For actual fund performance, please visit www.iShares.com or www.blackrock.com.

⁵ The term in use at the time was SRI, or Socially Responsible Investing. ⁶ MSCI. *MSCI KLD 400 Social Index Methodology*. May 2018.

CHAPTER 2

ESG ratings

ESG ratings are intended to help investors gain a better understanding of the ESG-related risks and opportunities facing companies. They have evolved considerably in the past decade in response to demand from investors and the growing availability of data. ESG ratings address information about companies that is not reported in standard accounting frameworks – information we believe is material to informed investment decisions. As the primary tool of ESG integration, ratings are the foundation of many ESG indexes and a critical differentiator from traditional broad market benchmarks. However, even though ESG ratings are more advanced than ever before, there are challenges to address.

From scarcity to superabundance: the evolution of ESG data and ratings

ESG ratings have flourished in the information age. The Internet fundamentally altered the economics of data distribution, making it fast and inexpensive for companies and their stakeholders to disseminate large volumes of information. It is not a coincidence that ESG – intended to bring new insights to investment through new sources of data – has come of age in a 24/7 world where information travels at the speed of light. The historical phases of the ESG research industry reflect the impact of technology, as well as the evolving views of investors about the materiality of ESG issues and about the accountability of corporations for their impact on the communities they operate in.

Scarcity: In contrast to the abundance of data available today, the first generation of ESG research was shaped by data scarcity. Information on ESG issues was dependent on print media, regulatory documents, NGOs,⁷ and government publications. The limited information was gathered manually and published in company reports that served as the first source for systematic ESG portfolio screening, without offering an overall rating.

Abundance: As more information became available in the early 2000s, ESG research firms transitioned from reporting scarce information to interpreting the meaning of richer information flows. This environment produced today's leading rating agencies which facilitated ESG integration driven by a focus on financial materiality.

Superabundance: With the recent application of artificial intelligence and machine learning to the vast universe of unstructured data, ESG research is on the verge of a period of superabundance. In this emerging phase, technology opens up the prospect that alternative data will become an important source of new materiality and risk signals for ESG investors.

⁷ NGOs (non-governmental organizations) are non-profit, voluntary citizens' groups.

The ESG research ecosystem

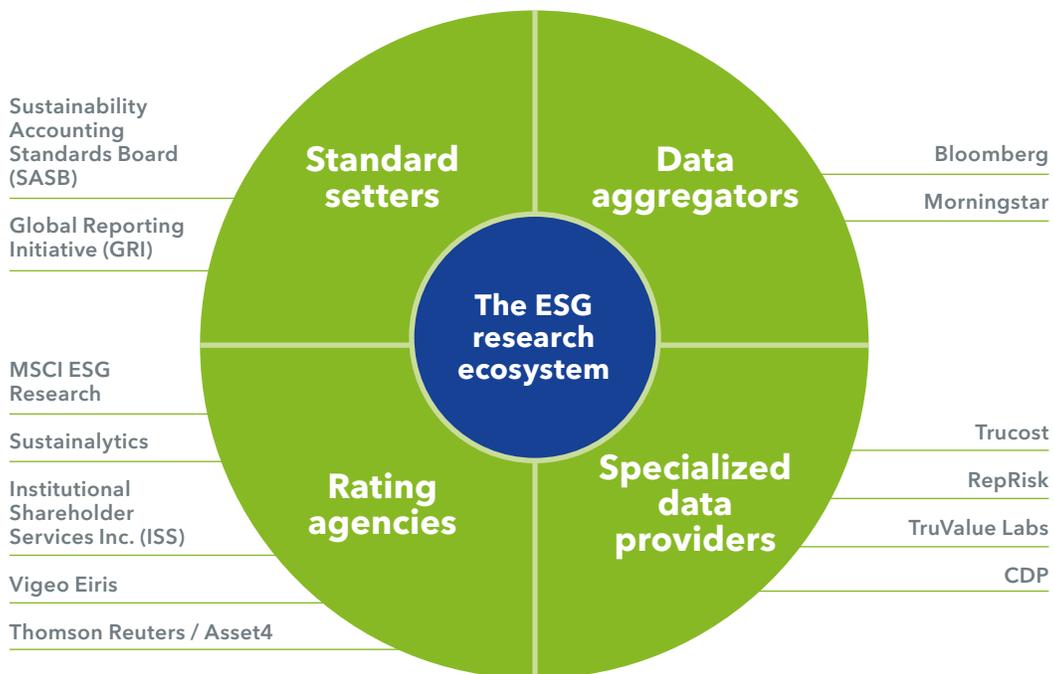
Today, the ESG research industry is made up of a growing and vibrant set of companies that collect and analyze data related to a diverse array of ESG issues.

Standard setters: Standards setters help structure and prioritize ESG reporting and disclosures, and thereby, facilitate the adoption of new investment approaches. The ESG research ecosystem includes independent standard-setting organizations like the Sustainability Accounting Standards Board (SASB)⁸ and the Global Reporting Initiative (GRI).

Data aggregators: Data aggregators provide extensive sets of structured data culled from publicly available sources. Some asset managers prefer to use raw data to form their own judgments, while others rely on ESG ratings. Some data aggregators may make their own or third-party ratings available on their platforms.

Specialized data: Some firms focus on specialized data related to particular ESG issues. For example, Trucost provides environmental data; RepRisk provides information on ESG and business conduct risk; TruValue Labs gathers ESG data from alternative sources using artificial intelligence; and CDP collects data from companies on climate, water and forests.

Rating agencies: ESG ratings became the norm in the 2000s. The ratings offer a composite environmental, social and governance perspective, enabling investors to compare and rank companies relative to their industry peers. An outgrowth of this development are reports that



While some companies may operate across more than one categories, they have been classified according to their primary role. This chart is for illustration purposes only, and is not exhaustive.

⁸ SASB intends to play a standard-setting role for sustainability data similar to that of the Financial Accounting Standards Board (FASB) for financial data.

inform investors about the ESG attributes of portfolios using ESG, carbon and impact metrics; and ESG fund ratings to distinguish investment options on the basis of their ESG characteristics.

Even as ESG data and research continues to develop, challenges still remain. There is little consensus about which ESG issues and information are material. Despite the efforts of standard setting organizations, there is still a lack of reporting standards that are universally accepted. In addition, company level ESG ratings from different rating agencies show low correlations due to differences in their methodologies. As a result, investors must reconcile these differences for themselves by undertaking their own due diligence to understand the ESG rating agency's process and methodology. Over time, investors may also be able to examine each ESG rating agency's track record at identifying ESG-related risks.

Despite the challenges, investors recognize the potential of ESG risks and opportunities to have an impact on the value of their assets. Disclosure has increased as companies realize that risks to their brands and reputations could harm their value or even jeopardize their social license to operate.⁹ In 2017, 85% of S&P 500 companies published sustainability reports, up from 20% in 2011.¹⁰ In an era when the intangible value¹¹ of the companies in the S&P 500 is estimated to have risen to 84% from 17% in 1975,¹² investors are requesting that companies be more transparent and that asset managers integrate ESG information to make more informed investment decisions.

How are ratings developed? Case study on MSCI ESG ratings¹³

MSCI's ESG rating methodology evaluates companies on material environmental, social, and governance issues to generate an overall ESG rating from AAA (highest) to CCC (lowest). ESG data is gathered from government and NGO datasets, company disclosure documents, and public media sources on 37 key ESG issues to form an ESG risk assessment. ESG issues are assigned industry-specific weights according to their impact and the time horizon of risk and opportunity. Analysts score companies on both the exposure of the company to the ESG issues and the ability of the company to manage its exposure. The resulting scores are combined to generate the overall ESG rating.

In addition, MSCI also assigns a controversy score for each controversy affecting the company. MSCI defines a controversy case as an instance or ongoing situation in which company operations and/or products allegedly have a negative environmental, social, and/or governance impact. Controversies are assigned ratings from "Minor" to "Very Severe", based on the scale and nature of impact.

⁹ ESG research firms also prompted disclosure by opening up communication channels with corporations about ESG topics that matter to investors. In addition, shareholders have engaged with companies for the past several decades about disclosure on ESG issues ranging from supply chain management to climate change risk. ¹⁰ The Governance & Accountability Institute. *Flash Report: 85% of S&P 500 Index® Companies Publish Sustainability Reports in 2017*. March 2018. ¹¹ SASB defines intangible assets as, "intellectual property, brand equity, customer relationships, patent libraries, and other intangible assets that are not efficiently captured by traditional financial statements – and which are significantly influenced by non-financial factors such as human and social capital, governance, and opportunities for innovation." ¹² Ocean Tomo. *Intangible Asset Value Market Study*. 2017. ¹³ Source: MSCI ESG Research. <https://www.msci.com/esg-ratings>

CHAPTER 3

ESG indexes

An index is a set of securities designed to represent a particular market or strategy. Indexes are constructed and maintained with rules which ensure that security selection is objective and consistent. ESG indexes are distinguished from traditional broad market indexes by the introduction of ESG criteria into security selection. Otherwise, they are governed with similar types of policies and procedures.

ESG indexes provide a transparent and rules-based way for building a strategy with particular ESG characteristics. The objective of the index may be to avoid certain kinds of companies (“Avoid”). Alternatively, it may be to gain exposure to high ESG ratings, an ESG theme, or to generate positive environmental or social impact (“Advance”). ESG indexes may combine elements of Avoid and Advance approaches.

There are potential trade-offs to consider when developing an ESG index methodology. An ESG index usually includes a sub-set of the constituents of the parent, and the selection process may introduce differences in structural (e.g., sector or country weights) or financial (e.g., risk and return) characteristics relative to a parent index.

Investments based on ESG indexes signal the objectives of sustainable investors to the capital markets. They align with the objectives of long-term investors and are effective vehicles for engagement on ESG issues. While some ESG indexes are designed to generate risk-adjusted performance similar to that of the market, funds that seek to track such indexes may benefit over the long term from investing in more sustainable companies.

ESG index construction

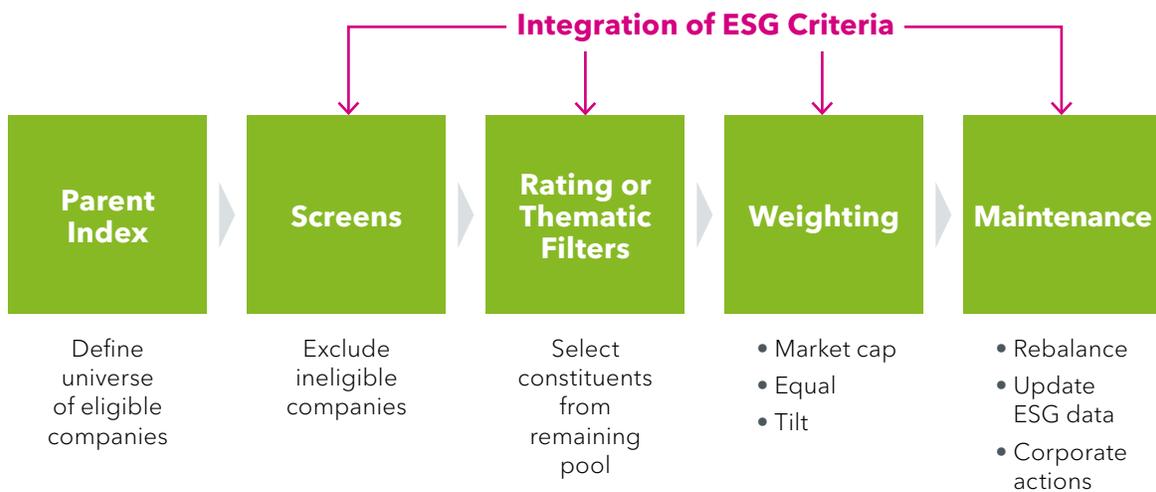
Steps in the construction of an index are enumerated in the methodology published by the index provider. The methodology includes a statement of the index objective. In the case of ESG indexes, the objective states the kind of ESG exposure the index is intended to provide, which is determined by two factors: constituent selection and constituent weighting.

Constituent selection: The first step is identification of a parent index, which defines the universe of companies from which the constituents of the ESG index are selected. Next, screens may be applied to remove companies from the parent index universe. Many – but not all – ESG indexes use exclusionary screens such as tobacco, firearms or fossil fuels to avoid particular kinds of companies. Then, constituents are selected from the remaining pool of companies based on criteria designed to achieve ESG, Thematic, or Impact exposure. Selection may be designed to achieve a specific relationship to the parent, such as similar sector and regional weights.

Constituent weighting: Once constituents have been selected, they are weighted according to index rules. There are several weighting options: market capitalization, equal, and tilting. The most common approach is market capitalization weighting, which assigns weights to constituents in proportion to their market capitalization. The result is that larger companies have more weight in the index than smaller companies. Another approach is equal weighting, which assigns the same weight to all constituents regardless of size. A third approach can be tilting, which over- and under-weights companies based on rules related to a particular index metric.

Index maintenance: After an index has been constructed, it is maintained on an ongoing basis following rules that govern how it is rebalanced and how it treats corporate actions (e.g., share issuance, mergers, acquisitions, bankruptcies, etc.) at companies in the index. For ESG indexes, periodic rebalances are also an opportunity to incorporate the most current ESG data.

Construction of an ESG Index



CHAPTER 4

Case study on MSCI Extended ESG Focus Indexes¹⁴

Constituent selection and weighting can also be accomplished using a technique known as optimization, which selects and weights constituents to maximize the ESG score for the index without straying too far from the intended investment exposure. Optimization can specify ESG exposure as its primary objective, while also addressing other constraints. Thus, it can be used to construct indexes (or portfolios) that manage trade-offs among ESG, financial, and fundamental characteristics.

The *MSCI Extended ESG Focus Indexes* are designed to maximize exposure to companies with high ESG ratings while exhibiting risk and return characteristics similar to those of the underlying market. In addition, the indexes exclude companies in the tobacco, civilian firearms and controversial weapons sectors,¹⁵ and companies that have very severe ESG controversies.¹⁶ The indexes utilize optimization to maximize portfolio-level ESG scores while limiting predicted tracking error¹⁷ relative to the parent index. This approach, which balances achieving a risk and return profile close to the parent index while also tilting towards companies with higher ESG ratings, allows an investor to more closely meet their asset allocation objectives and achieve a more sustainable outcome.

The process of optimization starts with a universe of eligible securities and then specifies an optimization objective and constraints to determine an optimal index. In constructing the MSCI Extended ESG Focus Indexes, a parent index is selected as the starting universe. Companies in the excluded sectors or with very severe ESG controversies are removed to narrow the eligible universe. The optimization process then overweights companies with higher MSCI ESG ratings and underweights companies with lower MSCI ESG ratings, within a tracking error budget. The process sets limits on sector and country weight deviations from the parent market-cap weighted index. For the fixed income ESG Focus Indexes, the process also sets limits on modified duration and yield deviations from the parent index.

¹⁴ Source: MSCI ESG Research. Detailed methodology available at https://www.msci.com/eqb/methodology/meth_docs/MSCI_ESG_Focus_Index_Methodology_Jun18.pdf ¹⁵ Revenue thresholds for the exclusions vary by sector. ¹⁶ MSCI defines a Controversy Score as, “an instance or ongoing situation in which company operations and/or products allegedly have a negative environmental, social, and/or governance impact.” MSCI ESG Controversy scores range from 0–10, where a score of 0 represents a very severe controversy. ¹⁷ Predicted Tracking Error is the statistical representation and forward-looking metric that tells investors how closely the returns of one set of stocks (or index) are expected to track another.

The tracking error budget is critical. A very high tracking error budget can lead to an optimal portfolio with fewer constituents, with index weight concentration in the stocks with higher ESG ratings, and with a larger uplift in the portfolio ESG score. A very low tracking error should lead to an optimal portfolio which will be similar to the parent portfolio and with a smaller uplift in the ESG score. Further, the tracking error budget also needs to take into account the risk of the parent portfolio and the weight of excluded stocks.

MSCI's stock-level ESG ratings are normalized to allow the optimization process to assess each score in the context of the overall distribution of ESG scores. The resulting portfolio is a subset of parent index names, and may have notably fewer constituents than the parent index.

Balancing sustainable and financial objectives

A comparison of MSCI Extended ESG Focus Indexes with their parent indexes

Index	MSCI ESG quality score ¹⁸	MSCI ESG % coverage ¹⁹	Predicted tracking error ²⁰
U.S. (LARGE & MID)			
Traditional (MSCI USA Index)	5.4	100%	0
MSCI USA Extended ESG Focus Index	6.5	100%	0.5%
U.S. (SMALL)			
Traditional (MSCI USA Small Cap Index)	4.1	99%	0
MSCI USA Small Cap Extended ESG Focus Index	5.3	100%	0.5%
INTERNATIONAL DEVELOPED			
Traditional (MSCI EAFE Index)	6.6	100%	0
MSCI EAFE Extended ESG Focus Index	7.7	100%	0.5%
EMERGING MARKETS			
Traditional (MSCI Emerging Markets Index)	4.3	100%	0
MSCI Emerging Markets Extended ESG Focus Index	6.1	100%	1.0%

MSCI ESG data is as of 8/31/18. Source: MSCI.

Indexes are unmanaged and one cannot invest directly in an index. Past ESG metrics are not indicative of future results.

¹⁸ MSCI defines ESG Quality Score as a score that, "measures the ability of underlying holdings to manage key medium- to long-term risks and opportunities arising from environmental, social, and governance factors." The ESG Quality Score is provided on a 0-10 scale, with 0 and 10 being the respective lowest and highest possible scores. ¹⁹ MSCI defines ESG Coverage (%) as a, "percent by weight of index holdings that have ESG Data." ²⁰ Morningstar defines tracking error as, "the amount by which the performance of the portfolio differed from that of the benchmark."

CHAPTER 5

Applications of ESG indexes

In recent years, indexes have become integral to the investment process and are embedded in the investment decisions of institutional, wealth as well as personal investors. ESG indexes are no different, and can be used for many of the same applications as traditional indexes, such as: benchmarks for investment policy, asset allocation plans, passive funds, and performance measurement, as well as universes for active funds. For instance, Swiss Re – among the largest reinsurers in the world – became among the first in the reinsurance industry to switch its benchmarks to ESG indexes in 2017.²¹ Similarly, Japan's Government Pension Investment Fund, with nearly \$1.5 trillion in assets as of June 2018,²² changed their Japanese Equity portfolio to an ESG benchmark in 2017.²³ We provide below a few case studies to demonstrate real world applications of ESG indexes.



CASE STUDY

Registered Investment Advisors (RIAs)²⁴

Background: RIAs may use asset allocation models to set target allocations of various asset classes for their clients' portfolios. They develop models using specific products and strategies as modular building blocks. RIAs are expressing more interest in building sustainable investing models due to high interest in sustainable investing from younger generations, the desire to align investments with personal values, and interest in impact measurement.

Objective: An RIA with a national network of financial advisors approached BlackRock to help build a sustainable model that reflected their traditional benchmark model's regional exposures and overall risk and return characteristics.

Strategy: BlackRock used its suite of sustainable ETFs to help construct a sustainable model designed to deliver benchmark-like characteristics and measurable difference in achieving a higher portfolio level ESG score, lower carbon intensity and higher tilt towards more Impact themes.

Case studies shown for illustrative purposes only. This is not meant as a guarantee of any future result or experience. This information should not be relied upon as research, investment advice or a recommendation regarding the iShares Funds or any security in particular.

²¹ Source: Swiss Re. http://www.swissre.com/media/news_releases/nr20170706_MSCI_ESG_investing.html ²² Source: Bloomberg. <https://www.bloomberg.com/view/articles/2018-06-10/japan-s-gpif-struggles-with-esg-factors-sustainability> ²³ Source: McKinsey & Company. <https://www.mckinsey.com/industries/private-equity-and-principal-investors/our-insights/from-why-to-why-not-sustainable-investing-as-the-new-normal> ²⁴ The SEC defines an Investment Adviser as, "a person or firm that is engaged in the business of providing investment advice to others or issuing reports or analyses regarding securities, for compensation."



CASE STUDY

Pension plans

Background: Pension plans are increasingly evaluating sustainable solutions due to a number of reasons: concerns around headline and reputational risks, integration of ESG factors as a way to help improve risk adjusted returns, interest to align corporate sustainability initiatives with retirement assets, and natural alignment of time horizons as ESG risks are generally long-term risks.

Objective: A large private pension was seeking a solution for its passive portfolio that could achieve two objectives: 1) competitive risk-adjusted return relative to an index and 2) reduced carbon emissions.

Strategy: BlackRock suggested a risk-based low carbon optimized solution with similar traditional risk factor exposures as the policy benchmark and significantly lower carbon emissions.



CASE STUDY

Foundations and endowments

Background: Foundations and endowments are expressing more interest in sustainable investing due to a desire to align corpus with mission, pressure from stakeholders, and interest in impact measurement.

Objective: A consultant approached BlackRock with an opportunity for a university endowment, which had made a commitment to fossil fuel divestment as well as ESG integration. The endowment was looking to move their entire passive global equity exposure to a new index that could incorporate these objectives.

Strategy: BlackRock suggested hypothetical portfolios that could exclude fossil fuel reserves, while increasing overall ESG scores, and minimizing tracking error relative to the MSCI ACWI Index.

Conclusion

Sustainable investing has evolved dramatically over the past three decades. The advancement of ESG research and ratings has led to the evolution of ESG indexes, which serve as benchmarks and as the basis for investment solutions for sustainable investors. With the added benefits of transparency, structure, and cost-effectiveness, we believe indexing within ESG will continue to play a significant role in driving sustainable investing into the mainstream.

Case studies shown for illustrative purposes only. This is not meant as a guarantee of any future result or experience. This information should not be relied upon as research, investment advice or a recommendation regarding the iShares Funds or any security in particular.

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A fund's environmental, social and governance ("ESG") investment strategy limits the types and number of investment opportunities available to the fund and, as a result, the fund may underperform other funds that do not have an ESG focus. A fund's ESG investment strategy may result in the fund investing in securities or industry sectors that underperform the market as a whole or underperform other funds screened for ESG standards.

Buying and selling shares of ETFs will result in brokerage commissions.

Fixed income risks include interest-rate and credit risk. Typically, when interest rates rise, there is a corresponding decline in bond values. Credit risk refers to the possibility that the bond issuer will not be able to make principal and interest payments.

International investing involves risks, including risks related to foreign currency, limited liquidity, less government regulation and the possibility of substantial volatility due to adverse political, economic or other developments. These risks often are heightened for investments in emerging/developing markets and in concentrations of single countries.

Funds that concentrate investments in specific industries, sectors, markets or asset classes may underperform or be more volatile than other industries, sectors, markets or asset classes and than the general securities market. Small-capitalization companies may be less stable and more susceptible to adverse developments, and their securities may be more volatile and less liquid than larger capitalization companies.

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