ESG Investing: Practices, Progress and Challenges

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Foreword

Forms of sustainable finance have grown rapidly in recent years, as a growing number of institutional investors and funds incorporate various Environmental, Social and Governance (ESG) investing approaches. While the mainstreaming of forms of sustainable finance is a welcome development, the terminology and practices associated with ESG investing vary considerably. One reason for this is that ESG investing has evolved from socially responsible investment philosophies into a distinct form of responsible investing. While earlier approaches used exclusionary screening and value judgments to shape their investment decisions, ESG investing has been spurred by shifts in demand from across the finance ecosystem, driven by both the search for better long-term financial value, and a pursuit of better alignment with values.

This report provides an overview of concepts, assessments, and conducts quantitative analysis to shed light on both the progress and challenges with respect to the current state of ESG investing. It highlights the wide variety of metrics, methodologies, and approaches that, while valid, contribute to disparate outcomes, adding to a range of ESG investment practices that, in aggregate, arrive at an industry consensus on the performance of high-ESG portfolios, which may remain open to interpretation. The key findings of our analysis illustrate that ESG ratings vary strongly depending on the provider chosen, which can occur for a number of reasons, such as different frameworks, measures, key indicators and metrics, data use, qualitative judgement, and weighting of subcategories. Moreover, returns have shown mixed results over the past decade, raising questions as to the true extent to which ESG drives performance. This lack of comparability of ESG metrics, ratings, and investing approaches makes it difficult for investors to draw the line between managing material ESG risks within their investment mandates, and pursuing ESG outcomes that might require a trade-off in financial performance.

Despite these shortcomings, ESG scoring and reporting has the potential to unlock a significant amount of information on the management and resilience of companies when pursuing long-term value creation. It could also represent an important market based mechanism to help investors better align their portfolios with environmental and social criteria that align with sustainable development. Yet, progress to strengthen the meaningfulness of ESG Investing calls for greater efforts toward transparency, consistency of metrics, comparability of ratings methodologies, and alignment with financial materiality. Lastly, notwithstanding efforts by regulators, standard setting bodies, and private sector participants in different jurisdictions and regions, global guidance may be needed to ensure market efficiency, resilience and integrity.

This report has been prepared to support the work of the OECD Committee on Financial Markets. It is part of a broader body of work to monitor developments in ESG rating and investing. The note and accompanying analysis has been prepared by Riccardo Boffo and Robert Patalano from the OECD Directorate for Financial and Enterprise Affairs. It has benefited from comments by members of the OECD Committee on Financial Markets, OECD colleagues Mathilde Mesnard, Geraldine Ang and Catriona Marshall, and has been prepared for publication by Pamela Duffin, Edward Smiley and Karen Castillo.

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Executive summary

Environmental, Social and Governance (ESG) Investing has grown rapidly over the past decade, and the amount of professionally managed portfolios that have integrated key elements of ESG assessments exceeds USD 17.5 trillion globally, by some measures.[1] Also, the growth of ESG-related traded investment products available to institutional and retail investors exceeds USD 1 trillion and continues to grow quickly across major financial markets.

The growing investor interest in ESG factors reflects the view that environmental, social and corporate governance issues – including risks and opportunities -- can affect the long-term performance of issuers and should therefore be given appropriate consideration in investment decisions. While definitions differ regarding the form of consideration of ESG risks, broadly speaking ESG investing is an approach that seeks to incorporate environmental, social and governance factors into asset allocation and risk decisions, so as to generate sustainable, long-term financial returns.[2] Thus, the extent to which the ESG approach incorporates forward-looking financially-material information into expectations of returns and risks, and the extent to which it can help generate superior long-term returns, is the focus of this report.

Over the past several years, considerable attention has been given to ESG criteria and investing, due in part to at least three factors. First, recent industry and academic studies suggest that ESG investing can, under certain conditions, help improve risk management and lead to returns that are not inferior to returns from traditional financial investments. Despite the recent studies there is a growing awareness of the complexity of measuring ESG performances. Second, growing societal attention to the risks from climate change, the benefits of globally-accepted standards of responsible business conduct, the need for diversity in the workplace and on boards, suggests that societal values will increasingly influence investor and consumer choices may increasingly impact corporate performance. Third, there is growing momentum for corporations and financial institutions to move way from short-term perspectives of risks and returns, so as to better reflect longer-term sustainability in investment performance. In this manner, some investors seek to enhance the sustainability of long-term returns, and others may wish to incorporate more formalised alignment with societal values. In either case, there is growing evidence that the sustainability of finance must incorporate broader external factors to maximise returns and profits over the long-term, while reducing the propensity for controversies that erode stakeholder trust.

ESG investing has also recently garnered interest from the public sector, including central banks that have expressed support for ways to help transition financial systems toward “greener”, low-carbon economies. Numerous central banks in advanced and emerging market economies have committed to integrate ESG assessment and investing practices into some of their responsibilities, such as reserve management and supervisory practices including stress tests. Irrespective of the actual path of climate change, the decisions being made by corporations and financial intermediaries indicates that climate transition and physical risks will increasingly affect the financial sector and warrant inclusion in the assessment of financial stability.[3]

In light of growing demand, the finance industry is creating more products and services related to ESG ratings, indices, and funds. Firms calling themselves ESG ratings providers have multiplied. The number of ESG indexes, equity and fixed income funds and ETFs are now in the many hundreds, and are continuing to expand. Investors can now engage in ESG investing through low-risk products such as

money market funds, passive smart beta ETFs, and can even take positions through hedge funds that combine sophisticated synthetic strategies with ESG alpha investing. Investors seeking to position themselves for a transition to a low-carbon economy can invest in green transition and renewables funds. In this regard, the financial markets have proven agile in responding to investor demand in a transparent and customer-oriented manner.

Notwithstanding this progress, the growth in use of ESG disclosure, ratings, and various types of ESG-related funds has invited greater scrutiny from a range of market practitioners, and there is a growing awareness from within the industry that ESG investing practices need to evolve to meet the expectations of its users and to sustain trust. Various bodies, among which GRI, SASB and TCFD, are now involved in assessing the use and consistency of ESG information, its materiality across industries, and how this information should be prioritised and scored.

In light of these issues, this ESG report seeks to bridge the gap in knowledge by exploring concepts and definitions; key actors in the ESG ecosystem and their functions; and, challenges with respect to the investment ratings, fund categorisations, and performance. It sought to identify and understand where ESG rating differences could contribute to different ESG scores that lead to divergences in high-ESG indices and portfolios.

Outcomes of the assessment in Part I include the following:

The ESG financial ecosystem is evolving, including issuers and investors who disclose and use information related to environmental, social and governance issues. Financial intermediaries, as well as government and international organisation institutions are influencing the emerging practises in ESG investing. While constructive and inclusive progress has been made to develop ESG practices by several ESG players, it has generated the spread of a wide array of investment terminology, and disclosure frameworks which resulted in metric inconsistencies and lack of comparability for investors.

In this regard, **while ESG methodologies are improving and becoming more transparent, scoring remains in a state of transition, with some rating providers still in the way of refining their methodology through the inclusion of factors such as materiality.** There is a range of scoring methodologies in terms of determining which data to analyse and include, metrics weighting, materiality and how to consider missing information. Moreover, subjective judgment is layered particularly regarding absolute and relative scores within and across industries.

Even though progress has been made, a crucial point remains on the alignment with materiality factors. Different institutions, such as SASB and GRI among others, are focusing on the assessment of materiality that is applied to different industries to determine the importance of each factor in the final ESG rating. This can depend on the business model, the external environment and the industry itself. The different materiality approaches have been influential in shaping the choice of key metrics used by the providers, but the discussion remains on the perspective on which metric is material.

When the information from the issuers' disclosure is retrieved and different key factors are weighted the final ESG score can be computed. Nonetheless, **ESG ratings can vary greatly from one ESG provider to another.** The different methodologies used to translate raw data into a more sophisticated rating suffer some level of criticism because of the wide variance in the results. This implies that if investors are using and relying on different service providers, the score inputs that shape securities selection and weighting could be driven by choice of rating provider. This section assesses the extent to which ESG scores of major providers differ, and also how they compare to the dispersion of credit ratings across firms.

The ESG score differences mentioned can occur for a number of reasons. **They may relate to different frameworks, measures, key indicators and metrics, data use, qualitative judgement, and weighting of subcategories, reweighting of scores to ensure "best in class" in industries.** While different methodologies, judgement and data are welcome to offer investors choice of approaches and outcomes,

large differences in ESG ratings across providers may reduce the meaning of ESG portfolios that weight better-rated firms more highly.

ESG ratings can be used in a multitude of different investment approaches, which tend to conform to five distinct forms. On one side, the least amount of complexity is through excluding certain firms categorically (e.g. moral considerations), and on the other side is full ESG integration into the very firm culture of investing, such that it becomes an integrate part of the investment processes. Approaches such as ESG rebalancing, Thematic Focus and ESG Impact can be found in the middle. The choice of the strategy will greatly influence the final performance of the investment.

Notwithstanding the progress to move forward sustainable investing through broader use of ESG factors and scoring, **there are a number of challenges that may hinder further development in this rapidly growing and promising area of the market**. Key issues for further consideration relate to: (i) ensuring relevance and consistency in reporting frameworks for ESG disclosure; (ii) opacity of the subjective elements of ESG scoring; (iii) improving alignment with materiality and performance; (iv) overcoming the market bias; (v) transparency of ESG products alignment with investors' sustainable finance objectives related to financial and social returns; and, (vi) public and regulatory engagement.

Part II of the report endeavours to complement the industry developments and assessments presented in Part I, by providing an assessment based on academic literature and OECD analysis of ESG scoring and benchmark performance, based on ESG databases of different providers.

In terms of descriptive statistics, the size of the ESG investable shows market penetration of ESG scoring is still low based on number of companies, but is much higher when measuring it by market capitalisation, which better represents the investable universe. This suggests that there is ample room for investing using exclusion and tilting approaches while maintaining a sufficient level of diversification.

Also**, there is evidence of an ESG ratings bias against SMEs for some providers**, such that firms with much higher market capitalisation and revenues consistently receive higher ESG scores than those with very low market capitalisations**.**

The predictive power of ESG scores is inconsistent, and there is evidence that while some high-ESG indices and portfolios can outperform the market, the same is true for low-ESG portfolios. Using different providers' data, OECD secretariat *found an inconsistent correlation between high ESG scores and returns, such that different providers lead to different results*. This does not mean that all ESG portfolios underperformed the traditional market: however, many high-scoring ESG portfolios did underperform, and a number of low-scoring ESG portfolios outperformed the markets.

The analysis also found that asset concentration associated with tilting portfolios toward high-scoring ESG issuers can, depending on the conditions, affect volatility, risk-adjusted returns and drawdown risk. Various combinations of constructed portfolios based on tilts that provide greater exposure to higher-scoring issuers often performed at or below traditional indices for periods of time. The results are consistent with portfolio theory in that, greater concentration of exposures in a given portfolio can increase volatility, all else equal On the contrary, the analysis of maximum drawdown risk showed that ESG portfolios have a lower drawdown risk when compared to non-ESG portfolios.

There was little differentiation in the performance of funds with higher-scoring and lower-scoring ESG securities; the wide range of performance of funds across both categories indicates that a host of other factors, including particular investment strategies and their implementation, drive results. This result simply indicates that investors should not generalise about the potential financial returns of funds based on ESG scores, and also suggests the importance of investor education related to retail ESG funds. At the same time, there is no evidence that preference for high ESG funds leads to underperformance, as other investment factors can affect results.

The assessments from Part I and II suggest that, to unlock the potential benefits of ESG investing for long-term sustainable finance, greater attention and efforts are needed to improve transparency, international consistency and comparability, alignment with materiality, and clarity in fund strategies as they relate to ESG. There is ample evidence to believe that abundant information about relevant environmental, social and governance factors, if provided in a rigorous and consistent manner, could help investors make better decisions about portfolio constructions and expectations of financial returns.

Part III reviews policy developments and considerations with respect to strengthening ESG practices globally.

Policy developments across several major markets suggests that, while policy initiatives are at different stages of development, efforts are being made to strengthen ESG practices so that they are transparent, efficient, and fair. Regulatory initiatives related to sustainable finance, and ESG in particular, are spanning topics such as taxonomy and disclosure regarding issuers, ESG fund products and rating agency and benchmarks**. In the EU the European Commission has assessed practices and implications of sustainable finance, moving ahead on an ESG regulatory framework** and is about to unveil a Renewed Sustainable Finance Strategy, integral part of the European Green Deal, which will cover ESG data and ratings**.** Agencies and expert groups are prioritising sustainable finance to promote sustainable investments and reduce the risks associated with a missing framework, such as greenwashing. **Initiatives in the United States are based upon the principles-based approach to overseeing disclosure of non-financial information by publicly-listed companies. The US SEC is engaging in consideration of ESG investing through several avenues, including recent steps regarding the review of ESG disclosure and the naming of funds with ESG (or similar) investment mandates.**. **Japan is also paying attention to ESG developments and in 2018 created a label to identify companies that are reporting on ESG performance, as part of efforts to improve corporate disclosure and improve the long-term investing landscape. More work has been done with respect to how institutional investors consider ESG factors.**

The assessment of ESG factors suggest that, notwithstanding progress to enhance data availability and analysis, further efforts by policy-makers, financial market participants and other stakeholders will be needed to strengthen ESG practices. Given the work in progress across regulatory bodies and financial markets is progressing in varying speeds and directions, the following high-level considerations would help bring global consistency to allow various constituencies to focus their efforts within and across markets.

The considerations reflect 5 key areas, including:

Ensuring consistency, comparability and quality of core metrics in reporting frameworks for ESG disclosure. Despite the efforts to improve ESG disclosure the reporting of ESG factors still suffers from considerable shortcomings that undermine its usefulness to investors.

Ensuring relevance of reporting through financial materiality over the medium and long-term. Currently, ESG reporting and ratings approaches generally do not sufficiently clarify either financial materiality or non-financial materiality (e.g. social impact), so investors are lacking a clear picture of the issues that are likely to directly impact the financial condition of a company.

Levelling the playing field between large and small issuers related to ESG disclosure and ratings. Research suggests that there is an ESG scoring bias in favour of large-cap companies, and against SMEs. This burden, may be due in part to the ability of large firms to dedicate more resources to reporting and poses a market inefficiency to the extent it affects both relative cost of capital and corporate reputation.

Promoting the transparency and comparability of scoring and weighting methodologies of established ESG ratings providers and indices. Evidence indicates that major ESG providers' outputs give rise to several challenges. A very low degree of correlation as to what constitutes a high or low-scoring

ESG-scoring issuer, wide differences in factor subcategories below the E, S, and G, the number of metrics, their weighting, and subjective judgment all undermines comparability.

Appropriate labelling and disclosure of ESG products to adequately inform investors of how ESG is used in the investment process and asset selection. A number of factors, in addition to ESG considerations, are driving returns. They include investment objectives and risk tolerance and strategy among others. In this respect, it would be very difficult to assess the ESG contribution to portfolio returns relative to other factors. Therefore, it would be important to inform investors through comparable and consistent metrics that align with financial materiality, to allow market participants to make investment and voting decisions in line with their investment objectives and risk tolerance.

Further efforts are needed to strengthen ESG practices so that they are consistent and comparable at the global level involving policy-makers, the financial industry, end-investors and other stakeholders that are helping to shape ESG practices. To ensure further progress in ESG, improve investors' confidence in the instrument and reduce the risk of market fragmentation there is scope for the OECD to facilitate awareness and discussion of challenges and solutions related to ESG investing, including the need for guidance on improving consistency and transparency, alignment with materiality, frameworks, and good practices of benchmark and fund reporting.

Introduction

Sustainable finance is generally referred to as the process of considering environmental, social and governance factors when making investment decisions, leading to increased longer-term investments into sustainable economic activities and projects. Its growth has been driven by the desire of investors to have an environmental and social impact, along with the economic performance of investing. This growth is a response to a larger trend which saw many countries around the world to mobilise efforts to contribute to a global improvement. Now finance is taking its active position in trying to implement these concepts in the investing practice. The instrument that was born from this will is the Environmental, social, and governance (ESG) rating, from which ESG Investing is developed.

Environmental, social, and governance ("ESG") investing has evolved in recent years to meet the demands of institutional and retail investors, as well as certain public sector authorities, that wish to better incorporate long-term financial risks and opportunities into their investment decision-making processes to generate long-term value. Among the long-term factors environmental, social and governance categories can include controversies and downside risks that have the potential to erode equity value and increase credit risk over time. As such, it aims to combine better risk management with improved portfolio returns, and to reflect investor and beneficiary values in an investment strategy.[4] In this respects, the investment community has come to consider ESG as an investment approach that seeks to incorporate greater and more consistent information regarding material environmental, social, and governance developments, risks and opportunities, into asset allocation and risk management decisions, so as to generate sustainable, long-term financial returns.[5]

In addition, the approach can equally serve to aid investors and other stakeholders in their effort to use environmental, social and governance information for ethical or impact investing, in which financial returns are not the primary focus of the investors objective. In this regard, there is a rising demand by these investor types to improve the alignment of their portfolios with societal values, such as related to slowing climate change, improving socially just practices, and ensuring high standards of corporate governance. ESG disclosure is gaining in acceptance because it can provides a useful tool for issuers to assess and communicate their socially responsible practices, and for investors that seek to assess the potential for social returns in a consistent manner across companies and over time.

In concept, over the medium-to-long term, issuers that take into account these societal issues are more likely to avoid controversies and improve their reputations, better retain customers and employees, and maintain the trust of shareholders during periods of uncertainty and transition. However, at the present time, the extent to which the current ESG practices are sufficiently unlocking material information that is accessible and utilised by investors in an effective manner remains an open question. Notwithstanding the vital importance of the societal alignment of investments, the promise of sustainable finance for long-term value is the focus of this report. As such, it aims to contribute to a better understanding of the extent to which ESG investment processes and practices are contributing to strengthening transparency and market integrity, and are delivering intended results.

There is growing evidence that investors and financial intermediaries are increasingly factoring ESG assessments into investment decisions. As of 2018, the number of signatories of the UN Principles of

Responsible Investment (UN PRI) that commit to pursue ESG integration has grown to over 2 300 signatories among institutional investors. The top reason professional investors consider ESG-related information is not to derive reputational benefit but to determine whether a company is adequately managing risk and aligning its strategy for long-term returns. In more recent investor surveys, the pursuit of maximisation of financial returns and enhanced risk-management have been consistently highlighted as key motivating reasons for committing to ESG integration.[6]

The growth of ESG has faced difficulties in entering mainstream investment strategies until recent years. This may have been due in part to investors' misperceptions that sustainable investment limits choice and compromises key financial objectives. However, the rapid growth and diversification of ESG funds and investment strategies suggest that the industry is undergoing a transformation. There is mixed evidence that ESG investing in some of its forms is able to provide a societal benefit without sacrificing financial returns relative to performance of traditional portfolios, yet the extent to which ESG can contribute to strengthening long-term value through the incorporation of an array of non-financial information would benefit from further assessment.[7]

At the same time, ESG terms and practices have not been clearly defined, and meanings differ across stakeholders, particularly across borders. There appear to be several core approaches to ESG investing, including negative and positive screening (inclusion and exclusion), tilting portfolios aligned with ESG scores, and also ESG impact and integration practices. At the same time, these approaches are at times combined with investing strategies – such as alpha, momentum, and long-short – that could in turn alter asset selection in portfolios. Moreover, the lack of standardised reporting practices and transparency, and the difficulty of translating qualitative information in numerical information, creates a barrier in the proper integration of sustainability factors into investment decisions.

The OECD has been involved in developing responsible investment in a number of ways. The OECD Guidelines for Responsible Business Conduct for Institutional Investors; a report on investment governance and the integration of ESG factors; and setting forth a consultation for supervisory guidelines on the integration of ESG factors in the investment and risk management in pension funds. Also, on environmental issues, the OECD has developed numerous papers on sustainable finance and climate change. Also, it recently issued a report on Social Impact Investment 2019, highlighting the impact imperative for sustainable development.

In light of the growing questions regarding ESG practices, the OECD's Committee on Financial Markets has explored the developments related to various market participants and influencers that are shaping ESG practices; the materiality of ESG disclosures; the usefulness of ESG ratings; and, performance of ESG indices and funds. As well, it has engaged with the industry to better understand practices, including the benefits and potential shortcomings that could undermine adoption. Challenges relate to transparency, consistency, materiality, and the ability of financial consumers to understand both the loose taxonomy and how it relates to portfolio composition, returns and risks. This is particularly relevant where investors have expectations that they are able to utilise ESG to align with financial returns as well as societal values related to environmental, social and good governance practices.

This report covers the following topics:

Part I maps ESG industry participants, ratings methodologies, and investment approaches.

Section 2 provides an overview of the definitions of ESG investing, how it is differentiated from social investing and purely financial investing, and drivers of its growth. It explores the distinction between end-investors who find appeal in ESG approaches due to their desire to align their investments with societal values, and the pressures on professional asset managers who are tasked with delivering superior financial returns on an absolute or risk-adjusted basis.

Section 3 briefly illustrates the ESG financial ecosystem, in terms of various market participants and other stakeholders involved in providing ESG information, ratings, indices, and investment products**.** It illustrates

that with numerous interwoven efforts to identify, prioritise and integrate information and assessments, there are now an abundance of ESG ratings and investment approaches, such that numerous interpretations of ESG currently exist. This clouds meaningfulness of outcomes.

Section 4 reviews the ESG scoring processes, in terms of methodology and the use of particular metric categories, and also considers materiality. It highlights both good progress, but illustrates that the integration of consistent and material reporting of non-financial information for ESG ratings remains a work in progress.

Section 5 assesses ESG scoring performance relative to traditional indices and credit ratings, and explores ratings methodologies to understand what factors may be contributing to the wide variance in results**.**

Section 6 considers ESG investment approaches and particular fund strategies. It explores the extent to which different traditional strategies, in combination with ESG approaches, could influence results.

Part II seeks to determine how ESG investment strategies have performed relative to traditional indices, and the extent to which they have delivered financial value over the medium term.

Section 7 reviews academic and industry literature of ESG and other forms of responsible investing. While the literature on returns is mixed, there is some academic literature and a growing body of industry research that forms of ESG performance can either perform equal to traditional market-weighed investments or, in certain circumstances, exceed them. This has drawn attention to the prospect that with the right methodologies, investors can reap financial returns and align their investments with societal values.

Section 8 offers an OECD staff assessment of ESG scoring, benchmark and fund performance based on several prominent industry databases. The assessment builds on several strands of portfolio theory, including Markowitz modern portfolio theory and Fama-French factor models, to assess how various ESG indices, portfolios, and funds have performed against traditional market investments over the past decade, and also during the Covid-19 crisis. **The OECD findings are meant to offer a preliminary perspective based on empirical analysis, yet recognises that different databases and other ratings providers, different from the ones used, could lead to materially different results.**

Based on these observations and analytical findings**, Part III** provides an overview of key challenges and potential steps to help ensure that ESG methodologies and investing contribute to market transparency, confidence, and integrity.

ESG financial ecosystem, ratings methodologies, and investment approaches

ESG investing and the investment fund industry

ESG within the investment spectrum

ESG investing exists within a broader spectrum of investing based on financial and social returns. On one side of the spectrum, pure financial investment is pursued to maximise shareholder and debtholder value through financial returns based on absolute or risk-adjusted measures of financial value. At best, it assumes the efficiency of capital markets will effectively allocate resources to parts of the economy that maximise benefits, and contributes more broadly to economic development. On the other side of the spectrum, pure social "investing, such as philanthropy, seeks only social returns, such that the investor gains from confirming evidence of benefits to segments or all of society, in particular related to environmental or social benefits, including with regard to human and worker rights, gender equality. Social impact investing seeks a blend of social return and financial return – but the prioritisation of social or financial returns depends on the extent to which the investors are willing to compromise one for the other in alignment with their overall objectives.

Within this spectrum, ESG investing focuses on maximising financial returns, and utilises ESG factors to help assess risks and opportunities, particularly over the medium to long-term. What differentiates it from purely commercial investing is that it takes into account factors other than assessment of short-term financial performance and commercial risks to that performance. In this manner, ESG investing incorporates the risk assessment of long-term environmental, social and governance challenges and developments. Also, it appears to take into account, to varying degrees, some element of positive behaviour that aligns with limiting spill overs or otherwise protecting the environment, responsible business conduct on social /worker issues, and good practice in corporate governance. The extent to which ESG investment incorporates social impact in a manner that increases financial risks (volatility and tracking error relative to an index) or reduces expected financial returns, would suggest that it is more aligned with social impact funds.

The distinction between ESG funds and social impact funds is still not clear, and there remains some ambiguity in the market that could be better addressed by the financial industry, third-party providers, and international organisations. This can be the consequence of the use of ESG ratings as a broader instrument serving different purposes for different investors. While some investors use ESG as a tool for risk management, some others use it to improve their position on sustainable finance in order to align with societal and impact issues.

Table 1. The spectrum of social and financial investing

	Philanthropy		Social Impact Investing		Sustainable and Responsible Investing[8]	Conventional financial investing
	Traditional Philanthropy	Venture Philanthropy	Social Investing	Impact investment	ESG investing	Fully commercial investment
Focus	Address societal challenges through the provision of grants	Address societal challenges with venture investment approaches	Investment with a focus on social and/or environmental outcome and some expected financial return	Investment with an intent to have a measurable environmental and/or social return	Enhance long-term value by using ESG factors to mitigate risks and identify growth opportunities.	Limited or no regard for environmental, social or governance practices
			Use of ESG metrics and methodologies			
Return Expectation	Social return only	Social return focused	Social return and sub-market financial return	Social return and adequate financial market rate	Financial market return focused on long-term value	Financial market return only
	Social impact	←→	Social and financial		←→	Financial returns

Source: stylised adaptation from OECD (2019), "Social Impact Investment, the Impact Imperative for Sustainable Development," based on earlier versions from various organisations; for illustrative purposes only.

Recent industry terminology acknowledges that as demand for ESG products reflect desire for long-term value as well as alignment with social values, the spectrum of sustainable finance funds include approaches that involve ESG exclusion, ESG inclusion, and also impact. [9] While the ESG approaches will be described later in this report, it is notable that impact investing is considered, along with ESG investing, as a sustainable form of finance, because it seeks to generate a positive social return that is measurable and reportable, alongside a financial return. In this aspect, the use of ESG metrics and approaches within both responsible ESG investing for long-term value, and sustainable impact investing that seeks social returns *alongside* financial returns rather to explicitly enhance long-term returns, remains a source of ambiguity that has contributed to the proliferation of ESG metrics and methodologies to serve dual purposes.[10]

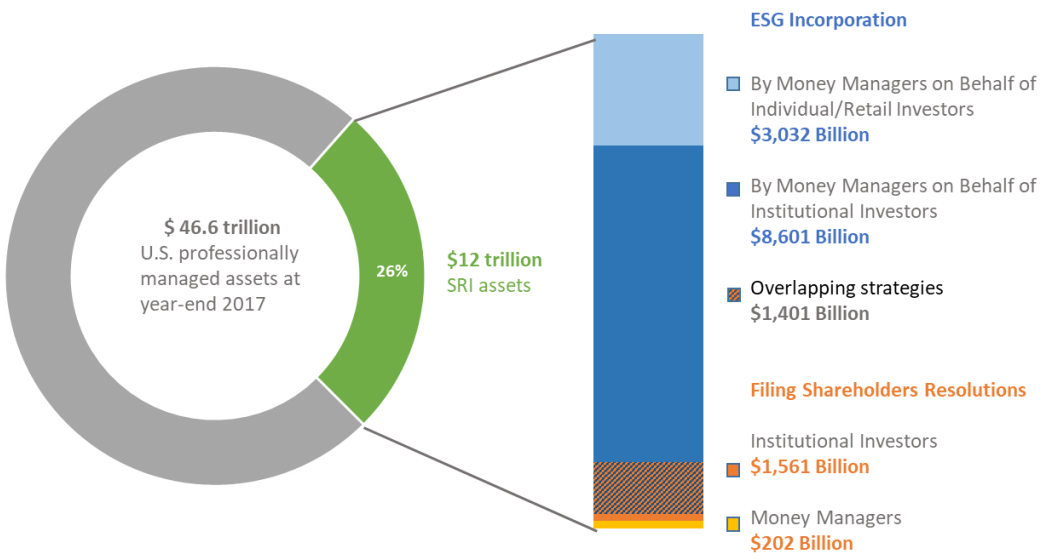
Several developments have contributed to growth of ESG investing, distinct from social impact and traditional financial investments. First, societal demands by non-investors: the transition from the shareholder to stakeholder model has challenged the notion that the firm only serves shareholders, as the needs of other stakeholders have encouraged the growth of corporate social responsibility in business and even government entities. This has invited reporting on issues that relate to good practices and standards that do not relate to short-term financial returns but are thought to contribute to long-term value, such as by strengthening reputation, brand loyalty, and talent retention. Second, greater demand by social impact investors for data related to E, S, and also G factors, related to good practices. Third, the demand by ESG investors through responsible investing to take a more sustainable perspective, which can both benefit from risk management elements of ESG and also better align with societal values. The implications of these distinct drivers are explored in the next section.

ESG investing – market dimensions and drivers

The growth of assets under management that incorporates some element of ESG review and decision-making has grown exponentially over the past decade. In the US, the current level of ESG investing is now over 20% of all professionally managed assets, at over USD 11 trillion.[11] In Europe, industry data related to a broader range of ESG practices suggests the level is over USD 17 trillion. Due to institutional and retail investors desire for pooled investments and liquidity, ESG investment fund and ETF has grown to

over USD 1 trillion in the US, and less so in Europe and Asia. Also, the growing development of ESG products, such as ESG funds, has exceeded USD 1 trillion in assets under management. The data from Morningstar, which include open-ended funds and exchange traded funds, show that the number of launches of funds that use ESG criteria increased from 140 globally in 2012 to 564 last year.

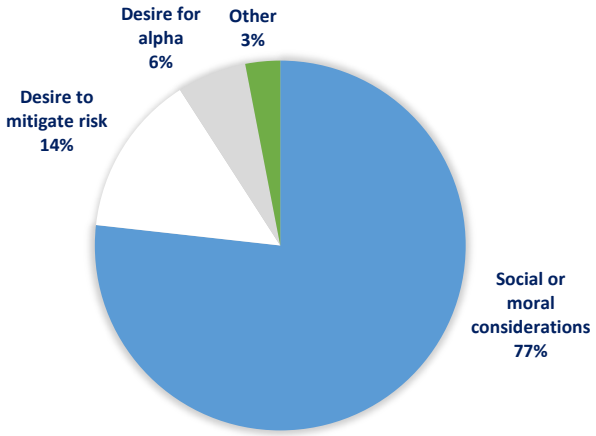
Figure 1. Breakdown of US assets professionally managed



Source: US SIF (2018), "Sustainable and Responsible Investing."

Given the aspects of financial and social returns that influence the use of ESG metrics and methodologies, further consideration of the societal drivers of ESG investing is warranted. A main observation of recent surveys by private sector participants is that interests in the use of ESG range widely across social and financial considerations: institutional investors clearly focus on the benefits of ESG investing for financial returns and risk management, while end-investors focus more on alignment of portfolios with societal values.

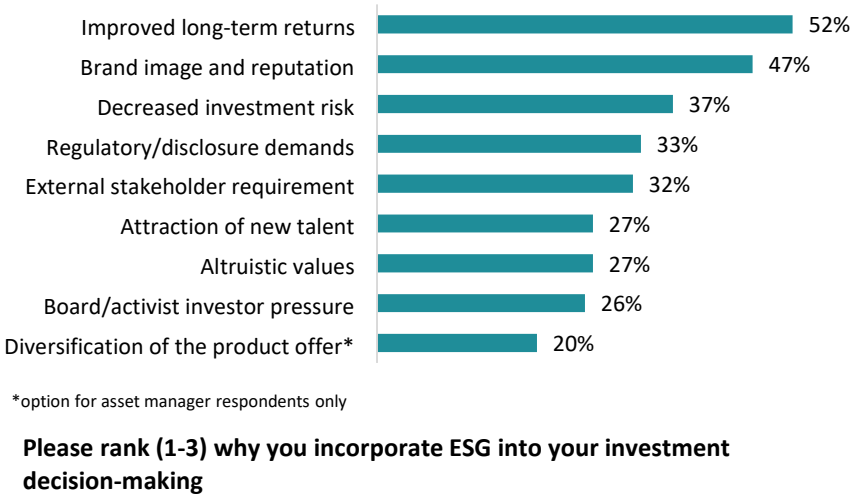
Figure 2. Drivers of ESG investing



Source: Merrill Lynch Wealth Management

Surveys suggest that institutional investors and professional asset managers seek to use ESG primarily to compete on improved risk adjusted returns and risk management. A study of 120 institutional investors conducted by Morgan Stanley concluded that 70% have integrated sustainable investment criteria into their decision-making, and an additional 14% are actively considering it.[12] A 2019 survey from BNP of institutional investors and asset managers notes that over half of the respondents are seeking to integrate ESG due to improved long-term returns, followed by firm reputation. Less than 30% pursue this for altruistic values or diversification of product offering.[13] Also, ESG is being incorporated into other portfolio products, such as ETFs. A survey by Bank of America illustrates that growth in ESG smart beta strategies has been faster than that of many other types of strategies (though it is likely that this sharp growth is from a very low base). Moreover, at the current pace, some players expect ESG investing through funds and ETFs to grow to several trillion within several years.

Figure 3. BNP- Drivers of ESG integration



Source: BNP

Other finance industry surveys indicate that drivers of growth in forms of ESG investing, and the rotation away from purely commercial investing, has been due to end investors' desire to improve corporate and other issuers' alignment with social and moral considerations (Figure 2). Only about 20% sought these strategies primarily for financial returns or reducing investment risks.[14] In terms of demographics, several studies show that Millennials are driving both current investing in ESG and impact investing, while Generation X is also strongly supporting this shift.

These societal trends mirror a growing recognition of the importance of realigning global financial toward sustainability in two important ways that relate to climate change and ethical standards of development:

Greater attention to the need for finance to better incorporate the potential impacts of **climate change** is increasingly influencing the behaviours of investors, financial markets and financial institutions. Following the Paris Agreement in 2016, various international bodies have assessed the need for international finance to support the transition to low-carbon economies by committing capital to modernising infrastructures, renewable energy, and away from brown industries.[15] In this respect, the OECD has estimated that nearly USD 7 trillion a year is required up to 2030 to meet climate and development objectives.[16] This report recommended that authorities take steps towards a more climate-consistent global financial system by assessing and addressing possible misalignments within financial regulations and practices, improving the ability of markets to price climate change risks, and assessing the risks climate change poses to financial

stability. Subsequently, a number of central banks in OECD member countries have turned their attention to the potential impact of climate change on the global financial system. A recent report by the Network for the Greening of the Financial System, comprised of these central banks and observing members such as the OECD, highlights the ways that ESG, among various tools for green investment, can be used by central banks in reserve management to help steer investments to better align with low-carbon economies.[17]

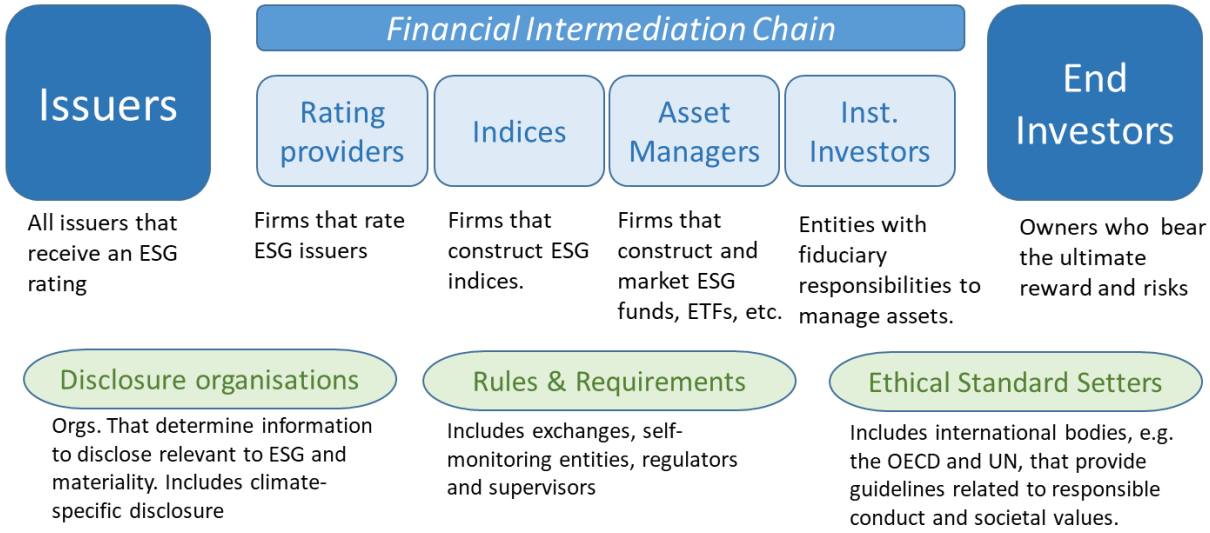
The societal demand for higher **ethical standards** of economic growth through finance and business practices is also contributing to greater demand for ESG tools that can help measure and benchmark these practices. A key set of standards for ESG, and particularly the Social pillar, is the UN Global Compact, which highlights ten principles related to ethical standards related to human rights, labour, anti-corruption, and the environment. The OECD's due diligence guidelines for responsible business conduct helps businesses contribute to economic, environmental and social progress, especially by minimising the adverse impacts of their operations, supply chains and other business relationships.[18] It includes human rights, employee and industrial relations, environment, combatting bribery, and consumer interests. Moreover, investors that seek to align investment strategies with ethical global development objectives, such as the Sustainability Development Goals, are seeking investment products that can help to improve alignment.[19] Metrics related to ethical standards, including these UN and OECD guidelines, are incorporated in some frameworks for ESG assessment so that investors are able to assess and compare behaviours of issuers when making investment decisions.

Notwithstanding this welcome progress, the sharp growth of ESG investing has brought with it a growing number of participants that influence the creation of disclosure frameworks, ESG metric, ratings methodologies, and products from funds to indices. As forms of ESG investing continue to grow and proliferate, differing motives and lack of clarity over the specific types of investing that utilise ESG metrics and methodologies may be contributing to emerging challenges related to consistency and comparability, which risk undermining ESG meaningfulness and integrity. The next section seeks to explore these actors and behaviours in more detail.

ESG financial ecosystem

The growth and institutionalisation of ESG approaches and methodologies calls for a thorough understanding of the various contributors that have contributed to the institutionalisation of the ESG financial ecosystem. This ecosystem, as illustrated in the diagram below, includes issuers and investors who disclose and use information related to environmental, social and governance issues. As well, of focus in this note, is (i) an intertwined network of financial intermediaries and analytical service providers, and (ii) an array of non-government government, private sector and international organisations that are influencing the emerging practices in ESG investing. This section explores the key actors, the role they play, and how the activities bring benefits by contributing to a much greater amount of forward-looking information that benefits financial and social investors alike. Moreover, it has the potential to better align strategic asset allocation that contributes to enhanced long-term value while incentivising responsible business conduct among issuers. At the same time, ESG practices remain at a relatively early stage of development, and the activities of various institutional participants that develop or utilise frameworks and metrics have yet to arrive at common globally consistent terms and practices.

Figure 4. ESG financial ecosystem



Source: OECD staff illustration

Issuers, investment and the intermediation chain

Financial Issuers. Financial issuers are any issuers that supply equity or debt to the financial markets – either public or private – and demand capital from investors. In this respect, issues from sovereigns to SMEs are increasing providing information regarding environmental, social and governance at the request of investors, ESG ratings providers, credit rating agencies, and other motivated stakeholders (e.g. climate or human rights NGOs). In concept, all issuers are part of the ESG ecosystem because ESG assessment is demanded by a growing number of investors who are seeking to analyse information that comes from issuers directly, and also other sources including financial and social media.

ESG ratings providers. ESG ratings providers include those firms that are providing assessments of equity and debt issuers based on their disclosures that explicitly or implicitly offer sustainability metrics and information that help determine ESG scores. Some of the ratings are based on highly quantitative methodologies, using and weighing numerous subcategory metrics based on identified quantitative data, either offered by corporate issuers or taken from other industry data sources. Large ESG providers include MSCI, Sustainalytics, Bloomberg, Thomson Reuters, and RobecoSAM. Also, traditional ratings agencies such as Moody's, S&P and Fitch now also provide forms of ESG ratings.

ESG index providers. A number of providers are also index providers, such as MSCI, FTSE Russell, Bloomberg, Thomson Reuters, Vigeo Eiris, etc. The use of such indices is growing rapidly as means to track relative performance of various ESG tilted market portfolios, from which institutional investors can benchmark performance. These index providers offer a range of stylised benchmarks that in turn allow for fund products to be developed for passive or active investment, and also for portfolio managers to utilise as a benchmark to compare their ability to generate excess risk-adjusted returns. Also, such indices are used by ESG funds and ETFs for passive and active investment management. By virtue of their growing use as benchmarks for ESG investing, the ways in which indices are created, including exclusion, extent of tilting portfolios toward issuers with higher ESG scores, and other forms such as thematic indices (e.g. high "S" issuers), is currently highly influential in guiding overall ESG portfolio management.

ESG users: asset managers, institutional investors, and public authorities. The users of ESG ratings and information include, at the very least, types of investors across private and public entities. While many

of these investor types also perform their own due diligence and forms of ESG integration, the use of externa scores often forms a part of their overall assessment.

Asset managers / investment funds create segregated portfolios, and investment products such as investment funds and ETFs, are using ESG ratings and information to derive their own ratings, to make portfolio composition decisions.

Institutional investors (e.g. insurance companies and pension funds) may incorporate ESG ratings for portfolio management, and to align with their fiduciary duty to incorporate forward-looking material information in their investment process.[20]

Public sector institutions, including central banks and public debt issuers, have begun to consider the importance and need for ESG integration. A key reason is that central bank reserve managers increasingly seek long-term financial sustainability of their portfolios, and are striving to assess climate transition risks and the market impact of investors' shift toward lower carbon-intense industries.[21]

ESG framing, guidance and oversight. Loosely defined, ESG framing, guidance and oversight includes an array of enabling actors that influence and help broadly define forward-looking, non-financial reporting, including with respect to financial materiality, as well as societal alignment, to help ensure long-term sustainability of the investments.

Many are ***disclosure bodies*** that include framework developers and providers, such as disclosure standard setters, and exchange and self-regulating bodies that offer disclosure guidance and good practices to members***.***

Framework developers and providers that have made substantial contributions to the development of ESG disclosure frameworks include Sustainability Accounting Standards Board (SASB), which focuses on financial materiality, and the Global Reporting Initiative (GRI), and International Integrated Reporting Council (IIRC). Also, framework providers specific to climate risks include the Taskforce on Climate-related Financial Disclosures (TCFD), and the Climate Disclosures Standards Board (CDSB), which reflect financial and environmental materiality to varying degrees.

Bodies that develop and/or implement formal ***rules and requirements*** include market regulators and supervisors of financial institutions**,** and also exchanges and self-regulating bodies**.**

Oversight authorities, such as markets regulators, and insurance and pensions supervisors, are increasing engaged in assessing ESG taxonomies and disclosure.[22] While over 60% of market regulators state that their regulatory mandates do not include any specific references to ESG matters, many of them consider that ESG issues are relevant to their work. This is because ESG market products can affect investor protection and financial stability, and more than half of securities regulators are responsible for the registration and authorisation of investment firms that provide ESG financial products.[23]

Stock exchanges, self-regulating and other financial industry bodies, have also contributed to assessing ESG practices and promulgating good disclosure practices. They include the World Federation of Exchanges, many national exchanges (discussed further in the next section) and bodies ranging from FINRA to the CFA Institute.

Lastly, there are ***standard setters*** *for ethical and responsible conduct*, including international organisations that set standards and guidelines regarding responsible investing and sustainability goals. Standard setters including UN, OECD, and the International Organisation for standardisation are among organisations that have standards that are used by framework providers with respect to social and also environmental standards. The GRI, in particular, has sought to incorporate ethical standards of various international organisations and NGOs into its reporting frameworks.

Given the number of organisations in regional and global forms that seek to coordinate the reporting of forward-looking information in issuer disclosures, the integration of consistent and financially material

reporting of ESG information remains a work in progress. In addition to the numerous sources of standards frameworks, and guidelines, the ways in which disclosure information and metrics have been incorporated into ESG methodologies has further contributed to challenges of ESG investing.

ESG rating and indices

One of the key ways in which investors and other market participants make use of ESG information is through ESG ratings, which they obtain from established ESG raters. Therefore, the ESG ratings process and how such ratings are converted into indices will be the focus of this section, because it contributes to an important transformation of raw ESG disclosure into investment products from which investors can make decisions and take actions. Given that ESG ratings are commercially available and widely used, our analysis will focus on their data and methodologies as an indication of how the financial industry is coming to terms with ESG assessment.

There is a wide range of rating practices in terms of determining which data to include, how to weigh metrics in terms of materiality, and layering subjective judgment as to absolute and relative scores within and across industries. While ESG methodologies are becoming more robust, and there is more back testing of scores against performance, scoring remains in a state of transition.

In order to facilitate the further growth of ESG investing through funds and ETFs, which rely on indices from which to develop active and passive strategies, a growing number of third party analytical firms, including index providers and rating agencies, have helped develop the market segment through scoring and index development. This includes market data providers such as Bloomberg, Morningstar and Thomson Reuters and firms more focused on financial services such as MSCI.

The methodologies adopted by these providers are intrinsically different but the final ratings are used by market investors for the same purpose, which is to identify companies that adopted better ESG practices. In this regard the analysis of the methodological approaches will be beneficial to understand which factors are driving the final ESG ratings.

ESG Scoring: key criteria & indicators

Index scoring approaches begin with the consideration of relevant criterial within each of the E, S, and G factors to further articulate the drivers (Figure 7). Environmental factors can include natural resource use, carbon emissions, energy efficiency, pollution and sustainability initiatives. Social factors can include workforce related issues (health, diversity, training), and broader societal issues such as human rights, data privacy, and community engagement. A poor environmental record may make a firm vulnerable to legal action or regulatory penalties; poor treatment of workers may lead to high absenteeism, lower productivity, and weak client relations; and weak corporate governance can incentivise unethical behaviours related to pay, accounting and disclosure irregularities, and fraud.

Table 2. ESG criteria

Environmental factors	Social factors	Governance factors
Natural resource use	Workforce	Board independence
Carbon emissions	Human rights	Board diversity
Energy efficiency	Diversity	Shareholder rights
Pollution/waste	Supply chain	Management compensation
Environmental opportunities		Corporate ethics

Source: ESG Rating providers, OECD, selected themes for illustration.

Given the influences of ratings providers, the differences in ratings methodologies, and their level of transparency in final rating decisions that also incorporate qualitative judgments, are critical to understanding the resilience of the ESG financial intermediation chain.

Every providers ranks different aspects of the sustainability of the companies it asses. This aspects are then aggregated to create a key metric, which usually defines one of the elements supporting the pillars (E, S and G). These metrics are the result of the aggregation of different submetrics, which measure specific aspects of how an enterprise uses its resources.

MSCI and Sustainalytics state that their services are designed to help investors identify and understand financially material ESG risks and opportunities, in order to integrate these factors into their portfolio construction and management process.

Thomson Reuters uses more than 400 different ESG metrics, of which a subset of 186 fields are selected, with history going back to 2002. The ESG metrics are then grouped into ten categories (Resource use, Emissions, Innovation, workforce, human rights, community, product responsibility, management, shareholders and CSR strategy) which are combined to formulate the three pillar scores of Environmental, Social and Governance.

Bloomberg provides proprietary ESG data that provides metric selection with particular attention given to environmental and social impact metrics. In this case, industries are grouped into broad categories for metrics selection: higher, medium, and lower environmental impact, and higher and lower social impact, while governance metrics are the same for each industry.

Table 3. ESG criteria - major index providers

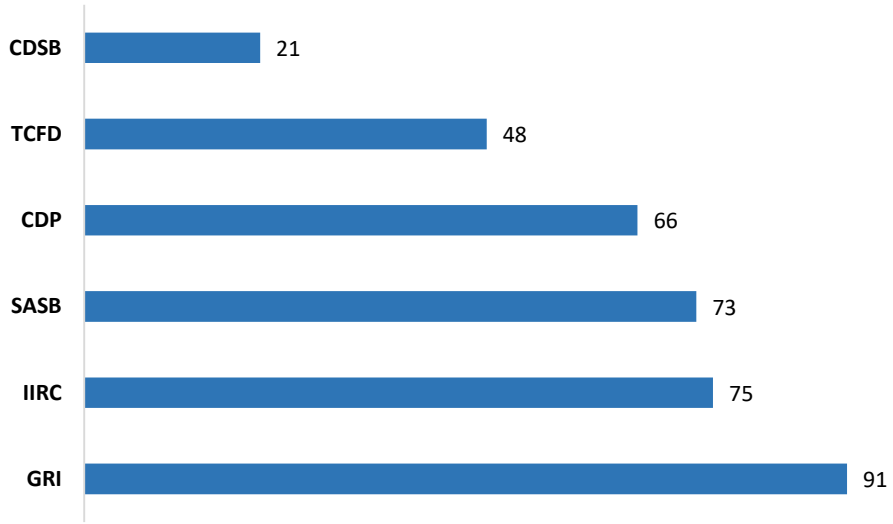
Pillar	Thomson Reuters	MSCI	Bloomberg
Environmental	Resource Use	Climate Change	Carbon Emissions
	Emissions	Natural resources	Climate change effects
	Innovation	Pollution & waste	Pollution
		Environmental opportunities	Waste disposal
			Renewable energy
			Resource depletion
Social	Workforce	Human capital	Supply chain
	Human Rights	Product liability	Discrimination
	Community	Stakeholder opposition	Political contributions
	Product Responsibility	Social opportunities	Diversity
			Human rights
			Community relations
Governance	Management	Corporate governance	Cumulative voting
	Shareholders	Corporate behaviour	Executive compensation
	CSR strategy		Shareholders' rights
			Takeover defence
			Staggered boards
			Independent directors
Key metrics and submetrics	186	34	>120

Source: Refinitiv, MSCI, Bloomberg, FTSE; OECD assessment.

Given the difficulty in reporting metrics related to sustainability, different stakeholders have called for the need to have more standardised reporting guidelines. 80 exchanges have published their own ESG reporting guidelines and many more are willing to do so.[24] For example, NASDAQ issued a report to help

companies report on ESG, with a focus on 30 metrics, ten for each pillar.[25] The NASDAQ reporting is particularly useful as it integrates metrics that are part of existing guidelines and principles. While progress is being made, exchanges incorporate a range of reporting frameworks that have different purposes with respect to financial materiality and ethical standards (see Figure 5). In this respect, many exchanges recognise that there is still no convergence on ESG standards and formats adopted by the exchanges industry, and some WFE members raised the global divergence on ESG standards and practices as a new concern in their sustainability efforts.[26]

Figure 5. Reporting frameworks referenced in stock exchange ESG guidance



Note: In percentage out of 100
Source: Sustainable Stock Exchange Initiative (2020), "ESG Disclosure Guidance Database". GRI is Global Reporting Initiative; IIRC is International Integrated Reporting Council; SASB is Sustainability Accounting Standards Board; , CDP is a non-profit disclosure provider for sustainability, TCFD is the Taskforce on Climate-related Financial Disclosures; CDSB is Climate Disclosure Standards Board.

Framework providers and alignment with materiality factors

Given that ESG investing seeks to deliver long-term value, this section further explores the extent to which ESG metrics and methodologies effectively or even sufficiently capture financial materiality in their approaches, particularly in a transparent and quantifiable manner.

General materiality factors

The choice of metrics that issuers are being guided to disclose need to relate to financial materiality in order to be relevant for investors, and as such have relevance for other stakeholders such as exchanges and securities regulators. Yet, the concept of financial materiality takes on an expanded meaning when it is considered within the ESG framework, which engages in *non-financial* disclosures. One concept that has not been sufficiently explored is with respect to the points at which the financial material of financial and non-financial ESG reporting intersect, and the expectations of the temporal nature of such intersections. While some factors may have immediate meaning for financial investors, others may have implications indirectly over the long-term.

The extent to which academic and industry analysis draws relationships is beyond the scope of this paper, yet some high level observations merit consideration.

For decades, corporate governance issues have been liked to financial materiality, particularly as related to corporate governance processes, risk management, and executive financial incentives. In the 1990s, the OECD had assessed the importance of corporate governance for corporate performance, and developed OECD Principles for Corporate Governance.[27] Following the energy and telecommunications company defaults in the early 2000s, attributed in part to weak corporate governance, institutional investors have dedicated additional focus to governance assessments, while rating agencies have been more transparent about how they assess governance and its impact on ratings.[28]

Increasing awareness of the dire economic and financial consequences of climate change are drawing attention to the link between firms' management of climate risks and financial materiality. This is particularly the case as physical risks from climate change are expected to grow, as well as the risks from stranded assets to financial sector balance sheets. A growing body of research on the risks from climate change highlight channels by which they can affect economies, business, and financial sectors. These include the impact of physical risks from climate change related to storms, floods, fires, and negative spill over effects, such as to supply chains or financial markets. There is a growing expectation that climate-related factors will have an increasing influence over financial materiality, particularly in industries that are more exposed to stranded assets from declining demand for fossil fuels, and those exposed to the effects of physical risks.[29]

There may be less evidence of immediate impacts of social factors, yet the long-term benefits can include better brand strength, customer loyalty, and staff retention, often associated with corporate social responsibility. Yet, institutional investors have often highlighted that the Social pillar is the most challenging to embed into assessments, in part because there is little consensus as to what is considered material, and appropriate standards – such as with treatment of employees – various across countries.[30] Yet, Covid-19 has brought new attention to the importance of social factors on firms' reputations and performance, and raises perspectives regarding the extent to which investors are transitioning to a multi-stakeholder stewardship model that may be more resilient to navigate unprecedented societal challenges.[31]

Given these factors and developments, efforts are being made to map various elements of non-financial information, in terms of degrees of financial materiality.[32]

Frameworks and materiality

SASB's approach to its ESG framework focuses on financial materiality, using an overall assessment which is applied to each industry to determine the relative importance of each factor and subfactor depending on external environment and business model. When formulating accounting metrics, SASB considers the existing body of reporting standards and uses existing metrics where possible.[33] This materiality approach has been influential in shaping the choice of key metrics and weighing of the metrics to determine ESG ratings for different industries. Notwithstanding this progress, discussions with ratings providers suggests that there remains a wide range of perspectives on materiality of metrics.

While other framework providers are less explicit about industry level metrics for materiality, several attempt to provide guidance as to which factors and indicators are of greater priority, including in different sectors. Nevertheless, while the framework providers may provide useful guidance as to materials and even metric types that should be disclosed, they often do not provide further guidance on how these elements might become financially material to the industries. This leaves a significant amount of room for interpretation, which in turn has contributed to the rise of ESG ratings providers.

Figure 6. SASB materiality map

Environment
- GHG Emissions
- Air Quality
- Energy Management
- Water & Wastewater Management
- Waste & Hazardous Materials Management
- Ecological Impacts

Leadership & Governance
- Business Ethics
- Competitive Behavior
- Management of the Legal & Regulatory Environment
- Critical Incident Risk Management
- Systemic Risk Management

Business Model & Innovation
- Product Design & Lifecycle Management
- Business Model Resilience
- Supply Chain Management
- Materials Sourcing & Efficiency
- Physical Impacts of Climate Change

Social Capital
- Human Rights & Community Relations
- Customer Privacy
- Data Security
- Access & Affordability
- Product Quality & Safety
- Customer Welfare
- Selling Practices & Product Labeling

Human Capital
- Labor Practices
- Employee Health & Safety
- Employee Engagement, Diversity & Inclusion

Source: SASB website, provided for illustrative purposes.

Climate specific materiality factors

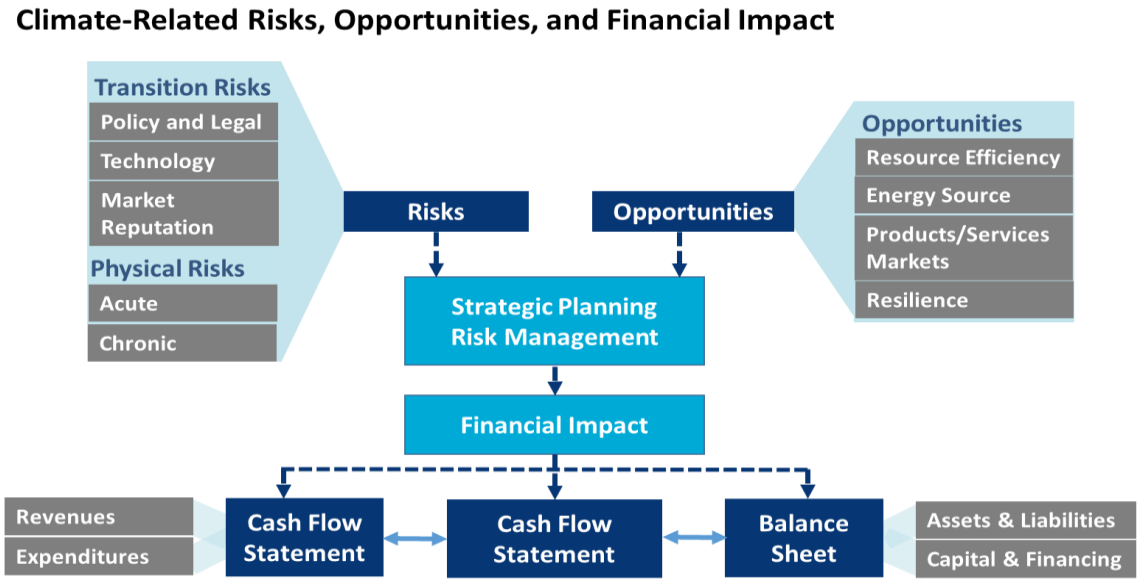
Environmental ratings are of particular concern, given that their use and relevance have only recently been considered on a global level.

The TCFD has led the development of both guidance on standards for climate-related disclosures, and also offers guidance on the use of such disclosure with respect to incorporation of climate scenario analysis. The Task Force was asked to develop voluntary, consistent climate- related financial disclosures that would be useful to investors, lenders, and insurance underwriters in understanding material risks.[34]

The TCFD provides guidance on the drivers of climate-related disclosures, with respect to risk and opportunities that have financial relevance for investors and other stakeholders. It has sought to align various climate and physical risks to various financial impacts to the income statement, cash flow statement and balance sheet. The TCFD identified several transition risks (including policy and legal, reputation, market and technology) and physical risks from the impact of climate change, such as storms, floods from rising sea levels, and wildfires.

Of equal importance for ESG investors, disclosure of “opportunities” provides clear guidance regarding efficiencies that improve financial value from actions to identify and respond to environment-related risks. These include a host of ways in which issuers take advantage of opportunities with respect to more efficient uses of resources for their operations (from recycling to reduced water use); more effective use of energy sources (lower emission sources, participation in carbon markets, etc.); development of products and services that facilitate lower emissions or climate adaptation solutions; assess to new markets; and, participation in renewable energy programs. Collectively, these factors can help increase revenues, lower financial and operating costs, improve competitive positioning and reputation, and improve capital availability, among other benefits.

Figure 7. TCFD materiality framework



Source: Taskforce on Climate-related Financial Disclosures

For these reasons, the Environment rating within ESG seek to explicitly capture both the downside risks from carbon emissions, waste, and impact from climate change, as well as how companies take advantage of such opportunities. It is, however, based on (i) assessment of external risks from climate change; (ii) risk management of issuer-specific resources to mitigate the effects of the climate change on the business operations and financial returns; and (iii) efforts to pursue opportunities to shift to enhancing revenues, profitability and/or capital use based on a shift to more climate-friendly activities or resource usage. Moreover, the TCFD provides stylised guidance on how these elements relate to transition risks to lower carbon emissions vs physical risks of climate change. While these steps can have a net positive impact on the environment, all else equal, it should be noted that this does not explicitly measure an issuer's overall impact on the environment.[35]

Diverging views of financial materiality

Some consultants and institutional investors, noting the range of reporting efforts and standards by framers and providers, have issues approaches to distinguish between ESG reporting that is financially material for investors, relative to types of reporting that are not material, although they may be a benefit to some stakeholders. For example, Russell Investments has developed a methodology that it asserts can differentiate between companies who score highly on ESG issues that are financially material to their business, from those who score highly on issues that are not financially material to their business[36]; in doing so it is able to enhance portfolio construction and investment performance. Research from Khan, Serafeim and Yoon[37], has addressed the matter creating a dataset focused on materiality for different industries and found that firms with a good rating in material issues outperform those with a low rating. The purpose of highlighting this effort is merely to show that the investment community may not have sufficient comfort with the current state of ESG disclosure and scoring, such that analytical efforts are being made to extract information of materially-relevant financial value for those investors who wish to improve absolute and risk adjusted returns.

Various international bodies have called for improved consistency and meaningfulness of ESG disclosures so that the links to materiality and sustainability are clear and consistent. In 2018, the UN PRI and ICGN found that while there is not one set of metrics or a single framework that could satisfy all users of ESG

data, given the heterogeneity of users, there is room for companies to disclose standardised ESG information at a basic level to complement more customised ESG reporting improve the consistency of data items.38 The paper also suggested that investors and companies need to think more about systemic issues, including the FSB Task Force on Climate-related Financial Disclosures[39] (TCFD) recommendations, the UN Sustainable Development Goals (SDGs) and their links to individual companies. Also, in 2019, the World Economic Forum published an assessment of ESG reporting, which noted the desire among investors and corporates to address challenges related to meaningful and consistent disclosures.[40] Key areas to address include (i) the complexity and burden of ESG reporting; (ii) the incomparability of company ESG data due to the specifics of their industry, their location and other factors, and application of company-specific classifications, which often renders data incomparable; (iii) poor understanding of and interaction with ESG ratings agencies, including a distinct lack of transparency—and difficulty in obtaining clarity on what ESG ratings assess.

ESG scoring results and performance

Even though the users of ESG information largely retrieve information from the issuers' disclosures, and developing analysis and scores largely the same base of information, ESG scores from major ratings providers (for which data is commercially available) can vary greatly from one ESG provider to another.[41] The ESG scoring suffers from some level of criticism because different methodologies can lead to wide variance in results for individual issuers. This implies that if investors are using and relying on different service providers, the score inputs that shape securities selection and weighting could be driven by choice of rating provider. Put differently, two funds that are both high-ESG market portfolios could have radically different exposures, which in turn calls into question the meaning of the entire process.

This section assesses the extent to which ESG scores of major providers differ, and also how they compare to the dispersion of credit ratings across firms.

ESG vs credit ratings score comparison

The metrics used by companies and data providers are affected by the lack of consistency and different levels of transparency. Among the major market data providers such as Bloomberg, Thomson Reuters, FTSE, MSCI and Sustainalytics, the methodologies are quite different. While variation in analytical practices and judgment can bring additional insights to investors, the correlation among the scores they assign to the same companies is low.

State Street Global Advisors sought to assess the extent of this rating variation across major ESG ratings providers.[42] As of 2016, there were more than 125 ESG data providers, according to the Global Initiative for Sustainability Ratings, and they generally developed their own sourcing, research, and scoring methodologies. As a result, ratings for issuers vary widely depending on the provider that is chosen. In its assessment, SSGA found that the R^2 between the ratings of Sustainalytics and MSCI, m MSCI and RobecoSAM, and MSCI and Bloomberg were roughly 0.5, while some others were higher.

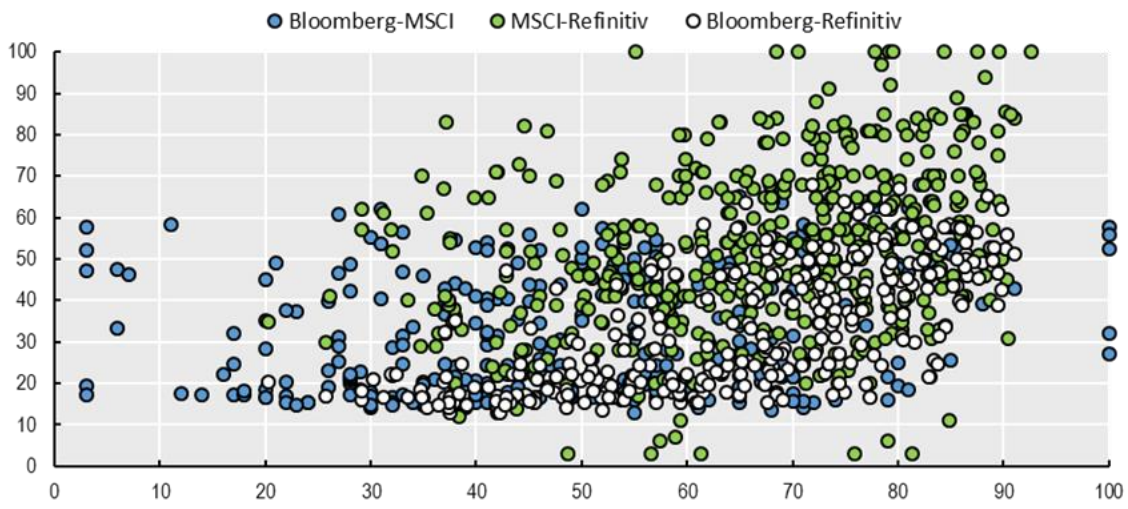
Table 4. SSGA Assessment of R^2 of ESG ratings among major score providers

	Sustainalytics	MSCI	RobecoSAM	Bloomberg ESG
Sustainalytics	1	.53	.76	.66
MSCI		1	.48	.47
RobecoSAM			1	.68
Bloomberg ESG				1

Source: State Street Global Advisors (2019)

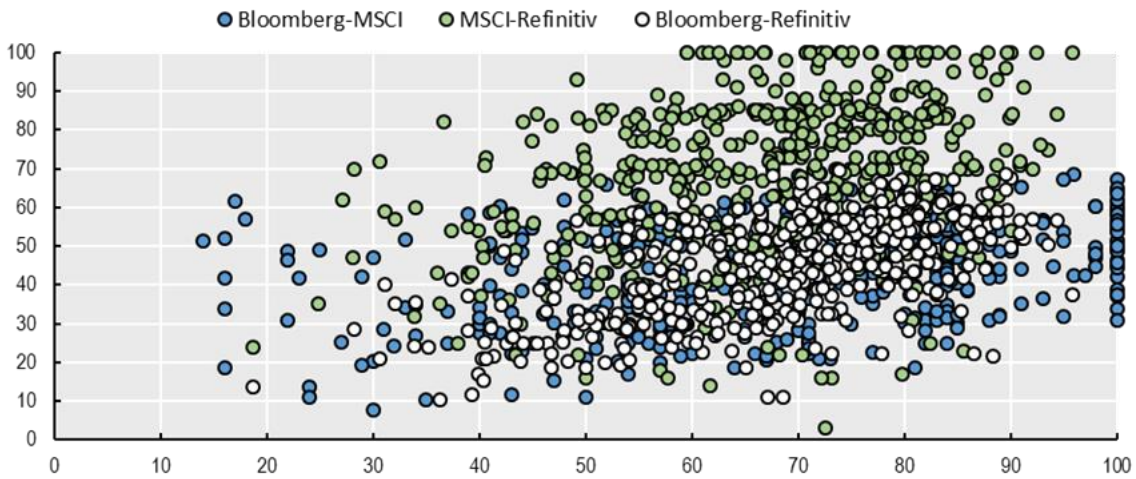
The OECD assessed different rating providers (Bloomberg, MSCI and Refinitiv) in order to understand how their rating vary when analysing specific indices, such as the S&P500 and the STOXX 600. The analysis showed wide differences, with an average R^2 of 0.21 for the S&P500 and of 0.18 for the STOXX 600. The analysis of the ratings refers to the component companies of each index and looking at the correlation of different ratings on each constituent, so the result is the average of three two-way correlations for each components.

Figure 8. S&P 500 ESG ratings correlation for different providers, 2019



Note: Providers' names in the legend correspond to the Y axis when at the left and to the X axis when at the right (e.g.: Bloomberg-MSCI; Bloomberg = Y axis, MSCI = X axis).
Source: Bloomberg, MSCI, Refinitiv, OECD Staff calculations

Figure 9. STOXX 600 ESG ratings correlation for different providers, 2019

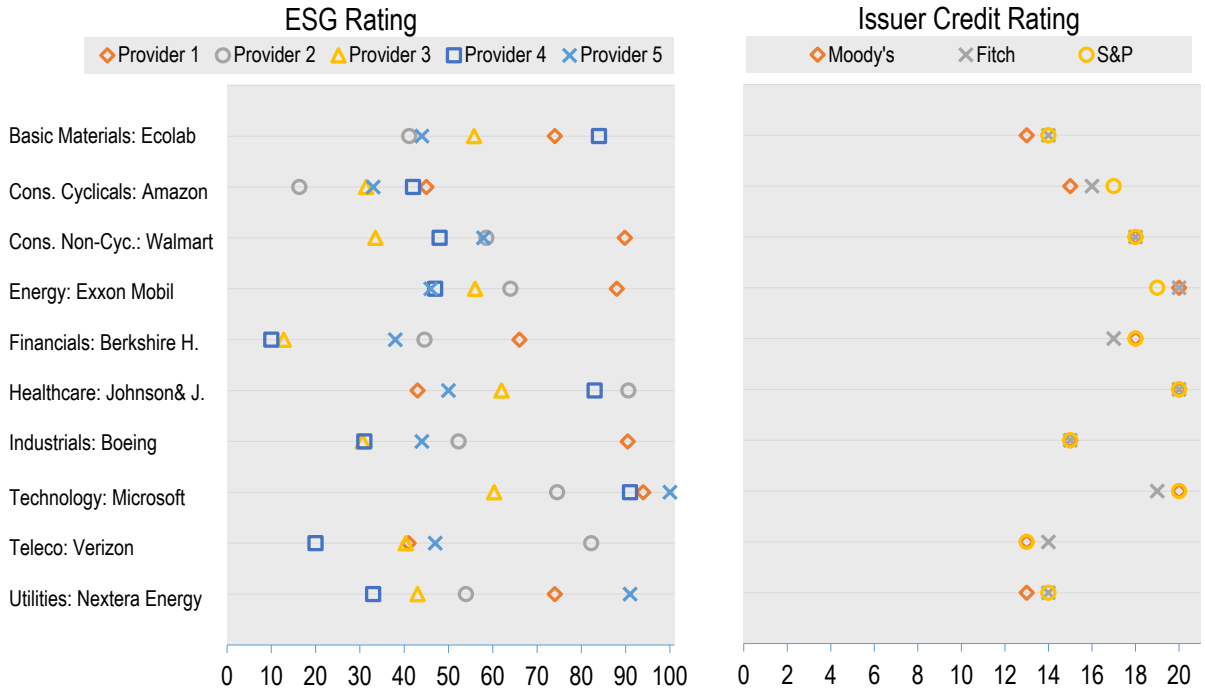


Note: Providers' names in the legend correspond to the Y axis when at the left and to the X axis when at the right (e.g.: Bloomberg-MSCI; Bloomberg = Y axis, MSCI = X axis).
Source: Bloomberg, MSCI, Refinitiv, OECD Staff calculations

This highlights how some companies, ranked top by one provider, have much lower scores by others. This depends on what metrics are included in measurements, how factors are weighed in the pillar scores, qualitative judgment of analysts, and how the measurement is affected by company disclosure.[43] Research by Berg et Al. (2019), investigates the divergence of environmental, social, and governance (ESG) ratings of five providers. It decomposes the difference among ratings into three sources and finds that different scopes for ESG ratings among providers have a higher impact regarding the different assessment of ESG categories, *explaining more than 50% of results.* The remaining differences are explained by weighting and measurement differences. This assessment substantiates concerns over the meaning of the current ESG scores and their value to investors.

OECD staff compared ESG ratings with a selection of issuer credit ratings by major providers and found that while ESG scores vary widely, credit scores of individual issuers are much less divergent. These differences raise important questions about reliance on any one rating to make investment decisions, including for structuring investment portfolios that are considered to have a tilt toward higher ESG scores. In short, if high ESG scores of firms are largely dependent on the methodologies of providers (either ESG raters or portfolio managers themselves), the extent to which end-investors can be assured that ESG investing provided enhanced returns or aligns with any particular societal values is dubious. This market dilemma merits further scrutiny by policy makers and the investment community.

Figure 10. ESG ratings and issuer credit ratings, 2019



Note: Sample of public companies selected by largest market capitalisation as to represent different industries in the United States. The issuer credit ratings are transformed using a projection to the scale from 0 to 20, where 0 represents the lowest rating (C/D) and 20 the highest rating (Aaa/AAA).
Source: Refinitiv, Bloomberg, MSCI, Yahoo finance, Moody's, Fitch, S&P; OECD calculations

ESG score differences -- assessment of ratings approaches

Wide differences in ratings can occur for a number of reasons. They may relate to different frameworks, measures, key indicators and metrics, data use, qualitative judgement. Also, they can be influenced by weighting of subcategories and reweighting of scores to ensure "best in class" in industries. While different

ESG methodologies, judgement and data are welcome developments to enrich the information disclosure to investors, large differences in ESG ratings across providers may reduce the meaning of ESG portfolios that weight better-rated firms more highly. As such, a review of the methodologies of certain ESG ratings providers that are well-utilised by the investment industry can help shed light on the causes of these differences. Drawing attention to such differences could help investors understand that additional due diligence may be needed when utilising third-party ESG ratings to understand these factors that contribute to different outcomes.

A review of the publicly available approaches and data use of Bloomberg, Thomson Reuters, Sustainalytics and MSCI illustrates a number of factors that may contribute to differences in ratings.[44] They include: framework, factor categories, subcategory metrics, measurement of controversies, judgement, indicator weightings, and ESG weightings within industries were "best in class" is desired. Moreover, such choices could affect alignment of ratings with financial materiality, which might suggest why indices reliant on certain ratings perform better than others. The purpose of this assessment is not to draw attention to the practices of these specific rating methodologies, but rather to provide comparisons and examples that are likely to be prevalent across the industry, and which may help the reader better assess practices among ratings providers and asset managers.

- **Frameworks.** The ratings providers use similar high-level frameworks in that they focus on ESG pillars and include a range of categories and even more subcategory metrics that are data-driven, and weighted to derive category and pillar outputs. Each uses some form of identification of a risk, and how management seeks to address the risk. There is more differentiation as to how each rater incorporates benefits to revenues from opportunities. Also, a key difference is the extent to which the frameworks formally measure "controversies" to environmental, social, and governance issues that suggest management is not well prepared (e.g. does not have the right risk management and oversight mechanisms in place) to navigate and address societal issues that result in controversies. Perhaps the one additional difference is that Sustainalytics has "building blocks" that begin with Corporate Governance, consider material ESG issuers, and then scan for idiosyncratic ESG issues. It then uses betas that are a core part of the ESG rating, by embedding the effects of events on financials into the process.
- **Focus on financial materiality.** The rating firms' alignment of scoring with financial materiality, evidenced by explicit use or prioritisation of subcategories or metrics, varies. For example, MSCI ESG ratings are based on a proprietary model that identifies relevant ESG key issues on an industry by industry basis, SASB created a specific set of metrics for financial materiality, while Sustainalytics notes that it uses GRI G4 materiality metrics. However, the GRI materiality metrics are derived from factors that are considered to be frequently raised by stakeholders, and having significant economic, environmental, and social impact.[45] Also, the extent to which raters consider externalities (e.g. pollution) as financially material relative to risk management of external climate risks (e.g. risk management of firm assets to guard against the effects of climate change) will impact results. This also relates to the expectation of the timing of financial materiality; climate risk management of the growing wildfires (such as in California) may have a more near-term impact on financial material than carbon footprint and intensity, which in aggregate will have growing negative macroeconomic consequences that spill back to firms over the medium to long-term.
- **Incorporation of controversies.** Several providers have formal mechanisms in place to track and measure controversies, which are events that cause reputational damage and highlight a firm's lack of preparedness and/or inability to manage emerging events and risks. In some cases, the controversies are part of the ESG rating, and in others it is a standalone rating that sits next to the pillars, contributing to a blending total ESG score (e.g. the score is not simply a weighted average of the individual E, S, and G scores).
- **Factor categories and subcategories.** The factor categories in each of the E, S, and G pillars appear to show some differences in terms of topics and numbers. Several key areas appear to

have differences: the number and type of categories may appear fairly similar and, in concept, this would not necessarily lead to substantial difference in ESG ratings if underlying data trends and weightings were aligned across providers. However, pillar subcategories that determine metrics and weighting show much wider ranges of differences, which indicates that such differences are a key contributor to the variance in scoring outcomes. As an example, MSCI has ten categories that include key environmental and social externalities, risks and opportunities, and 37 distinct subcategories that are focused issues from which one or more metrics are derived. Sustainalytics has over 42 subcategories on similar issues with some differences (e.g. EMS certification, eco design). By contrast, Thomson Reuters has 10 categories of a somewhat similar nature to MSCI, 186 metrics and over 400 data points.

- **Indicators.** Subcategory indicators appear to differ considerably, in terms of number of indicators, choice of specific indicators, and their weights. Several ratings providers make use of specific ESG framework providers' indicators, such as GRI, SASB, and TCFD. While they make reference to subsets of these indicators, and often include a mix of these and other indicators in each of the pillars, the level of consistency of metric inputs is not clear. Also, metrics are chosen to some degree based on data availability, to ensure that the ratings providers are able to measure each indicator accurately over time. Also, these indicators can range significantly by industry, to take into account materiality, including financial materiality, so the weights of subcategory metrics that drive results may differ. Yet, the drivers of scores by industry are not made transparent to users of ESG scores.
- **Qualitative expert judgment.** The use of qualitative expert judgment either to derive an indicator or as a layer of consideration over a set of indicators is a factor that influences the outcomes, and may contribute to distinct ratings differences across the major rating providers. Several rating firms make explicit reference to the use of judgment, particularly from reading company, industry and NGO reports about industry developments, to help shape determinations of what is material in each industry. This judgment also appears to be particularly pertinent to the weighting of indicators, explained hereafter.
- **Indicator weightings and ESG weightings within industries.** Metric weighting comes in several forms. Expert judgment is used to weight these various inputs. In some cases, expert judgment appears to be used to factor these and other inputs into a score, and in other cases, the mechanisms are transparency and data driven, such that the category score is derived quantitatively. For example, several raters (e.g. Thomson Reuters and Sustainalytics) provide a high level of transparency on the specific weights of a number of indicators that drive category and pillar scores. MSCI notes that judgment about key issues determines weighing by industry, based in part on timeframe (short-long) and contribution of risk to determine impact to financial performance.
- **Transforming ratings into indices**. Once ratings have been established, several of the providers then develop indices that are used by institutional investors and providers of retail fund and ETF products. The additional steps to develop indices often include, at a minimum: exclusion (or negative screening) and rebalancing based on ESG scores. The choice of exclusion depends on different factors, among others on threshold typically driven by clients tolerance and by the index provider judgment of what is considered too be negative from a societal perspective, which could vary by country and region. Industries that are often subject to forms of exclusion include: alcohol, fossil fuels (especially coal), fur, gambling, nuclear, pornography, tobacco and weapons. As such, screening can have a heavy impact on portfolio composition and investment results, and drives the indices' tracking errors relative to traditional market-wide portfolios. The extent of portfolio reweighting toward higher ESG scores will depend on, at least: (i) the extent to which the rater realigns best in class by industry, such that even companies with lower raw ESG scores will be reweighted higher to compensate for exclusions in particular industries; (ii) the extent to which they tilt toward higher ESG, (iii) the ESG scores. In this respect, a provider that has more assertively

excluded, allows for a stronger tilt, and has scores of companies with large market caps that differ from peer rater scores could yield an index with considerably different weights than traditional indices.

ESG funds – investment approaches and strategies

Investment approaches

ESG investment approaches tend to conform to at least six distinct forms, depending on the comprehensiveness through which the asset manager seeks to utilise the ESG framework. Different bodies provide a categorisation of the sustainable investment strategies, among which are the OECD, the Global Sustainable Investment Alliance and the CFA Institute. On one side, the least amount of complexity is through excluding certain firms categorically (e.g. moral considerations), and on the other side is full ESG integration into the very firm culture of investing, such that it becomes an integrate part of the investment processes, governance and decisions. The approaches are not mutually exclusive and portfolios could simultaneously apply more than one.

The first form is "exclusion" or "avoidance" which signifies exclusion of corporates and governments whose behaviours do not align with basic societal values. Causes for exclusion include, but are not limited to:

- manufacturing controversial weapons;
- activities that are not aligned with ethical standards, such as tobacco, alcohol and casinos;
- violation of global compact principles;[46]
- companies with more than a certain percentage of revenues from coal extraction or activities with a negative impact on social values.

A second category is **"norms-based" or "inclusionary screening"** which pursues the inclusion or higher representation of issuers that are compliant with international norms, such as those by the OECD and UN.[47] This can include **"best in class"** investing whereby firms achieving above certain ESG score thresholds are included.

The third form, which in many cases is a step following inclusion, is the realignment of the remaining assets by ESG scores, with **more tilt of portfolio exposures toward issuers with higher ESG** and away from lower ESG scores. Funds can chose to align with an ESG-tilted index for passive investing, or engage in active investment through a selected approach relative to an index, to tilt more heavily or where the portfolio manager believes additional value will be created. This is particularly the case where the asset manager has a proprietary ESG research approach and engages in additional quantitative and qualitative assessment that offers either different perspectives on the current ESG ranking of firms, or some insight into the momentum.

The fourth form is the pursuit of **ESG thematic focuses** within at least one of the environmental, social or governance areas. Thematic strategies can be mostly financially-driven or values-driven These types of funds may or may not exclude or rebalance portfolios based only on ESG scores, but rather may focus on particular pillar scores and underlying metrics, such as with the E score and carbon footprint or intensity. Such thematic funds may be aligned with certain social standards. It is in this form that the financial and social investing objectives can be blurred, as the theme often has a purpose that is distinct from maximising long-term financial value.

Furthermore, funds could employ an **impact focus**. This category lends itself to ambiguity because impact investors often pursue social impact. While ESG impact investors may appear to be similar to the social impact investing, the key difference is that ESG impact funds should seek to achieve outcomes for the benefit of financial returns, in the process of improving ESG practices. Improving financial performance of

issuers could occur in part through active engagement by ESG impact investors that contribute to improvements in governance or climate risk management practices, or divesting from ethically undesirable subsidiaries, which in turn can improve market valuations and financial performance. In this respect, ESG investing could include investing in *lower scoring ESG companies* that show some propensity to transition to higher ESG, and/or where the *fund engages in some form of shareholder activism through share voting or bilateral communications to change company behaviour and practices*. This approach can be generalised across ESG, or could be thematic in focus, where fund managers may have expertise in one area of ESG, such as green finance or good governance. For example, ESG impact investing could seek to maximise financial returns through green finance bonds.

Lastly, **ESG integration,** which refers to systematic and explicit inclusion of ESG risks and opportunities in all key aspects of an institutional investors' investment process. Unlike the best-in-class method, ESG integration does not necessarily require peer group benchmarking or overweighting (underweighting) the leaders (laggards) because ESG factors are assessed during the asset selection, portfolio balancing and risk management processes. Signs of ESG integration often include dedicated governance to oversee ESG integration; substantial resources given to the assessment of ESG considerations within portfolio management teams; explicit exclusion policies to avoid certain companies with very low scores and engagement policies to improve impact for those with relatively low scores but opportunities for improvement; and quantitative research and tools to assess performance.

Table 5. ESG sustainability investment styles

	Screened exclusion or norms	ESG rebalancing	Thematic Focus	Impact
Objective	Remove specific companies w/ objectionable activities	Invest based on ESG scores and rating systems	Invest with focus on particular E, S, or G issues.	Target specific non-financial outcomes along with financial returns.
Key considerations	Definition / financial impact on screens.	ESG data sources, desired risk taken.	Broad vs specific exposures.	Report on progress of impact outcomes.
Examples	Screening out producers of weapons, fossil fuels, etc., or screening in those who comply with agreed international norms.	Optimise ESG benchmarks, active strategies, etc.	Environmental focus on low-emissions.	Specific green bond mandates.

Source: Staff explanations adapted from BlackRock Investment Institute and BlackRock Sustainability Investing, McKinsey and CFA Institute.

The employment of these approaches may vary depending upon whether the entity implementing the approach is a fund manager, which caters to retail investors, or an institutional asset owners. This may include consideration of timeframes for engagements, as open-ended investment funds' engagement depends on the confidence of their ability to generate superior, or at least sufficient, returns on their strategy.

Investment strategies

Within these rebalancing and thematic approaches, ESG can be used to pursue certain strategies. The forms of ESG strategies vary as widely as such strategies do for traditional forms of financing.

There are various strategies used to capture value by inefficiencies in the current discord in ESG ratings. One strategy is **ESG momentum**, which seeks to invest in issuers who show signs of materially improving their ESG scores in the future. In this regard, impact investing can be utilised to help facilitate the benefits from momentum strategies by actively engaging with corporate executives to facilitate positive changes that improve ESG scores. Also, some papers suggest that blended strategies, where by ESG and fundamental investment frameworks are integrated, can help achieve superior risk-adjusted returns. Also,

building on ESG exclusion, some forms of alternative funds have begun shorting strategies to short what they consider to be unethical issuers, and leverage their investments in higher scoring ESG issuers.

A similar approach is alpha investing, which can be achieved through additional selection based on the asset mangers' own proprietary approach to assessing quantitative and qualitative factors can lead to superior returns. This form of investing moves toward the holistic ESG integration, in which asset managers use all quantitative and qualitative information at their disposal related to fundamentals, market technical, ESG, and other areas of judgment such as with respect to macro cycles and stress testing of downside risks to develop optimal portfolio positioning.

Traditional factor strategies seek to invest based on factors that are quantitatively derived to exploit systemically relevant risk factors. Some strategies combine factor investing with forms of ESG approaches such as exclusion and tilting. For example, the EURO iSTOXX ESG-X & Ex Nuclear Power Multi Factor Index is constructed with standardised ESG exclusion screens applied for Global Compact Principles, Controversial Weapons, Thermal Coal, Nuclear Power and Tobacco Producers.

Carbon transition strategies are gaining momentum with greater investor demand for funds that anticipate greater downside risks and loss of valuation in stranded assets associated with high-carbon intensity. Asset managers are development funds that are much less exposed to industries that are expected to be directly affected by stranded assets, and more exposed to upside opportunities from new and green technologies, such as renewable energy, that can benefit from this transition.

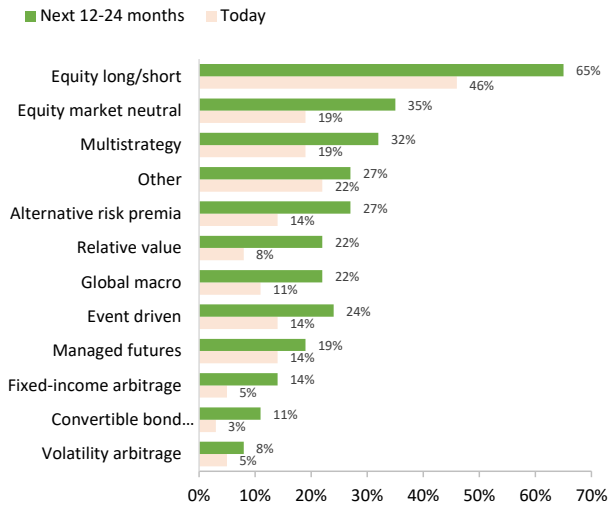
Also, ESG strategies appear to need particular tailoring in **emerging markets,** in part because the current ESG data infrastructure and, at times, willingness to disclose has hampered ESG incorporation in indices. As a result, there is some criticism that the global indices' weighting on high ESG scores alone penalises issuers that are starting from a much lower based. As well, even lower rated issuers which are making strides to improve ESG rates face underrepresentation on indices. Thus, alpha investing in emerging markets is particularly relevant where investment in emerging good practices can help reduce risks.[48]

Sustainable development goals (SDG) investing is gaining increasing attention, as a portion of socially responsible investors seek to better align their ESG investing approaches with global sustainability, as it relates to the UN sustainable development. To this end, the OECD collaborated with MSCI to develop a joint research paper "Institutional Investing for the SDGs" which is aimed at facilitating a discussion among market participants and stakeholders about the role of institutional investors in implementing UN Sustainable Development Goals (SDGs) into their strategies.

Within these approaches, there may be some ambiguity to the end investor who may be investing to achieve both social impact and financial returns. The asset managers' choice of strategy can, explicitly or implicitly, determine whether it seems that only exclusion provides clear guidance to the end-investor as to the impact. Thereafter, it may be less certain of the investors' resources are being invested to reward companies that are disclosing more risks, and better managing risks.

Hedge funds are also increasingly engaged in ESG investing, and their strategies vary widely. A surveys conducted by Cerulli and UNPRI indicate that equity long/short is the strategy where most respondents (46%) currently incorporate responsible investing criteria and plan to do so in two years (65%).[49] The use of ESG investing, and apparently the desire to gain from alpha investing and leverage, is gaining momentum. BarclayHedge found in a survey of hedge fund managers and commodity trading advisors that almost 60% of hedge fund assets will be tied to ESG criteria in 2019, rising from 42% last year. Governance was cited as by far the most important ESG factor, weighed for short bets as well as long positions.

Figure 11. Fund managers' incorporation of hedge fund strategies for ESG investing



Note: "Other": Includes credit funds and answers depicting incorporation across all hedge fund strategies.
Source: Cerulli Associates in association with UN-supported Principles for Responsible Investment.

Fund performance

Given different forms of asset scoring and performance, ratings providers have begun to provide scoring and ranking of funds based on ESG, irrespective of whether the funds profess to follow an ESG approach or not. Recent evidence from Morningstar, which provides such ratings, suggests that there is little evidence that choosing funds with "high sustainability" provides better return than other types of funds. This, in part, may reflect the fact that high sustainability funds, like all funds, incorporate myriad strategies which result in a wide range of outcomes.

Fund performance associated with ESG varies considerably, depending on the scores used and the analytical approaches employed. OECD staff analysis in Section 8 suggests no correlation between funds ESG score categories, based on the average ESG scores of held assets. However, the Secretariat's assessment did not have sufficiently granular data to assess performance by investment strategy. In this respect, recent industry assessments suggest that at least certain ESG funds perform relatively better by underweighting rather than entirely removing issuers whose practices are not aligned with societal ESG values; and, giving higher weights to companies in the same industries, aligned with relatively higher ESG scores. For example, coal producers might be excluded from socially responsible investment funds, but certain coal producers that have sound governance and social practices could be included and even have a material weight within the industry segment of the portfolio.

Tilting and exclusion policies may not align with investors' perceptions of portfolio composition. A study in 2017 noted that the top 20% highest-scoring companies in the energy universe have an average ESG score of about 77, well above the average score of 56 for the MSCI World Index, and the average score of the top 20% in the tobacco universe was also above the MSCI World average.[50] A second issue is that a fund's sustainability score, and therefore its ranking, is often determined relative to other funds in its peer group. For example, a renewable energy fund could have a low or below-average sustainability score relative to other renewable energy funds, while a traditional energy fund might score above average or high relative to other traditional energy funds. Consequently, the renewable fund in this example could have a lower ranking than the traditional energy fund simply because of the peer groups against which they are measured.[51]

ESG performance

Academic and industry studies vary considerably with respect to the performance and performance attributes of ESG investing. Some finance industry studies suggest that while methodologies may differ, ESG financial performance appears to be in line or superior to that of traditional indices. Even though the ESG index providers use different methods and often given unequal scores *within* factor-specific scores, JPMorgan still finds a high degree of overlap when considering the impact on aggregate price returns.[52] It looked at yearly returns of MSCI World Benchmark Index and MSCI World ESG, and found net returns were very much in line with each other. These recent studies are also supported by some academic studies, though evidence is mixed. Some academic studies that find a positive link suggest that firms with better ESG disclosures have better risk management frameworks, and that more disclosure can create better reputational management, which has intrinsic value.

More analysis is warranted in this area to assess the extent to which different methodologies can, in some cases, lead to different financial performance and risk outcomes, and the extent to which subjective factors would contribute to return differentials.

Assessment of factors

Most of the industry studies consider returns over the past ten or so years suggested some biases that contributed to results. The **first bias** is that this period corresponds to very high monetary policy accommodation, which in turn affected asset prices. While it is difficult to say if the policy environment affected higher ESG scoring firms relative to the total investment universe, one might infer that of ESG "beneficiaries," the monetary environment could have further contributed to exuberance.

The second bias, which may have some relation, is that firms which tended to provide more robust ESG disclosures were larger on average, and perhaps more able to allocate resources needed to provide analysis and disclosures of ESG. Size was determined to have a bearing on ESG scores. This might suggest that ability to assess and report risks, irrespective of steps to impact change through sustainability opportunities, contributes to the positive scores.

The third bias is that, due to growing interest in ESG, there has been greater inflows into securities of firms with higher ESG ratings. While there has been some concern in this area, the research by JPMorgan tries to control for this factor and finds that from 2014-2017, higher ESG stocks generated much higher ROE than low-rated ESG stocks. Nevertheless, there does appear to be evidence that the market valuations of higher-rated ESG stocks have increased relative to lower rated ones, which is contributing to improved valuations. This has occurred during a period of sharp increases in ESG funds. As such, some of the concern that highly-rated ESG stocks may be overvalued has merit.

The **fourth bias** is that the choice of ratings inputs – e.g. between MSCI, Sustainalytics, or a proprietary firm approach layered onto third party ratings, contributes to different results. Given the lack of disclosure over these judgment-based elements of the methodologies, it is often difficult to determine specific qualitative drivers of these ratings.

A series of issues surrounding these scores may lead investors to have reservations with respect to meaningfulness for financial and even ethical investing. A lack of standardisation in reporting, diverse ways to measure and communicate key aspects for each industry, and the application of non-comparable methodologies by different providers are only some of the characteristics that drive the need to investigate more deeply on these scores. ESG ratings are definitely useful tools that can be used to summarise a complex topic such as sustainability, but the current challenges risk undermining the aspirational benefits, and could risk erosion of market integrity in the process. And with the growth in popularity of these standards, many asset managers are using ESG ratings as key determinants of their decisions. This can be over simplistic and may not return the desired results.[53]

Critique and empirical assessment

Literature review about "responsible investing" (ESG and others) performance

A considerable amount of research has been conducted over the past several decades with respect to socially responsible and sustainable investing, including the impact of corporate social responsibility and good governance on market-based and financial statement measures of financial performance. These studies, while analysing in a comprehensive manner Corporate Social Responsibility, do not directly relate to ESG ratings and their impact on shareholders returns.

In recent years, the financial industry has turned its attention on the extent to which ESG investing can achieve superior returns, or at least avoid inferior returns, relative to traditional investing that does not incorporate sustainability considerations beyond immediate financial performance and corporate strategy to further enhance future performance. It has pursued several forms of analysis: (i) academic studies of performance using ESG or other related sustainability metrics; (ii) financial industry studies using established ESG ratings; (iii) megastudies that assess various forms of prior studies of corporate social responsibility and good governance, and impact on performance.

We assess selected existing studies in order to gain from studies focusing on ESG investing using ratings, and to differentiate from mega-studies that are too broad, in our view, to shed light on ESG investing distinct from a wide range of measurements loosely defined as socially responsible investing.

Early literature on social responsible investing and financial performance

Early research on responsible investing focuses on how financial performance was affected by an increase in the level of Social Responsibility. The lack of specific instruments, such as ESG ratings, created the problem of which measures better represented the Social Responsibility of enterprises analysed.

(Alexander and Buchholz, 1978[1]), analyses the return of the stock market of social responsible stocks using a CAPM model. He finds no significant relationship between the two. Different studies, using different methodologies, such as (Cochran and Wood, 1984[2]), (Aupperle, Carroll and Hatfield, 1985[3]) and (Blackburn, Doran and Shrader, 1994[4]), support the findings, showing similar results. The differences in methodology did not seem to affect the overall finding of a non-correlation of the CSR and the performance.

Of the findings mentioned, the research carried out in 1984 focuses specifically on corporate measures of performances. Even in this case the results bear a weak relation between CSR and corporate performances. Following the study, (Aupperle, Carroll and Hatfield, 1985[3]), undertake an empirical investigation between CSR and Profitability of enterprises, using risk-adjusted measures as well as profitability ratios. The findings show, again, a lack of relationship between the two.

Further literature seeks to address the effects of the negative screening investing approach. Research has addressed the importance of social investing, while showing how performances were hurt. In particular, one research from (Kacperczyk and Hong, 2006[5]) shows how "sin" stocks, publicly-traded companies involved in controversial productions, are less held by certain institutions, due to a negative screening approach, and this abstention involves a cost for investors. These sin stocks have the possibility to

outperform the market due to a mispricing given by the fact that they are less held, not for an economic reason, but due to negative screening approaches[54].

(Gorgen, Nerlinger and Wilkens, 2017[6]) investigate the carbon risk and equity price relationship. They use different providers' data on measures of carbon emissions and they find that high carbon risk is associated with higher returns, even though increases in brown risk lowers future returns, for different time periods and geographic areas.

Meta-studies on corporate social responsibility

Broader research does not focus on ESG ratings to understand how they affect performance but instead it looks at different sustainability metrics from different sources. This way of approaching sustainability issues allows for a more comprehensive perspective, but does not allow research to be compared properly, given the different nature and lack of standardisation of various metrics.

Three different studies by (Orlitzky, Schmidt and Rynes, 2003[7]), (Margolis, Elfenbein and Walsh, 2009[8]) and (Wang, Dou and Jia, 2016[9]) were carried out to provide a comprehensive meta-analysis of the relationship between Corporate Social Responsibility and Corporate Financial Performance. The three studies analyse more than 40 researches each in order to understand if an association was present. All three point to a positive association between Corporate Social Responsibility and Corporate Financial Performance. The main issue we want to point out is the selection of previous studies on the topic of Corporate Social Responsibility and how this was linked to financial performances of companies. Some of the studies were selected through a keyword search and selection. This methodology, although useful to identify researches looking at sustainability, has some weaknesses that could have a meaning impact on the results. In particular, the screening will have to be done on a predefined database and the resulting sample might be biased and exclude important results, or worse, include results that are insignificant to the research.

Industry professionals provide similar methodologies. Among the most prominent studies, (Friede, Busch and Bassen, 2015[10]) provide a broad assessment of over 2200 previous academic studies. The methodology extracts academic researches (regardless if they are working papers, published journal papers, or written for a commercial audience) from the main publisher and scholar databases, based on specific keywords relating to ESG such as "Environmental", "Social" and "Governance" but also more broad ones such as "responsibility" and "sustainability". After this first screening a further filter is applied using the keywords "meta, review, literature, overview, analysis, study/ies, and examination" The resulting sample is a mix of studies focusing on different pillars and on Corporate Social Responsibility, instead of being solely focused on ESG ratings.

The results show that 90% of studies find a nonnegative ESG–Corporate Financial Performance relation, with the majority of them reporting positive findings. Contrarily to the previously introduced meta-studies, which focused only on Corporate Social Responsibility, it questionably claims to focus on ESG, and its link to Corporate Financial Performances. Our critique is moved by the fact that little attention was posed in differentiating between ESG and CSR, while including researches that were mainly focused on the latter. These research results, as insightful as they are with respect to CSR and corporate financial performance, do not provide conclusions that directly relate to ESG ratings or investing.

Literature focused on ESG performance

When focusing on literature regarding ESG ratings and ESG investing we find different results than research on the CSR-Corporate Financial Performance association. We observe that studies that focus on ESG investment strategies, such as negative screening and Best-In-Class selection, find a different effect on the portfolio returns of investors applying these strategies. In some cases, portfolios that do not invest in ESG perform better than portfolio integrating ESG scores. Therefore, in this section we provide a

comprehensive review of industry and academic research analysing ESG data in order to understand how it affects performances and returns.

Industry research, either directly from investment firms or sell-side analysts, or in partnership with academia, often showed some positive results in terms of aspects of market or financial performance. For example, research conducted by the industry, such as “ESG from A to Z: a global primer” (Bank of America Merrill Lynch, 2019[11]) and “ESG Investing” (J.P. Morgan, 2016[12]) among others provide a positive correlation between ESG and performance, while academic research generally shows a negative correlation. This could depend on the provider of the ESG scores, timing, strategy and different factors affecting the research.

Given the differences of ESG scores among different providers, we try to understand what these depend on and how this affects performances. (Berg, Kölbel and Rigobon, 2019[13]) provide an answer to this question, with an overview of how and why ESG ratings vary among providers. The research suggests that ratings vary due to scope, weight and measurement divergence. The latter, explains more than 50% of ESG differences. These differences in metrics measurement makes it difficult for investors to identify outperformers and laggards.

These findings can be complemented by the concept of materiality and how it is perceived, since it has a strong impact on which metrics are reported and how they are reported. (Khan, Serafeim and Yoon, 2015[14]), develop a dataset of sustainable investments classified as material for each industry. The results show that firms with strong ratings on material sustainability issues have better future performance than firms with inferior ratings on the same issues. This would explain the differences in ESG ratings by providers, as there is wide disagreement on materiality and how to measure it.

In this regards it is important to understand how ESG rating disagreement affects stock returns. Therefore, (Gibson et al., 2019[15]), examine a sample of S&P500 companies in order to empirically prove their hypothesis. What they find is a negative correlation between ESG ratings dispersion and stock returns, meaning that higher disagreement among providers results in overvaluation of stocks, and therefore lower overall returns.

Regarding performance, it is beneficial to review both industry and academic literature covering ESG applications. Research from MSCI, an investment research firm, assesses the foundations of ESG investing, divided in four different papers.[55] They seek to answer how ESG affects equity valuation, risk and performances, how to integrate them into benchmarks and into passive and active portfolios. The research papers provide an insightful view on the different topics mentioned. The first research finds a positive link between ESG and Corporate Financial Performance while the second provides an equity analysis of ESG funds in the form of exclusion and tilting. Results showed that exclusion generally increased overall risk, but this was offset by a positive impact on risk-adjusted returns due to ESG integration. Overall, ESG integration outweighed the effects of exclusion on the analysed indices.

ESG performances found wide coverage among academic, with literature analysing the implementation of different strategies to portfolios in order to understand how performances are affected. (Auer and Schuhmacher, 2016[16]) analyse the performances of ESG portfolios using data from Sustainalytics for different regions: US, EU and Asia for a period from 2004 to 2012. They implement different portfolio screens and the result is that active selection of ESG stocks does not provide superior risk-adjusted return if compared to passive traditional strategies. Moreover, in Europe, investors tend to pay more for SRI, making it costly to them and therefore underperforming if compared to non-ESG portfolios.

More evidence underlines how the valuation premium paid for companies with strong sustainability ratings has increased over time as a function of positive public sentiment momentum (Serafeim, 2018[17]). The research uses data from MSCI and TruValue Labs to analyse how ESG criteria and public opinion are interconnected and what are the consequent effects of it. The evidence suggests that investing in portfolios with positive ESG momentum and negative public sentiment momentum delivers significant positive alpha.

Public sentiment influences investor views about the value of corporate sustainability activities and therefore both the price paid for corporate sustainability and the investment returns of portfolios that consider ESG data.

Moreover, financial institutions and supervisors have addressed ESG in reports aimed at creating a smoother transition to a greener economy. Among them the ECB and the NGFS have published different reports, one of them being a guide for central bank's portfolio management. In their analysis they provide a risk-return review of SRI, which cites different studies in the matter of ESG. (Bannier, Bofinger and Rock, 2019[18]) [56] published a paper in collaboration with the Centre for Financial Studies, analysing portfolios of ESG scores in US and Europe. They show that a portfolio long in stocks with the highest ESG scores and short in those with the lowest scores yields a significantly negative abnormal return but also that the high ESG score portfolio reduces firm risk. Therefore, low ESG portfolios compensate the higher risk with higher returns.

The existing literature reveals a largely mixed and somewhat inconsistent empirical evidence, in which the researches points out the difficulty of quantifying the real impact of ESG rating on the performances of portfolios. The inconclusiveness may depend on problems regarding different providers, methodologies, investment strategies, geographical selection, sample selection and timeframes. Building upon the findings and the insights of this literature, we now proceed to develop our model.

OECD empirical research on ESG investing

Overview and findings

In light of the wide variance in results of academic and industry assessments, the OECD staff sought to embark on analysis of ESG ratings, score composition, and performance. This analysis was developed based on considerations of portfolio theory related to efficient frontiers. In accordance with the theories of portfolio construction, for a given expected return a rational investor would seek to reduce measures of uncertainty, such as with respect to variance and downside risk.

Given the broad research available on ESG and its concerns, the research sought to assess what we believe are the most important issues related to ESG ratings.

In terms of attributes, ESG ratings can be useful indicators of how a company is performing on sustainable metrics. In this regard, depending on the provider, we can identify two main types of ESG scores: an ESG disclosure score and an ESG risk management score. The first one will focus on how the company reports its information regarding sustainability while the second one will try to assess the main risks the company faces in the terms of ESG.

Notwithstanding the differences in scoring methodologies, some common biases emerge from the analysis. In particular, size of the company, location in which the company operates, industry and materiality issues can affect how ESG scores are ultimately awarded.

These differences in attributes and biases affect the resulting ESG score depending on the provider, which then influences the performances of portfolios applying ESG investing strategies. Therefore, we want to understand how portfolio analysis and risk-adjusted returns are determined by the choice of providers, timeframes and location.

To reflect on these issues, the concept of Modern Portfolio Theory is useful in helping to understand how added constraints, and therefore an increased concentration risk, affect risk-adjusted performances. In these terms the theory suggest that adding constraints should reduce the risk-adjusted performances of portfolios. But, if we consider ESG scores as additional information, the constraints could help reduce tail risks, and the added concentration risk could be beneficial in the long term. Nonetheless, reducing the size of certain industry will increase volatility of the index, at least in the short term.

Adding on these considerations, we deem useful to analyse the performance of funds incorporating different strategies and different sustainability scores. These funds will provide a useful point of view on the real performances resulting after the application of ESG scores.

Institutional investors claim that investing in ESG implies having a positive impact but also achieving a higher return if compared to the market benchmark. Therefore we want to assess how ESG scores application affects portfolios risk/return, through a positive screening approach and using data from different providers. Different screening criteria and different providers most likely imply different outcomes. Therefore our analysis is limited to the approaches just mentioned.

The efficient frontier: Markowitz Modern Portfolio Theory (Markowitz, 1952[19]). To test our hypothesis we will apply some practical concepts useful in the financial analysis of performances. The Markowitz Portfolio optimisation model tries to identify the best complete portfolio by allocating to the optimal risky portfolio and the risk-free asset. It does so assuming that investors are risk averse and that, given equal returns, an investor would prefer the one with less risk. Diversification plays an important role as the sole way of reducing risk.

Fama & French 5 factors model (Fama and French, 2013[20]). Alternatively to the Capital Asset Pricing Model, which uses only the market as a variable to explain returns of the portfolio or a stock, the Fama and French factor model uses five variables which measure how the assets behave in relation to the market, whether it shows sign of being a small cap, if the price-to-book ratio is high, if investments are conservative and if profitability is robust. Despite critics, empirical tests suggest an improvement in the five-factor model explanatory power compared to the three-factor model and the CAPM.

The **first main finding** related to the correlation between high ESG scores and higher financial returns, based on backtesting of various portfolios over the past ten years. What we find is a very different result, mainly due to different providers' methodology, investment strategies, regions and time frames. This does not mean that all ESG portfolios underperformed the traditional market: however, many high-scoring ESG portfolios did underperform, and a number of low-scoring ESG portfolios outperformed the markets.

It should be noted that one explanation for this is that many of the world largest investors rely on third-party providers to gather data about ESG ratings, applying them in different ways. This inconsistent methodology and clarity over ESG can mislead investors to generalise about the potential for sustainable investments to outperform the market. It only shows that based on which methodology is used, results are going to diverge. Among other reasons, the correlation between ESG and future performance is low, so the outcome is influenced by other factors such as implementation strategies

Therefore, it is important for investors and asset managers to thoroughly understand ESG ratings and the choice of metrics, weightings, and other factors that drive rating results, to ensure these align with investors needs related to objectives and risk tolerance. Differences in ESG investing strategies, providers and metrics prove it difficult to rely on a sole dataset to make decisions. From an investor perspective relying on a single score to assess the sustainability could result in an over simplification that could have negative consequences on financial returns, without actually improving the sustainability of the portfolio.

The second key finding looks at absolute and risk-adjusted return measures. We find that there is a wide range of performances depending on the provider used. Moreover, we found that high scoring ESG portfolios, even when using a best-in class approach that limits the concentration from reducing exposure to lower ESG scores, do not seem to outperform traditional indices. Nevertheless, we find a lower Drawdown risk exposure when looking at ESG indices compared to traditional indices. But, as already stated, different ratings methodologies provide very different outcomes. In the case of return and volatility, concentration risk generally implies a higher volatility of returns. This means that better absolute returns can be achieved allowing for higher volatility of the portfolio. Nonetheless the results remind us of one important lesson from traditional finance: concentration risk can undermine risk-adjusted returns. Therefore, when applying investment approaches that limit the diversification of the investors' portfolio,

one should bear in mind that that comes at a cost. Moreover, the more information we are able to gain on a company regarding its ESG profile, the better. These scores, depending on the provider, can incorporate the firm-specific risk of each company, making it difficult to standardise and compare them, and therefore making them less suitable for a market analysis.

The third finding of the analysis focuses on sustainable funds performances. We sought to understand the link of ESG funds with risk and performance. To do this we analysed a sample of funds from Morningstar with high and low ESG ratings. What we found is evidence of a lack of correlation between ESG scores and fund performance, measured in equity returns, but a lower tail risk associated with high-scoring ESG funds.

Methodology

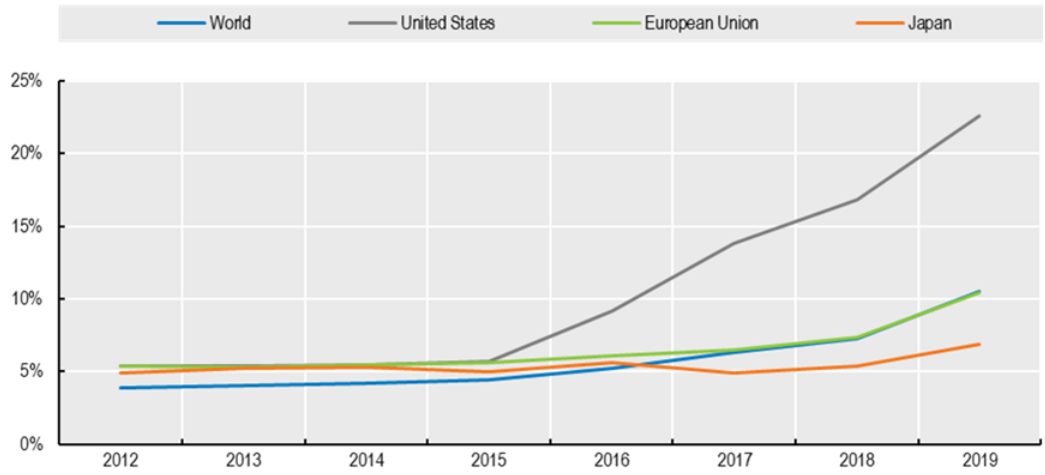
To measure the performances of ESG related portfolios we use different providers' data to analyse how a positive ESG screening portfolio performed in these regions. To build the portfolios we use equal-weighted stocks selected through rating segregation for each region. We do the same for the single pillars: E, S and G to measure how they each perform. We then proceed to analyse the US small capitalised companies. We chose the US because it is by far the market with the higher coverage by data providers of ESG information.

Hypothesising that small capitalised companies sustain a relatively higher burden for implementing ESG scores (e.g. learning curve and implementation costs) and therefore being unfairly penalised in this regards, we analyse the state of the market to assess how ESG scores are distributed throughout publicly listed companies.

Market penetration and attributes

We start by analysing ESG scores market coverage in different areas: World, US, EU, and Japan according to Refinitiv data. We notice that the percentage of market coverage is relatively low, particularly outside the US, even though it has greatly increased in the last years. In the US, market coverage has reached an all-time-high of almost 25% of public companies covered on these standards while in Europe and worldwide it is over 10%. Japan still lacks behind having just over 5% of enterprises covered on sustainable issues.

Figure 12. ESG market coverage share

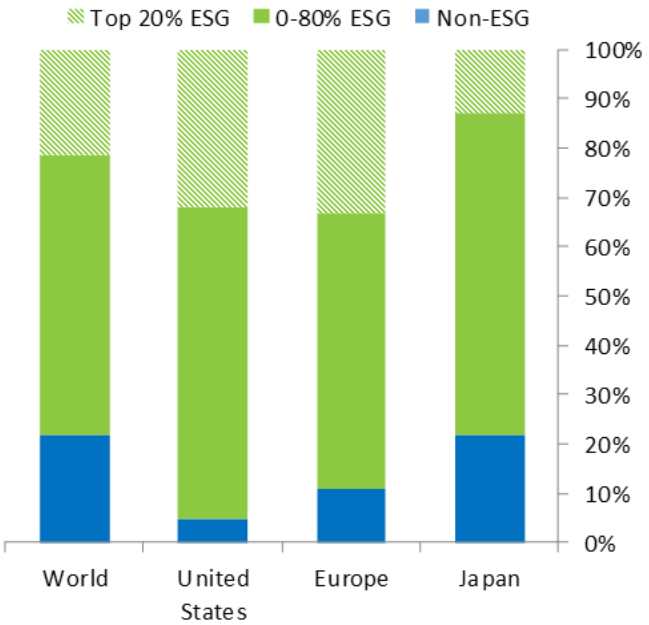


Note: Calculated as the number of public companies with an ESG score over the total number of public companies, in each year.

Source: Refinitiv, OECD calculations

But, when considering market capitalisation, we notice a different pattern: The market capitalisation of all ESG scoring companies represents 78% of the total market capitalisation in the world, 95% in the US, 89% in the EU, and 78% in Japan.

Figure 13. Market capitalisation as share of ESG by region, 2019



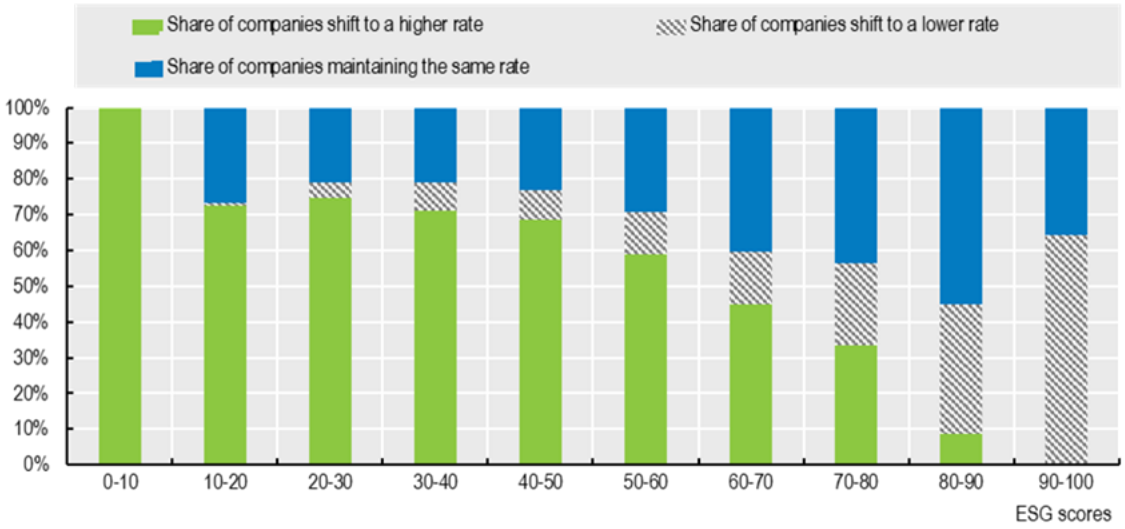
Source: Refinitiv, OECD calculations

The extent to which the ESG environment is dominated by large capitalised companies according to Refinitiv data is noteworthy, and has implications for weighting and potential bias. Possible explanations for the abundance of score availability for the largest companies by market capitalisation is that they have are more followed by analysts and investors and that they have ample resources to invest in disclosing information concerning their ESG scores while small capitalised companies would have a higher hurdle rate, given that there is some minimum cost associated with the knowledge and resources to disclose non-financial ESG information. Unfortunately small companies lack the resources to dedicate to these disclosures. As previously stated, stock exchanges such as NASDAQ and FTSE, among others, have published their own guidelines aimed at helping companies that strive to meet ESG disclosure requirements to properly report the information regarding sustainability.

A further analysis is aimed at verifying how companies changed their ESG scores during the last five years. Noticeably, low scoring companies have seen greater improvement than high-scoring companies, leading us to believe that the companies lagging behind have made tangible improvements to implement these standards given the increasing attention investors are giving to them.

Investors' awareness intensification is supported by a research from Goldman Sachs[57], an investment bank, which has highlighted a 75% increase in the number of companies in the S&P 500 discussing key Environmental and Social terms from 2010 to 2017 on their earnings calls, with a peak of 41% from 2016 to 2017. Such interest led to great inflows of money to these type of sustainable products: Assets under management in ESG funds have risen 60% from USD 655 billion in 2012 to USD 1.05 billion in October 2018, according to Morningstar.

Figure 14. ESG rating shift to a different score, 2013-2018



Source: Refinitiv, OECD calculations

To assess how the environment surrounding ESG scores has changed in the past decade we analyse the fundamental ratios for the top 20% and bottom 20% ESG scores for three different ESG providers. Showing a higher growth for both ROE and Price-to-Book ratio for low scoring companies.

Table 6. Compounded Annual Growth Rate for different financial metrics for different providers

	Measures	Provider 1	Provider 2	Provider 3	2009-2019 average
US Top 20 % scoring ESG	**ROE**	0.0%	-3.6%	-0.8%	12%
	P/E	5.9%	0.2%	4.8%	18.4
	P/B	4.0%	-2.1%	4.0%	2.3
US Bottom 20% scoring ESG	**ROE**	2.9%	7.9%	1.2%	8.4%
	P/E	2.8%	-0.6%	3.0%	18.9
	P/B	5.3%	6.6%	3.5%	1.9

Note: The CAGR is calculated from 2008 to 2018
Source: Refinitiv, OECD calculations

ESG portfolio performance based on efficient frontiers

In testing for the Markowitz efficient frontier, we noticed that, depending on the ESG index analysed, risk adjusted performances vary. In particular, the risk analysis shows a varying volatility, but a lower maximum drawdown for ESG indices.

Among others, some researches affirm that ESG assets provide an abnormal return while at the same time lowering the underlying volatility. Therefore we take steps to compute the Markowitz Efficient frontier. We do this including ESG indices and non-ESG indices from three different providers: MSCI, STOXX and Thomson Reuters, to assess whether ESG criteria influences risk-adjusted performances. We provide a framework where every index is treated as if it was a single asset, to understand the difference in risk adjusted returns.

We analyse a total of twenty indices, twelve of which are ESG indices, to assess returns and risk-adjusted returns. We consider the Sharpe Ratio for selecting the best performer. The Shape ratio measures the Risk-adjusted return through the equation: (Expected return of the portfolio – Risk-free rate of return)/(Standard deviation of the portfolio return). We compute the Minimum Variance Portfolio and select the efficient frontier of risky assets. Then we analyse the maximum drawdown to understand how tail risk, which might not be captured by volatility, is reflected in these different indices.

The drawdown risk is widely used indicator of tail risk over a specified time period, which helps to understand downside risk in the event of extreme conditions. It is calculated by comparing the value of a cumulative return with a previous peak that is the maximum cumulative return, in a pre-specified period of time. One example of extreme drawdown refers to the S&P500, which dropped around 48% in 2008, during the financial crisis.

For ESG indexes we see a generally lower drawdown risk, which could be seen as well during the Covid-19 pandemic crisis. The lockdown triggered a series of drops for most major indices. This was true even for ESG indices, even though in a lower measure, showing lower drawdown risk and higher resilience.

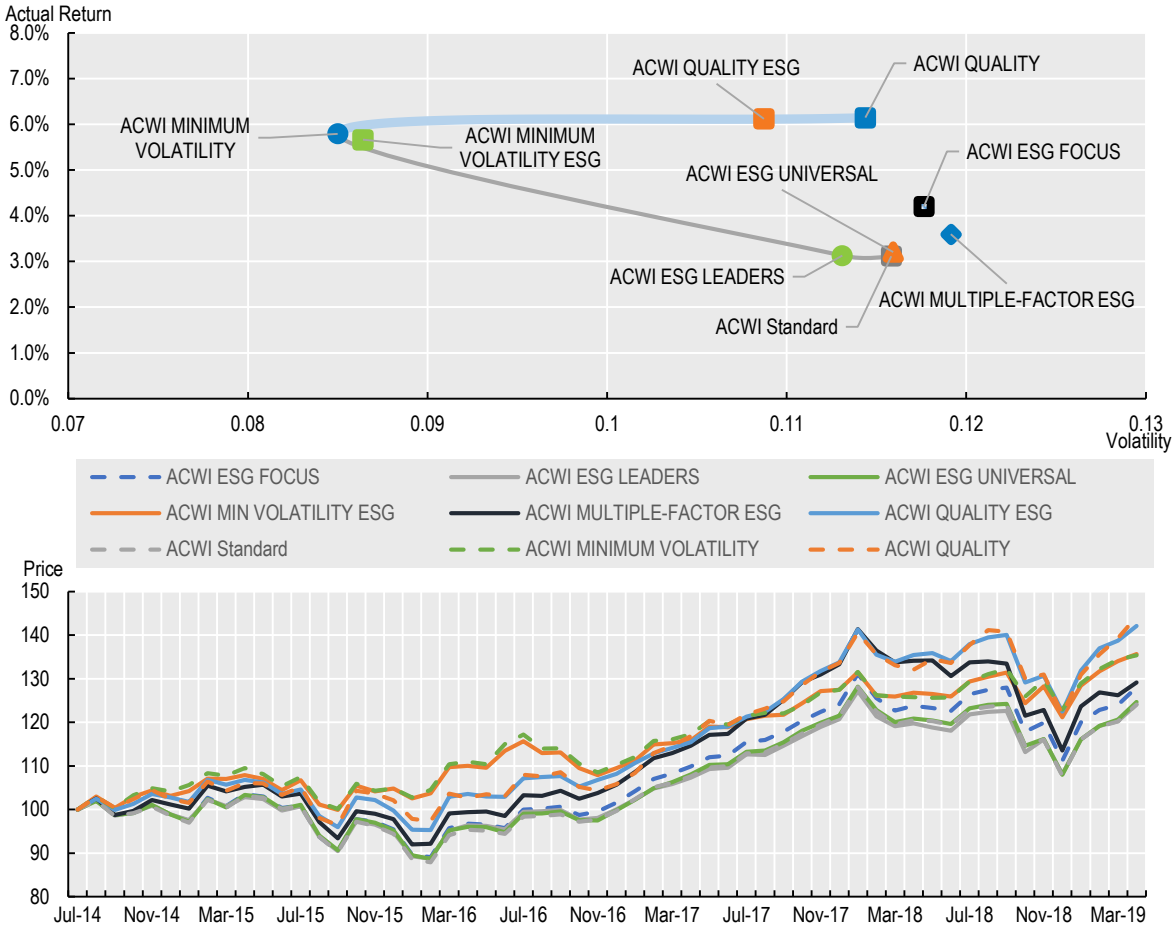
When applying investment approaches that limit the diversification of the investors' portfolio, one should bear in mind that that involves concentration risk. This means that, according to the methodology of the ESG index adopted, some sectors or companies representing that sector could be excluded by the product. This can have different effects on the risk of that asset, which we try to report here. The first scenario could lead to a lower volatility, if the sector is generally more volatile, but to a higher – or lower- drawdown in the future. This, in fact, depends on how the industry that is removed from the index is set to develop. If, for example, highly carbon dependant companies are removed from the index, this could increase the volatility in the short term, but if those industries will see a decline in the future this could avoid potential drawdown risk

In this regard other research addressed the Modern Portfolio Theory to understand how sustainability integrates. There is no current evidence of over or under performance of sustainable funds as different research provide diverse outcomes. The IMF in its Global Financial Stability Report (2019) addressed sustainable finance and among other analysis, one focuses on the construction of an efficient frontier for sustainable and non-sustainable funds. The theory suggests that restricting the investment universe can reduce diversification and therefore lead to underperformance. The IMF analysis reflects that exclusionary screening increases volatility but the overall performance of sustainable and conventional funds remains comparable. The findings contrast with the ones by (Gasser, Rammerstorfer and Weinmayer, 2016[21]), whom reconsider Markowitz Theory and suggest a modified version to integrate a social responsibility measure into the investment decision making method. Through an empirical analysis they show that investors choosing to maximise the social impact of their strategy face a statistically significant decrease in the expected return.

We analyse a total of nine MSCI indices, 6 of which are ESG indices, to assess returns and risk-adjusted returns. The ACWI Indices include developed and emerging economies. We consider these indices even though they are built using different methodologies and with different objectives in mind in terms of sustainability and risk management.

We compute the Minimum Variance Portfolio and select the efficient frontier of risky assets. The results show that different ESG indices have varying risk and performances depending on how they are built. For example, the ACWI minimum volatility achieves the best Sharpe ratio, performimg slightly better than its ESG counterpart, even though the latter has a lower drawdown risk (-7.83% against -8.56%), with that being true for most ESG indices. For instance, the ACWI Quality ESG reduces the volatility of the benchmark while maintaining the same return. When looking at the other indices, they are treated as inefficient according to the efficient frontier. This might be due to the different nature of the indices analysed and the fact that they are treated as single assets when they are not.

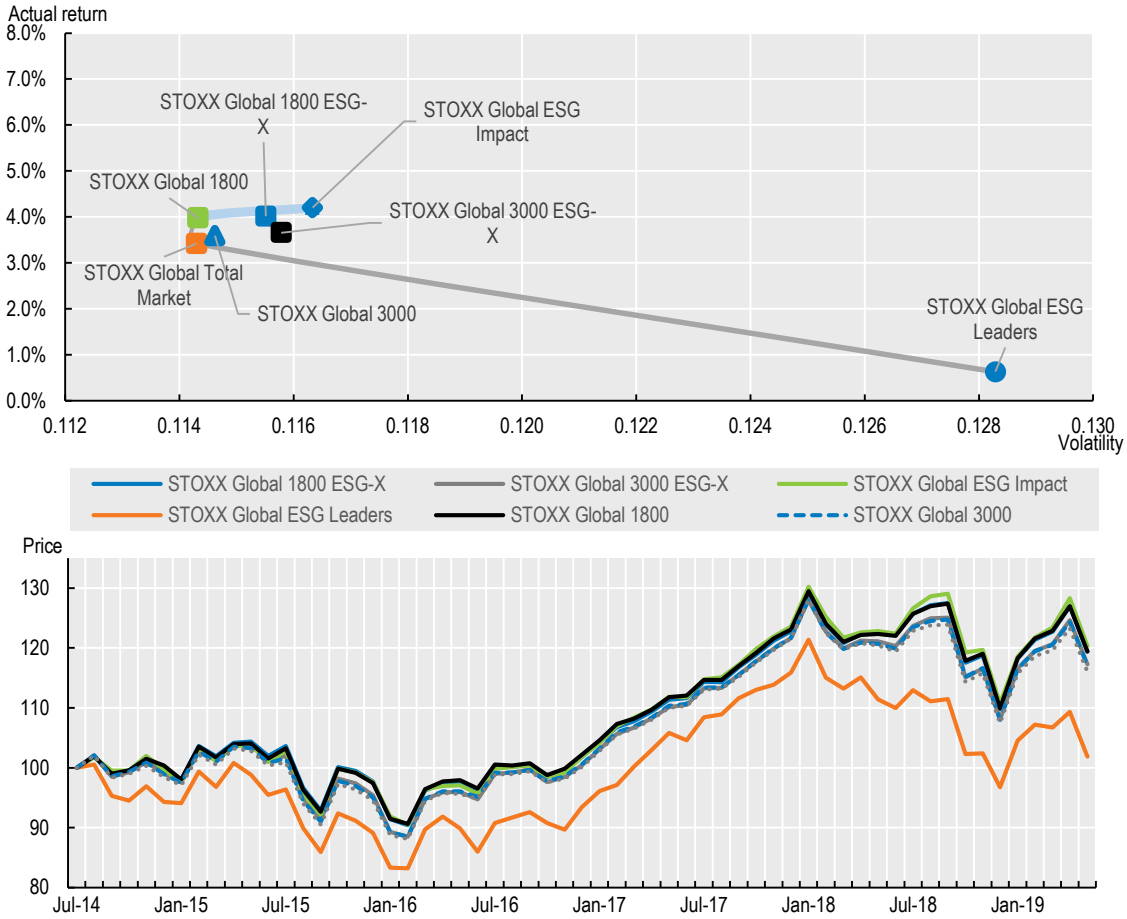
Figure 15. MSCI Minimum variance frontier and price index with base value 100, 2014-2019



Source: MSCI, OECD calculations

The same analysis applied to MSCI indices was applied to STOXX indices. We analyse seven different indices, 4 of which are ESG indices. In this case the best Sharpe ratio belong to the STOXX Global ESG Impact, which has a higher expected return but also a slightly higher volatility. The lowest standard deviation is achieved by the STOXX Global Total Market Index. As we can see all the indices are have performances that are close, with standard deviations that do not vary much, except for the STOXX Global ESG Leaders, which underperformed if compared to the other indices. When looking at the Maximum drawdown we can notice that is it lower for ESG indices, except for the Global ESG Leaders.

Figure 16. STOXX Minimum variance frontier and price index with base value 100, 2014-2019

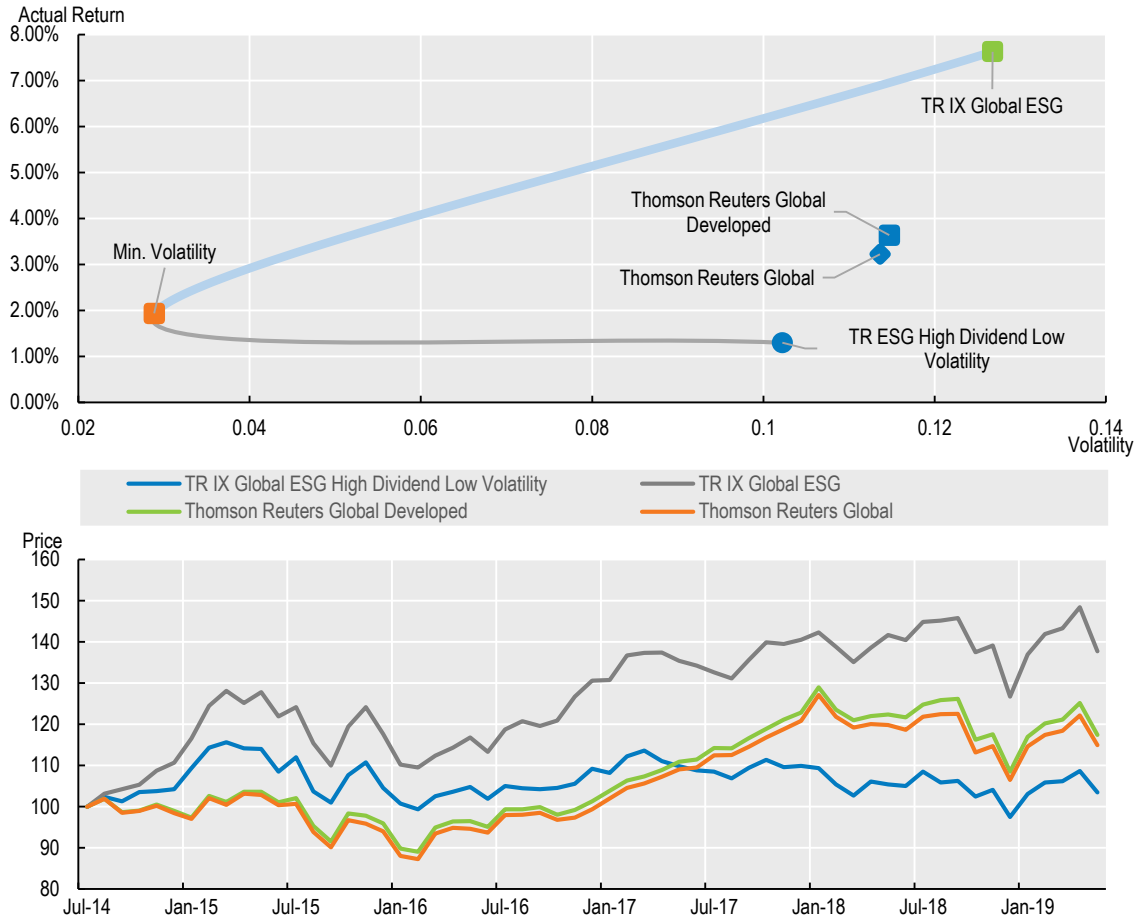


Source: Refinitiv, OECD calculations

The last analysis regards the indices provided by Thomson Reuters. We analyse four different indices, 2 of which are ESG indices. In this case the best Sharpe ratio belongs to the TR IX Global ESG Equal Weighted, which has a higher Sharpe Ratio than the other and also the highest absolute returns. The minimum volatility in this case is a mix between a 70% position in the TR ESG High Dividend Low Volatility Index and a 30% in the TR Global Developed Index. It is important to notice that the TR IX Global ESG Equal Weighted has a total number of constituents equal to 494 against 4020 of the TR Global index. The first three industries by Market Cap weight in the ESG index have are Technology, financials and healthcare with respectively 28%, 17% and 14%, while in the Global index they are Financials, technology and consumer cyclicals with respectively 23%, 18%, and 12%. When analysing the drawdown risk we notice that ESG indices have a lower drawdown than standard indices.

There are some limits to our analysis in the regards of Thomson Reuters. Considering all available indices, we were not able to identify a proper benchmark for the Thomson Reuters ESG High Dividend Low Volatility.

Figure 17. Thomson Reuters Minimum variance frontier and price index with base value 100, 2014-2019



Source: Refinitiv, OECD calculations

Fama-French portfolio performance

The excess return generated depends on the provider chosen to build the portfolio, even though low scoring portfolios generally perform better than the market.

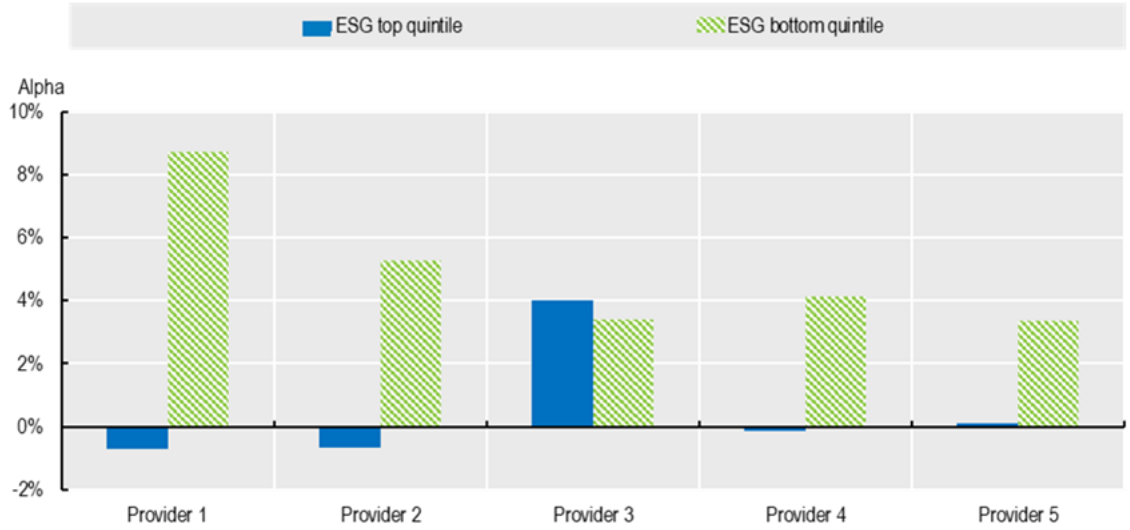
The results of the assessment using the Fama and French data showed that, when adjusting for different type of risks, there is divergence between high scoring and low scoring ESG portfolios. This risks do not take into account the possibility of tail events which cannot be captured by the Fama and French factors.

The methodology we use is based on the Fama and French 5 factors model. The model aims at pricing assets after taking into account risk factors such as systematic market risk, size of companies and Book-to-market ratio. The risk-adjusted alpha we extract from the model measures the excess return of an investment relative to the return of a benchmark index. In our case the benchmark index is provided by Fama and French and is a proxy for the market[58]. To obtain this result we ran a regression between a portfolio of securities and the 5 factors provided by Fama and French.[59]

In our hypothesis we wanted to examine how ESG scores perform in comparison to the market, and in particular to assess whether high ESG scoring stocks outperform low scoring ESG stock we use the Fama

& French 5 factors model. We can notice a similar pattern for each provider, except for one, which shows positive alpha on the best scoring ESG portfolio.

Figure 18. ESG top and bottom quintile Alpha by different providers, US, 2009-2019



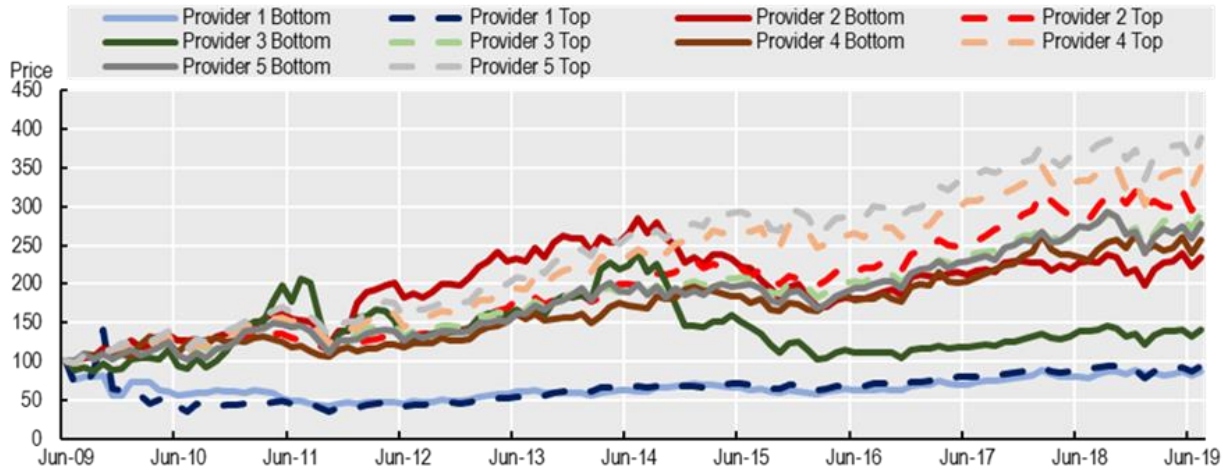
Note: Annualised Alpha estimated by the regression
Source: Bloomberg, Fama and French, MSCI, Refinitiv, OECD calculations

The differences are very noticeable among the data that different providers allow users to download. As stated previously, differences in ESG ratings are profound and this is reflected on the performances of portfolios built through these data.

Price indices show different returns and volatility depending on the provider.

To understand how the price of these portfolio behaved we compute a price index to track performances of the different portfolio without taking into account for the carried risk.

Figure 19. Top and bottom ESG portfolios by provider, price index, base value 100, 2009-2019

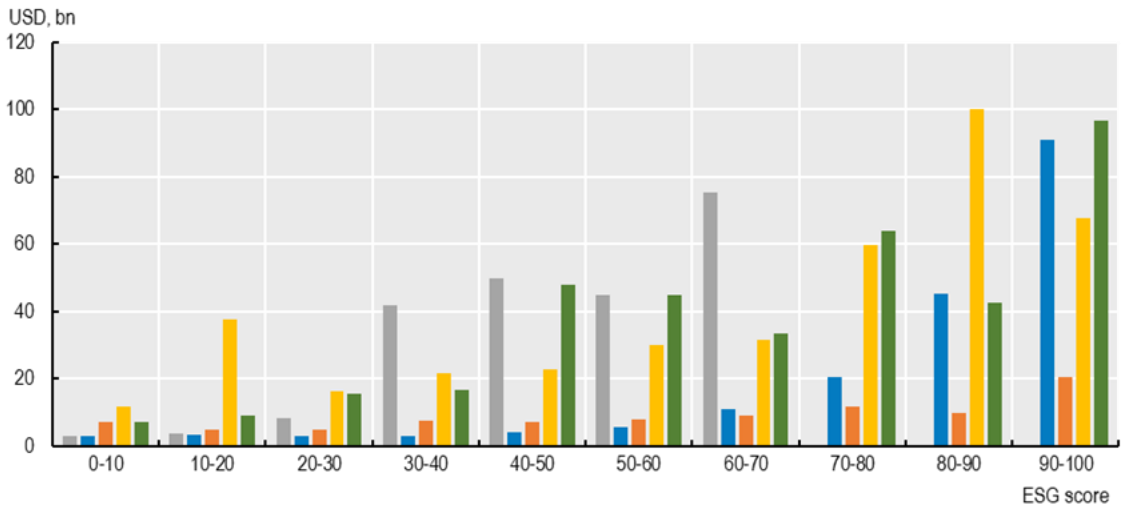


Source: Bloomberg, Fama and French, MSCI, Refinitiv, OECD calculations

Assessing for bias

Market capitalisation has a strong, positive correlation with ESG scores for different providers, except for one. We compare the market capitalisation of different market providers and noticed that, except for one provider, the others have a very strong ESG score to Market Capitalisation correlation. As stated in our hypothesis, ESG disclosure may be a burden for smaller companies, which may be less able to absorb high fixed costs of such reporting, such as through on boarding expertise and taking time to engage to report on non-financial factors. By contrast, large capitalised companies have a certain degree of expertise on disclosures, and may also have the ability to invest in sustainable "opportunities" that would lower carbon footprints and engage in green opportunities. Not to exclude the fact that large companies generally have a higher number of analysts covering them, which often results in more information available.

Figure 20. Average company market capitalisation by ESG score and by different providers, 2019



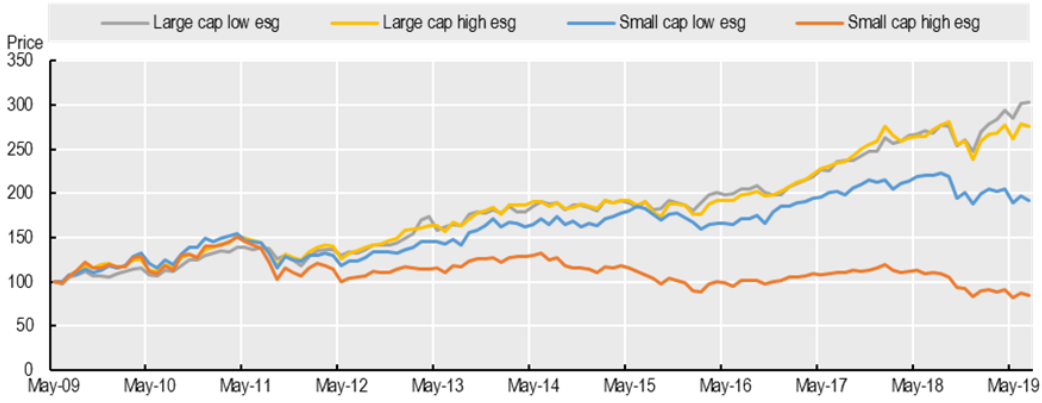
Note: Comparison of five different providers of ESG scores (shown in different colours) in terms of average market capitalization
Source: Bloomberg, MSCI, Refinitiv, OECD calculations

Given the results supporting the difference in market capitalisation of high and low ESG scores found in the previous analysis, we decided to provide a performance analysis dividing our samples in small market capitalised stocks (between USD 300 million and USD 2 billion) and large market capitalised stocks (> USD 10 billion). This allowed us to reduce the bias due to size.

The level of the price indices differs depending on the provider and on market capitalisation. For two providers low ESG scoring, large capitalised companies are the best performers, while for one provider high ESG, large capitalised companies are outperforming their peers.

Figure 21. Small and large market capitalised stocks by top and bottom ESG rating by three providers, price index, base value 100, US, 2009-2019

Provider 1

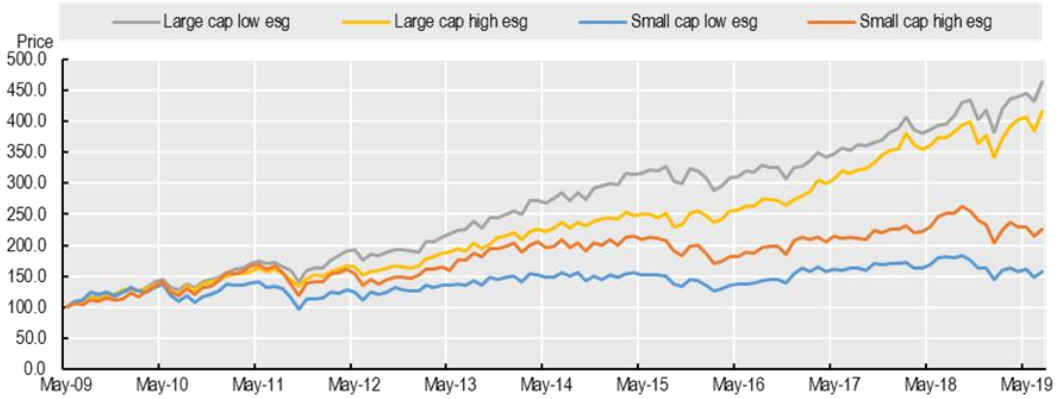


Source: Bloomberg, MSCI Refinitiv, OECD calculations

Figure 22. Provider #2

Source: Bloomberg, MSCI Refinitiv, OECD calculations

Figure 23. Provider #3

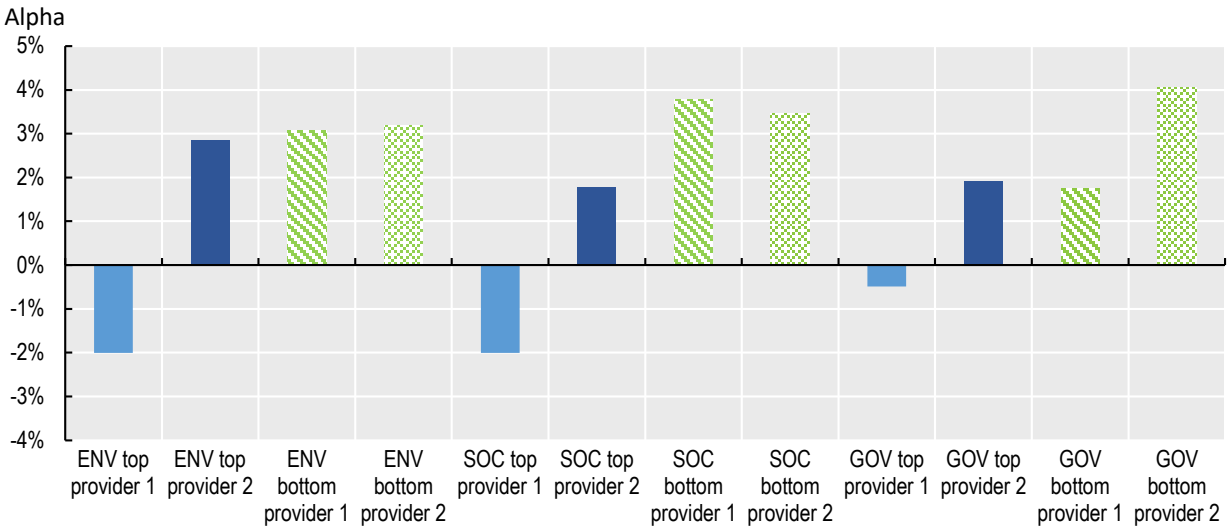


Source: Bloomberg, MSCI Refinitiv, OECD calculations

To deepen our understanding of the drivers of ESG scores we perform analysis aimed at identifying how and if different pillars drive the ESG ratings performances. Noticeably, there is a wide difference depending on the provider chosen.

The results suggest that results are mostly driven by the choice of the rating provider. In this regard, the methodology does not seem to capture E, S or G factors in an appropriate way. The impact of better stakeholder relations on environmental, social and governance issues may take longer time for the benefits to affect the sustainability of financial returns, such as through employee retention and customer loyalty. Notwithstanding the methodological differences, which makes the comparison between providers even more difficult, the report underlines the need for more work in order to determine these influences.

Figure 24. E,S,G pillars top and bottom quintiles comparison between providers, Alpha, 2009-2019



Note: Annualised Alpha
Source: Fama and French, MSCI, Refinitiv, OECD calculations

Portfolio construction & tilting

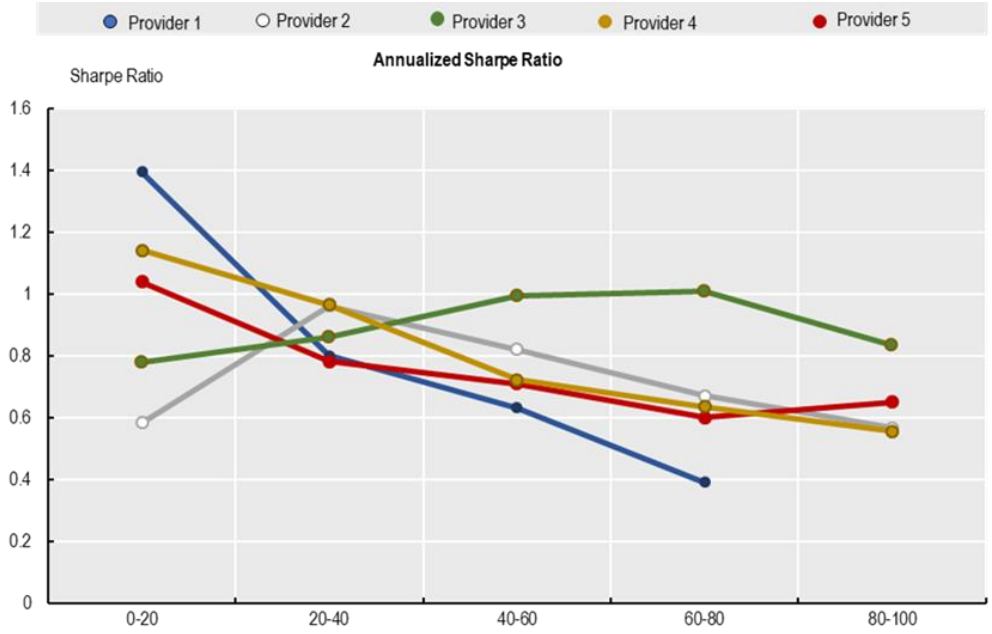
The portfolio analysis we performed showed a generally lower risk-adjusted return for high scoring ESG ratings depending on the region analysed. The findings support our previous analysis, which suggested that the use of different providers will deliver different results in terms of performance. To understand if this happens when taking into account the risk/return relationship we compare how different ESG scores notches perform. Hence, we build different portfolios segregating them in five ranges of scores: 0-20, 20-40, 40-60, 60-80, and 80-100. In this way we are able to compare how tilting towards each level of the rating affects performances.

Risk-adjusted ratio	Description	Equation
Sharpe Ratio	Average portfolio excess return over the sample period by the standard deviation of returns over that period.	(R(p)-R(f))/σ(ep)
Jensen's Alpha	The excess return of an investment relative to the return of a benchmark index, given the Fama and French risk factors.	Alpha=R(p)-[R(f)+β*(R(m)-R(f)) +β*SMB+β*HML+β*RMW+β*CMA+ϵ]
Treynor Ratio	Average portfolio excess return over the sample period, divided by the systematic risk over that period.	(R(p)-R(f))/β(p)
Information Ratio	Portfolio returns relative to the returns of a benchmark compared to the volatility of those returns relative to the underlying benchmark.	Excess Return/Tracking error (p)

Geographic comparisons

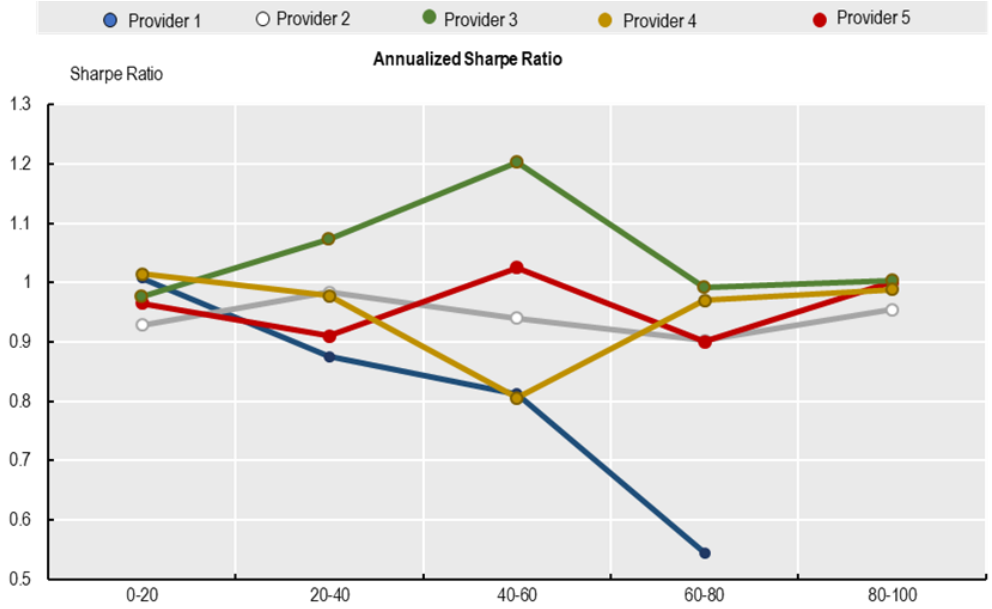
The analysis divides the scores analysed for two different geographical regions: World and USA. The first selection aims to create equal-weighted ESG portfolio based on different providers' data. The findings support our previous analysis of non-outperformance of high ESG scoring portfolios for the world analysis. **The best notch for the world region is the portfolio of ESG scores between 0-20. For the US, the best performing portfolios for Sharpe ratio strongly varies depending on the provider.**

Figure 25. Annualised Sharpe ratio by rating segregation for 5 different providers, World, 2009-2019



Source: Bloomberg, Fama and French, MSCI, Refinitiv, OECD calculations

Figure 26. Annualised Sharpe ratio by rating segregation for 5 different providers, US, 2009-2019



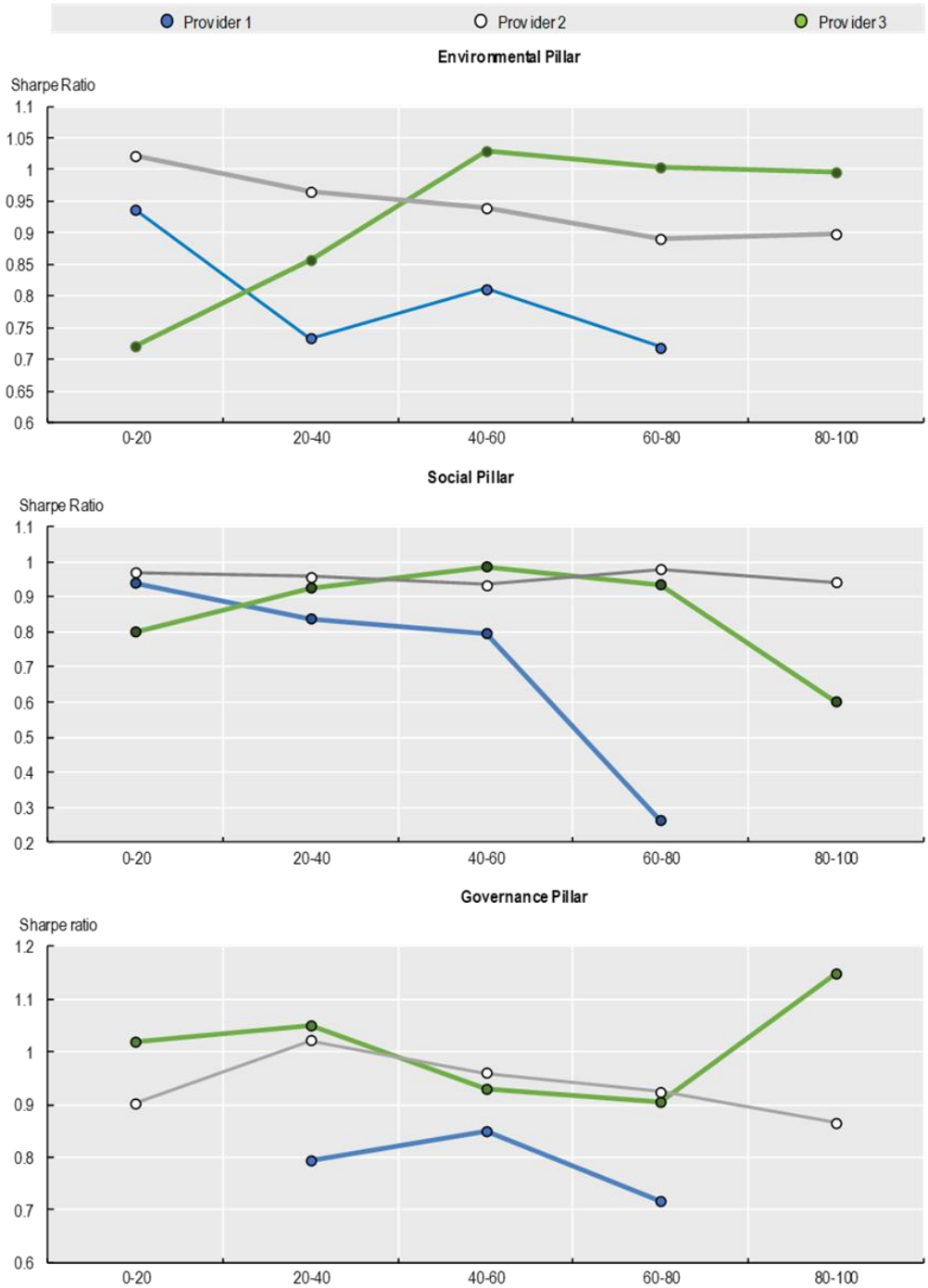
Source: Bloomberg, Fama and French, MSCI, Refinitiv, OECD calculations

Performance by E, S, G Pillars

The analysis of different pillars show different results depending on the provider. Our next analysis aimed at understanding if different pillars have different strengths as drivers of returns, with a focus in the US. We find that the best performers in terms of Sharpe ratio differ depending on the provider. The portfolios are equally price weighted and then divided using the E S or G score.

Equal-weighted Pillar portfolios based on rating segregation:

Figure 27. E,S,G pillars annualised Sharpe ratio by rating segregation and provider, US, 2009-2019



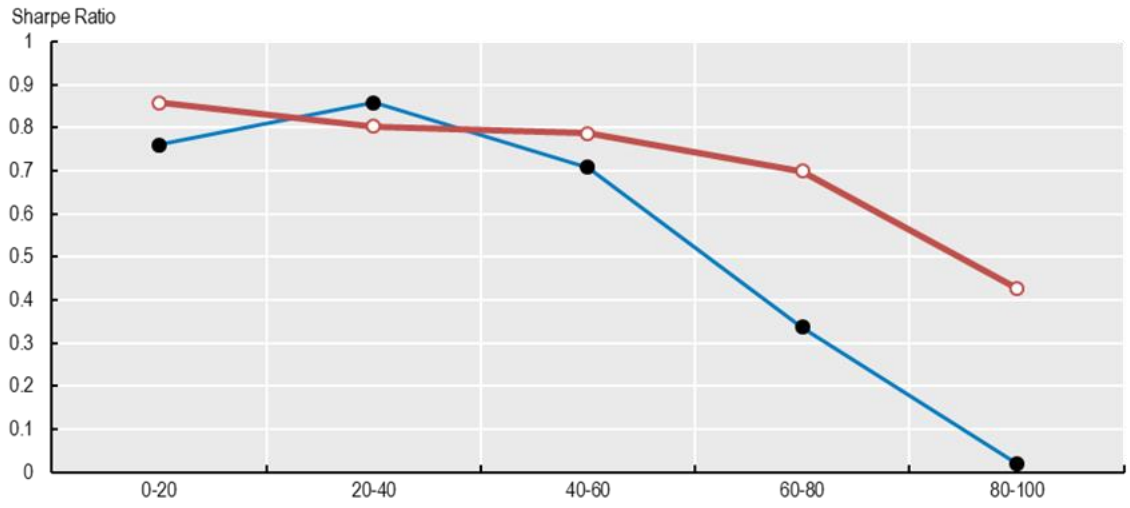
Source: Bloomberg, Fama and French, MSCI, Refinitiv, OECD calculations

US small capitalised companies tilting

Underperformance of high scoring ESG portfolios is generally higher in the case of small capitalised companies, considered as companies with a market capitalisation between USD 300 million and USD 2 billion, in the US. If compared to a portfolio not discriminating the size of companies we can notice that the difference between scores is quite accentuated.

To further assess how small capitalised stocks are influenced by ESG ratings, we analyse a sample based on the US stock market. Using two different providers (as data for other providers was not sufficient data for a complete analysis), we find that the lower scoring portfolio perform better on a risk-adjusted basis (Annualised Sharpe ratio). This, jointly with the fact that small capitalised stocks represent a very small part of the ESG environment, allows us to conclude that these companies sustain a burden for trying to implement and disclose sustainable practices.

Figure 28. United States annualised Sharpe ratio by small capitalised companies ESG segregation for two providers, 2009-2019



Source: Fama and French, MSCI, Refinitiv, OECD calculations

Review of funds' performance

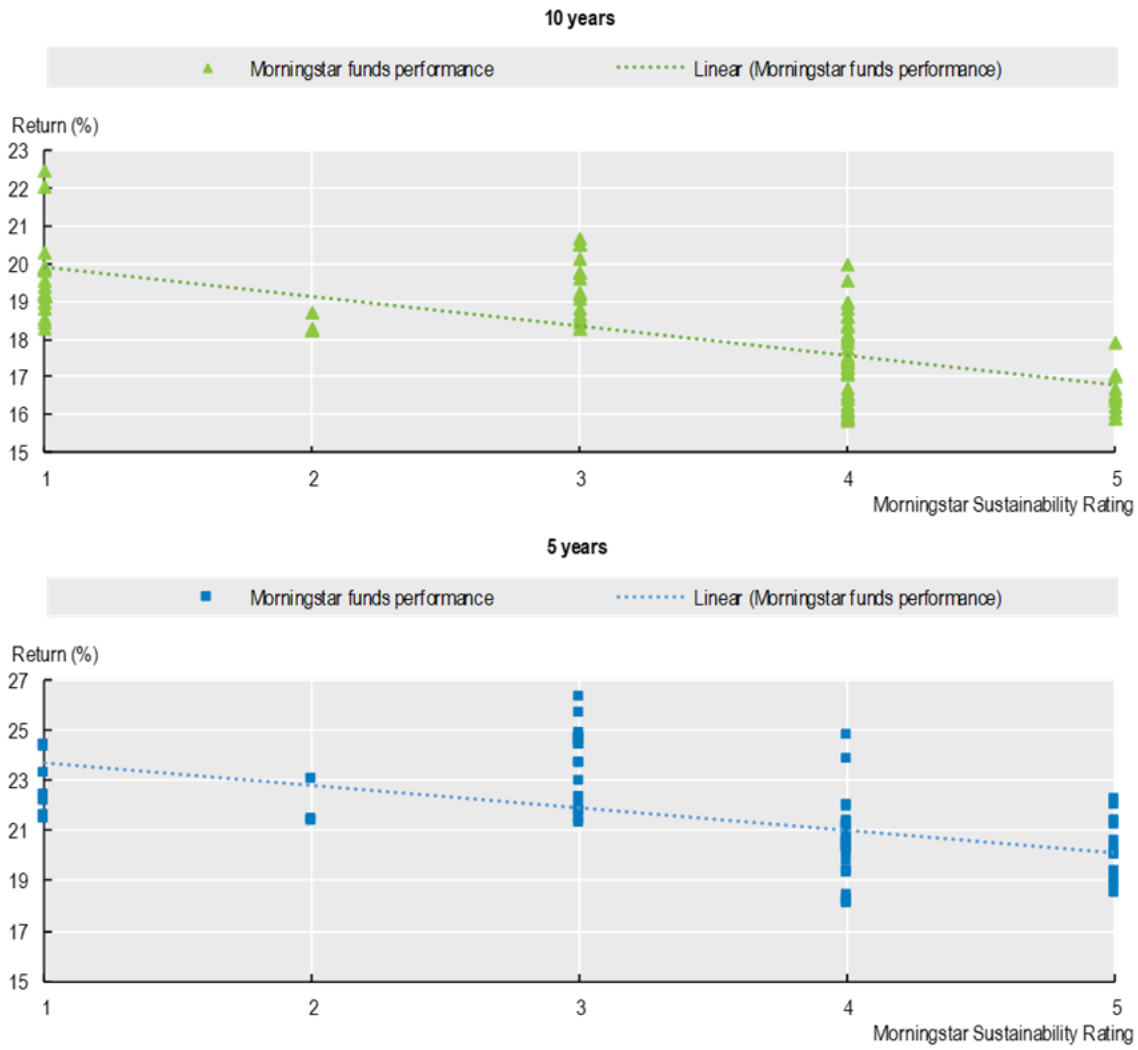
Distinct from indices and portfolios, we sought to assess the extent to which actual investment funds holding high-ESG issuers outperformed funds, which benefit from investment management strategies and decisions about ESG investments[60]. There was little difference shown in the performance of high scoring and low scoring funds, showing for both a wide range of performance. The extent to which performance vary in both categories indicates that different factors, including specific investment strategies and how they are implemented, drive results of funds. There should not be generalisation based only on ESG scoring when looking at the financial returns of funds, suggesting the importance of financial education regarding retail funds.

To perform the analysis, we decided to examine a sample of funds from Morningstar to understand how do ESG ratings affect investors that decide to buy funds. We analyse the best 50 performing funds for the 1, 3, 5 and 10 years annualised returns and compare them to their sustainability rating, such that a Morningstar 5 is awarded to the funds with assets having the highest ESG scores (based on Sustainalytics ratings).

The **results of our analysis of Morningstar funds shows little correlation between sustainability and performances.** What we find is a negative correlation of sustainability and performances of around -0.5 for different time periods (1 and 5 years) and slightly more negative for the 10 years (-0.7). Among other research focusing on fund analysis, Morningstar analyses European Funds' performance by strategy[61]. The research measures the performance of ESG funds compared to traditional ones. This report instead compares high ESG portfolios to low ESG ones.

The results suggest the range of returns is so wide due to factors external to ESG, which do not appears to be the key driver of returns. Particularly important among different things is the investment strategy chosen by the fund. One example is the difference in strategy adopted among the 5 star funds, which are the most sustainable ones. Among the best performers we can find investment strategies more focused on equity – global, US and growth stocks – while among the worst performers the most common strategies relied on investing in bonds, convertible bonds and money market funds. The geography, sector and currency of the investment strategy also play an important part in determining the final result since these can vary depending on which fund is chosen.

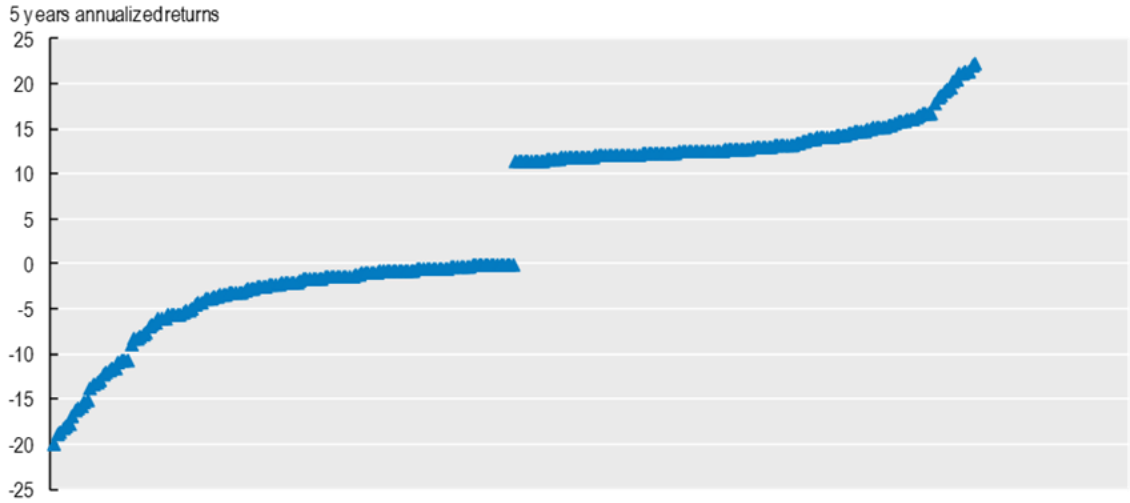
Figure 29. 10 years and 5 years annualised funds' performance to Morningstar sustainability rating, 2019



Source: Morningstar, OECD calculations

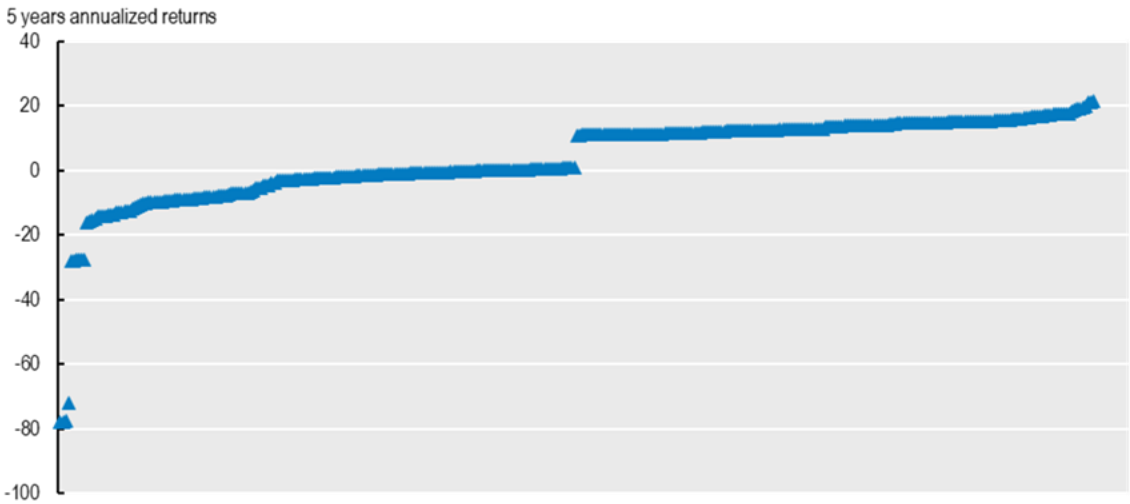
The results of the analysis focused on the best and worst rated funds provide a complete framework where we can notice how the distribution of the returns ranges from about -20% to +20% for both categories, except for some outliers in the lower rated funds. In particular, while the distribution of the funds look similar, when focusing on the low scoring funds we notice they are much more likely to suffer from downside risk, with few funds performing well below -20%. Therefore, we can notice how even highly sustainable funds can have a wide range of performances, similarly to low rated funds.

Figure 30. Distribution of 300 sustainable funds performances (5 stars), 2019



Note: Analysis of the 150 best and worst funds with a 5 star sustainability rating by Morningstar. The returns are 5 years annualised
Source: Morningstar, OECD calculations

Figure 31. Distribution of 300 low sustainability funds performances (1 and 2 stars), 2019



Note: Analysis of the 150 best and worst funds with 1 and 2 stars sustainability rating by Morningstar. The returns are 5 years annualised.
Source: Morningstar, OECD calculations

Box 1. The impact of ESG during Covid-19

Following the spread of the pandemic of Covid-19 in Q1 2020, which put downward pressure on financial markets, sustainable finance market participants observed that ESG funds and indices outperformed traditional investments. In this regard, we provide a brief analysis of the main ESG funds in order to understand the magnitude of this outperformance and if ESG can actually improve portfolios' resilience against tail risks. Different market actors such as Bloomberg, Morningstar and MSCI showed a relative over performance of ESG funds and indices over the standard ones, showing how these instruments lost less value than traditional indices during the downturn. The findings are consistent with the analysis run by OECD staff showing a lower drawdown risk for some ESG indices.

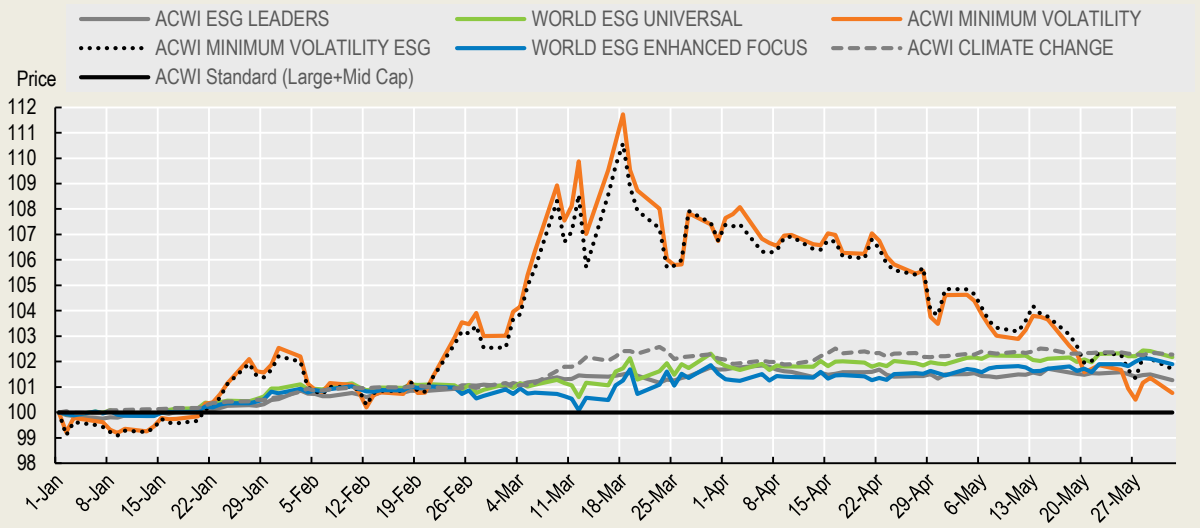
To understand the extent of this lower underperformance, we analyse different indices from MSCI to see how they compare. The graph represents the MSCI ACWI Standard Index with value 100. This is done in order to compare MSCI ESG indices with the MSCI standard index.

The relative performance shows that almost all MSCI ESG indices had lower underperformance than the ACWI standard index during this period. The only standard index that performed better than its ESG counterpart is the MSCI Minimum Volatility Index, which performed better than the ESG counterpart did until end of April because it served as a hedge against the high uncertainty over the extent of economic consequences from the pandemic.

There has been significant discussion over ESG and underlying factors that supports the idea that the ESG impact on performance is due to factors tilting. This means that some ESG funds or indices could have over performed the market given the higher weight of technology and pharmaceutical companies, which have a generally higher ESG rating than energy companies if compared to the parent index. Moreover, some biases such as size, could have contributed to make the funds more value oriented, including more resilient companies in the index or fund.

Given the rapidity with which markets are changing and the unpredictability of how measures to address Covid-19 will evolve, further analysis will be needed to assess the genuine differences between the returns and volatility of ESG and non-ESG indices and funds, the factors that contribute to these differences.

Figure 32. Relative performance of selected MSCI Indexes to MSCI ACWI Index



Source: MSCI, OECD calculations

ESG and policy developments

Regulatory reforms

In light of the rapid growth of assets under management by asset managers utilising forms of ESG practices, national financial regulators have begun to assess a range of practices associated with forms of sustainable finance, with an increasing focus on ESG taxonomies, approaches, and marketing to investors.

Policy-makers are moving forward to strengthen practices with respect to sustainable finance in several ways, including but not limited to the following:

- Taxonomies to clarify meaning;
- Issuer disclosures of E S and G in both corporate and financial services sectors;
- Disclosure of ESG fund products;
- Rating agency and benchmarks' ESG disclosures.[62]
- Policy development across Europe, US and Japan offer some examples of distinct ways in which steps are being considered to make ESG practices more transparency, consistent and resilient.

Europe

Key issues for further consideration relate to: (i) ensuring relevance and consistency in reporting frameworks for ESG disclosure; (ii) opacity of the subjective elements of ESG scoring; (iii) improving alignment with materiality and performance; (iv) overcoming the market bias; (v) transparency of ESG products alignment with investors' sustainable finance objectives related to financial and social returns; and, (vi) public and regulatory engagement.

Over the past several years, the European Commission has assessed practices and implications of sustainable finance. The EC states that sustainable finance generally refers to the process of taking due account of environmental, social and governance (ESG) considerations when making investment decisions in the financial sector, leading to increased longer-term investments into sustainable economic activities and projects.[63]

This follows actions by the EU, as part of their commitment to achieve the United Nation's 2030 Agenda and Sustainable Development Goals and to comply with various international agreements, such as the Paris Climate Agreement, to move ahead on ESG disclosures and benchmarks trough the EU Action Plan on Sustainable Finance. This aims to provide a regulatory framework to support and promote sustainable investment in the EU.

The European Commission's Technical Expert Group on Sustainable Finance has published its final Taxonomy report for screening environmentally sustainable activities. In March 2020, the TEG final report on the EU Taxonomy outlined taxonomies associated with sustainable investment, in ways that would also help clarify aspects of ESG. The EU's taxonomy is expected to facilitate a pan-European ecolabel for financial products.

The European Securities and Markets Authority (ESMA), the EU's securities markets regulator, published its Strategy on Sustainable Finance.[64] The strategy sets out how ESMA will place sustainability at the core of its activities by embedding Environmental, Social, and Governance (ESG) factors in its work. The key priorities for ESMA include transparency obligations, risk analysis on green bonds and ESG investing, including ESG funds and benchmarks, convergence of national supervisory practices on ESG factors, taxonomy, and supervision. ESMA will pursue convergence of national supervisory practices on ESG factors to help mitigate the risk of greenwashing, prevent mis-selling practices, and foster transparency and reliability in the reporting of non-financial information.

Moreover, in mid-2020, ESMA, and European insurance and banking bodies EIOPA and EBA, issued a Consultation Paper seeking input on proposed environmental, social and governance (ESG) disclosure standards for financial market participants, advisers and products. The consultation paper closed on September 1st and it will be consequently finalised and submitted to the European Commission. These standards were developed under the EU Regulation on sustainability-related disclosures in the financial services sector (SFDR), aiming to strengthen protection for end-investors; improve the disclosures to investors from a broad range of financial market participants and financial advisers; and improve the disclosures to investors regarding financial products.

United States

In response to a Senate request, the US Government Accountability Office conducted a review of ESG disclosure and investment practices. Among findings, it noted[65]:

- Selected companies generally disclosed many ESG topics but differences in how companies reported the lack of detail and consistency may reduce usefulness to investors;
- Most companies disclosed on many ESG risk topics, but details varied on how ESG-related risks are managed.

The report also explored various policy options to enhance ESG disclosures, which ranged from regulatory actions to private sector approaches. The report suggested that a key impediment to improved ESG disclosures raised among stakeholders was the lack of consensus around what information companies should be disclosing. As such, it notes that requiring ESG disclosures in companies' regulatory filings rather than across multiple locations—could reduce information disparities between large and small investors, because the information would become more standardised.[66] Furthermore, it noted that some market observers recommended that SEC issue a new rule endorsing one or more comprehensive ESG reporting frameworks. However, other participants preferred that the industry be allowed to develop frameworks, such as based on SASB or GRI reporting frameworks for sustainability.

The SEC is engaging in consideration of ESG issues through several avenues. The GAO Report describes SEC staff's principle-based approach to overseeing public companies' disclosures of nonfinancial information, including information on ESG topics. The GAO Report states that:

Under this approach, SEC staff rely primarily on companies to determine what information is material and requires disclosure in their SEC filings, such as the 10-K filing. SEC officials noted that companies are ultimately responsible for the disclosures they provide to investors, and they have liability for their disclosures under federal and state securities laws. While federal securities laws generally do not specifically address the disclosure of ESG information, Regulation S-K's disclosure requirements for nonfinancial information apply to material ESG topics.

The Division of Corporation Finance has distributed internal review guidance on a few ESG-related topics. This guidance illustrates how existing disclosure requirements may apply to a given topic and offers information for staff to consider when conducting background research and performing filing reviews. In cases where the SEC review team identifies a potential disclosure deficiency related to an ESG-related or other topic, they may issue a comment letter to the company to request additional information or additional

disclosures when necessary. Most review staff with whom we spoke said ESG-related information generally does not rise to the level of comment unless they identify material information during background research that may be relevant to the company's operations.

In addition to internal assessments, SEC has taken steps to identify significant emerging disclosure issues through the creation of the Office of Risk and Strategy within Corporation Finance. According to Corporation Finance officials, this office was created in February 2018 and was allocated additional resources in October 2019 to support its risk surveillance function, in which it identifies emerging issues that may be material for public companies by reviewing press articles, speeches, and information from other sources such as industry experts. According to Corporation Finance officials, once the office identifies an issue that may present material disclosure risks, it may perform research and analysis that can determine whether further internal or external guidance may be necessary. Corporation Finance officials also noted these efforts may result in additional guidance to review staff based on topics identified.

In August 2020, the SEC adopted amendments to modernise Regulation S-K. The amendments to Regulation S-K added for the first time a requirement that registrants disclose, as a separate disclosure topic, a description of the registrant's human capital resources, to the extent such disclosures would be material to an understanding of the registrant's business. In adopting these rules, the SEC noted that the exact measures and objectives included in human capital management disclosure may evolve over time and may depend, and vary significantly, based on factors such as the industry, the various regions or jurisdictions in which the registrant operates, the general strategic posture of the registrant, including whether and the extent to which the registrant is vertically integrated, as well as the then-current macroeconomic and other conditions that affect human capital resources, such as national or global health matters. With respect to metrics or other measures, the SEC noted that, under this principles-based approach, to the extent that a measure, for example, of a registrant's part-time employees, full-time employees, independent contractors and contingent workers, and employee turnover, in all or a portion of the registrant's business, is material to an understanding of the registrant's business, the registrant must disclose this information.

The SEC has also recently requested comments on how existing rules relate to ESG labelling.

In 2020 the SEC issued a Request for Comment related to Rule 35d-1 of the Investment Company Act of 1940 ("Names Rule"), which prohibits funds from using materially deceptive or misleading names.[67] The rule requires a fund with a name suggesting that the fund focuses on a particular type of investment (e.g., "stocks" or "bonds") to invest at least 80% of its assets accordingly. Among a number of other fund names questions, the Request for Comment asked questions related to funds that include terms such as "ESG" and "sustainable" in their name. With respect to these funds, the Request for Comment acknowledges that "funds with investment mandates that include criteria that require some degree of qualitative assessment or judgment of certain characteristics (such as funds that include one or more environmental, social, and governance-oriented assessments or judgments in their investment mandates (e.g., 'ESG' investment mandates)) is growing and may present challenges regarding the application of the Names Rule. Among other things, the SEC notes that some funds appear to treat terms such as 'ESG' as "an investment strategy (to which the Names Rule does not apply) and accordingly do not impose an 80% investment policy, while others appear to treat 'ESG' as a type of investment (which is subject to the Names Rule)."

Japan

Japanese financial authorities are paying greater attention to ESG considerations as it relates to governance and sustainable finance.

As early as 2018, Japan's Ministry of Economy, Trade and Industry (METI) created a label to identify companies that are reporting on ESG performance, as part of efforts to improve corporate disclosure and improve the long-term investing landscape. In July 2019, METI issued a report for promoting ESG investments by taking advantage of SDG business management, which included examining and

streamlining ESG investment performance, and review of how to facilitate market structures to stimulate long-term investment.

In 2020, Japan's Financial Services Agency has revised its stewardship code of conduct, including with respect to sustainable finance. It redefines "stewardship responsibilities" and explicitly instructs institutional investors to consider medium- to long-term sustainability, including ESG factors, according to their investment management strategies in the course of their constructive engagement with companies in which they invest. The revisions call on institutional investors to engage in dialogue with investee companies and clearly state how they will incorporate ESG considerations into their investment strategies.[68]

Also, according to officials from Japan's Financial Services Agency, listing requirements on the Tokyo Stock Exchange have helped change how Japanese companies disclose ESG-related information and engage in proactive risk management.[69] To this end, the Japan Exchange Group and Tokyo Stock Exchange published the Practical Handbook for ESG Disclosure.[70] Key elements of the approach include: (i) ESG issues and investment; (ii) connecting ESG issues to firm strategy; (iii) Disclosure oversight and implementation; (iv) information disclosure and engagement.

In this manner, a number of additional jurisdictions are taking steps to address perceived concerns about the clarity of ESG frameworks, among asset managers, retail investors and other market participants, to help strengthen market resilience and integrity.

Considerations to strengthen global ESG practices

The results of OECD staff assessment of ESG practices and quantitative analysis of its performance, suggest that, notwithstanding progress to enhance data availability and analysis, further efforts by policy-makers, financial market participants and other stakeholders will be needed to strengthen ESG practices. Given the work in progress across regulatory bodies and financial markets is progressing in varying speeds and directions, the following high-level considerations would help bring global consistency to allow various constituencies to focus their efforts within and across markets, to ensure market fragmentation does not result. In doing so, financial markets are more able to efficiently support long-term value and sustainable economic growth.

The considerations reflect 5 key areas, including: (i) consistency, comparability and quality of core metrics; (ii) ensuring relevance of reporting through financial materiality; (iii) levelling the playing field of ESG disclosure and ratings across large and small issuers; (iv) transparency and comparability of scoring methodologies of established ESG ratings providers and indices (v) ESG product labelling and communication.

Ensuring consistency, comparability and quality of core metrics in reporting frameworks for ESG disclosure

Notwithstanding substantial efforts to improve ESG disclosure frameworks in recent years, the reporting of ESG factors still suffers from considerable shortcomings with respect to consistency, comparability and quality that undermine its usefulness to investors.

While there are valid reasons for different reporting frameworks depending on preferences of investors and the evolution of data availability[71], greater consistency, comparability and quality could be achieved by greater attention to levels of core metrics that apply to all issuers, and tiers of metrics within sectors and industries.

First, irrespective of industry, *core metrics* that form the core reporting of E, S, and G should be confirmed and standardised, so that they can be promoted by exchanges and framework providers, and utilised by

ESG raters and end-users. Quality could be achieved in this area by focusing on maximising data availability for these metrics, across jurisdictions and by large and small issuers alike.

Second, additional sector-specific metrics within each pillar of E, S, and G subcategories should be developed to capture specific elements of E, S, and G that are most relevant to the sectors. In this respect, the way in which environmental risks are captured in energy and financial sectors would be quite different, so sector-specific tailoring would be essential for relevance. Frameworks might benefit from indicating trade-offs associated with completeness vs availability, suggesting how sector-specific metrics might further develop over time as more consistent data becomes available.

Third, industry-specific factors that could shed additional light could be considered. For example, the way that financial industries are regulated (banks, insurance, asset managers, and security exchanges) differ considerably, so differences with respect to governance might be important to capture. These gradations should help maximise the relevance of metrics to satisfy the decision-relevant needs of investors.

Some industry participants have noted that a lack of consistent disclosure frameworks at the international level hinders comparability. While progress is being made at the SASB, GRI, TCFD, and other related framework providers, there is not currently a universally accepted *global set of principles and guidelines for consistent and meaningful ESG reporting*. As such, the lack of accepted data-reporting standards suggests investors cannot readily compare or combine assessments when development portfolios with multi-jurisdiction exposures.

Ensuring relevance of reporting through financial materiality over the medium and long-term

The mixed evidence regarding the relative performance higher ESG-rated portfolios against traditional portfolios raises the need for more thorough assessment of how financial materiality is captured in ESG data and ratings.

Currently, the various ESG reporting and ratings approaches generally do not sufficiently clarify either financial materiality or non-financial materiality (e.g. social impact), so investors are not currently able to get a clear picture of whether the measurements suggest a net positive or negative effect on financial performance.

An example of a financial material framework for ESG reporting is the materiality map developed by SASB, which emphasises the importance of financial materiality and embeds its importance at the industry level. SASB notes that it prioritises and maps issues that are reasonably likely to directly impact the financial condition or operating performance of a company and therefore are most important to investors.[72]

Financial materiality over the medium to long-term may be influenced by societal values related to environment, governance and social issues. For example, customer and employee loyalty to well-run, socially responsible companies help business maintain consistent revenue streams and retain talent and intangible assets. Attention to climate risks may improve firms' resilience against growing physical risks as a consequence of global warming. As such, policy-makers and market stakeholders should give more attention to the types of non-financial reporting that can help investors make decisions about longer-term financial materiality.

With these points in mind, it is imperative that ESG reporting, rating, and investing evolves to:

- Prioritise relevance of metrics based on financial materiality;
- Clarify how ESG financial materiality differs across sectors and industries, to ensure that chosen core and sector/industry metrics capture the important components of materiality from E,S, and G issues;
- Give consideration to the relative weighting of metrics by financial materiality, to help shape ESG assessments and scores;

- Support this, where possible, by explaining the temporal nature of materiality, and whether the material impact is more likely to be affected over the near, medium or long term.

This last step would benefit from significant contributions from issuers, investors, academia and policy organisations to assess the extent to which forward looking ESG factors might and do affect financial materiality, how they affect materiality (through which channels, benefits and risks). Over time, ESG frameworks should be refined to incorporate a more informed understanding of what counts and why.

Levelling the playing field between large and small issuers related to ESG disclosure and ratings

Research by the OECD and several external sources suggests that there is an ESG scoring bias in favour of large-cap companies, and against SMEs. This burden, which appears to be quite substantial for SMEs, may be due in part to the ability of large firms to dedicate more resources to the reporting and communications functions, which can help advance the firms' capabilities in producing data and metrics that conform to the needs of ratings firms and a plethora of investors. However, this bias, and the hurdle of unlocking this useful ESG information from smaller companies, poses a market inefficiency to the extent it affects both relative cost of capital and corporate reputation. This inefficiency will need to be improved? to ensure that SMEs across OECD countries have access to low-cost financing in an efficient manner.

There is some evidence that this bias also exists with respect to ESG scores among Emerging Market issuers. As there is lower ESG disclosure practice in parts of EMEs, some companies with sound practices with respect to environmental, social and governance issues could be penalised because they have not yet engaging in disclosing their assessment of ESG risks and opportunities in a manner consistent with emerging good practices. In this respect, while different methodologies to assess corporate value are welcome, the lack of consistency and transparency of core metrics is creating unnecessary reporting burdens and inefficiencies in terms of the relevance of disclosure.

To overcome this implicit bias, standardisation of the use of core metrics and sector/industry specific metrics needs to occur. Moreover, this should be guided by prioritisation based on financial materiality, so that SMEs in particular can prioritise their data collection to develop metrics that are most decision-relevant to equity and debt investors. These steps should help level the playing field, to eliminate the gap between large and small firm's ratings over time.[73] To this end, the NASDAQ ESG 2.0 reporting guidance offers a useful guide as to specific information categories metrics, and the frameworks that utilise such metrics, to help smaller companies provide a standardised approach to ESG reporting.[74] Such types of practical guidance – based on financial materiality and prioritisation -- may serve as a foundation from which to provide more robust standardised reporting to help level the playing field.

Promoting the transparency and comparability of scoring and weighting methodologies of established ESG ratings providers and indices

Given the abundance of ESG information being disclosed through a variety of disclosure frameworks from exchanges and framework standard setters, ESG ratings providers can play a valuable role through structured assessments, based on rigorous methodologies that allow for consistency in ratings and have the potential to enhance comparability. As ESG practices and concepts over financial materiality are still at a relatively early stage of development (e.g. relative to credit ratings), the specialisation of ESG raters across many thousands of issuers can extract value from ESG disclosures through the ratings process and outputs. Moreover, some of these rating providers have also developed suites of ESG indices to empower investors to reallocate portfolios in a manner tilted toward higher ESG-scored issuers. As these analytical and benchmark products become mainstreamed, appropriate and effective functioning of these products as understood by market participants will be critical to maintain market integrity and trust.

However, at this stage, evidence provided in this report through OECD staff analysis and other research indicates that major ESG raters' outputs give rise to several challenges. First, even if ESG ratings were

internally consistent and rigorous, the outputs across major providers show a very low degree of correlation as to what constitutes a high or low-scoring ESG rating. Also, the wide differences in factor subcategories below the E, S, and G, the number of metrics, their weighting, and subjective judgment that contribute to score outputs undermines comparability. Furthermore, the methodologies of rebalancing to achieve best-in-class can further obfuscate the comparability of ratings across industries, even for one provider. Lastly, while recent progress has been made to improve transparency and investor education, greater transparency is needed to understand what drives scores, how they compare, and the extent to which they seek to explicitly align with financial materiality.

Therefore, there is more room for efforts in the following areas:

- Further explain the *methodological frameworks and their choice of specific subcategories and metrics*, in light with efforts of disclosure regimes (discussed above) to focus on core metrics, and sector and industry specific metrics. Where metrics are quantified, or binary, or are judgement-based, explanations should be given to consider the quality of information. Moreover, where metrics relate to opportunities (such as renewables strategies), further explanation is needed to document the extent to which the actual implementation of forward-looking plans are verified over time.
- Disclose the *weightings of metrics to arrive at pillar scores, and the re-weighting to arrive at best-of class rebalancing*. Methodologies should describe the rationale for choices of metrics and weightings and, where appropriate, why commonly used metrics in ESG disclosure were not utilised. Also, where best-in-class rebalancing occurs, offer absolute (pre-rebalancing) and relative scores so investors be able to see the net impact of the rebalancing. Moreover, where elements beyond these factors influence scoring – namely, subjective judgment – methodologies should give guidance as to how and why this occurs, on what basis, and efforts to ensure consistency across ratings and across rating cycles.
- Clarify how this relates to *explicit financial materiality*, or implied long-term materiality by behaving in a responsible manner that can improve reputation and financial standing over the long-term. In this manner, where possible, the ratings methodologies should articulate the providers view of the nature of financial materiality, and how this has influenced the choice and weighting of metrics. Likewise, the use of metrics that are of growing importance for environmental materiality, such as carbon footprint and waste, and social values should be clarified. Prominent ESG raters appear to be aware of the need to strengthen the alignment with financial materiality, where appropriate, and to make their methodologies more transparent and comparable.[75]
- Promote even greater transparency and investor education about methodologies and results of portfolio composition relative to traditional market portfolios. To strengthen the impact of ESG ratings on the resilience of financial markets, there is room to further strengthen the transparency of methodologies and productive interactions with ESG rating agencies.[76]

Appropriate labelling and disclosure of ESG products to adequately inform investors of how ESG considerations are used in the product, using comparable and consistent metrics that align with financial materiality, to allow market participants to make investment and voting decisions in line with their investment objectives and risk tolerance.

Staff analysis of the wide dispersion of financial performance of funds that comprise high and low ESG portfolios suggests that a number of factors, including and also in addition to ESG considerations, are driving the differences in returns. They include investment objectives and risk tolerance, strategy, portfolio manager decisions and trading execution among others. In this respect, it would be very difficult for all but the most sophisticated investors – even with the benefit of transparency and comparable data – to assess the ESG contribution to portfolio returns relative to many other factors. The interaction between ESG approaches and strategy are complicated further when strategies – such as impact or momentum – may

exploit inefficiencies in ESG investing to maximise returns. For example, the strategy to invest in low-rated ESG companies (reverse tilting) and then to engage with management to improve ESG practices and financial returns has shown promising results. Yet, this portfolio would initially look very different in asset selection and weighting than a high-ESG portfolio that simply maintains investments in the highest rated assets. In this manner, understanding how ESG approaches interact with fund investment styles and strategies, and return attribution, remain enigmatic. Therefore, labelling and disclosure are critical to ensure investors have adequate information to make critical decisions about investment and voting.

Moreover, while not the focus of this report, a growing portion of investors seek to align portfolios with socially responsible business practices. Irrespective of whether such investors choose to pursue a holistic strategy to achieve long-term value, or simply wish to balance adequate financial and social returns, their ability to make informed decisions would depend on the disclosure of ESG metrics that align with such standards, ranging from lowering carbon intensity to gender balance on corporate boards to responsible conduct in supply chain management.

As such, it is imperative that labelling and disclosure of ESG funds clearly provide quantitative and qualitative information so that investors can make informed choices. Considerations for labelling and disclosure would include the following:

- Use of consistent lexicon for ESG practices and approaches.
  - This could be supported by an ESG taxonomy that sets guidepost for a global lexicon for labelling and disclosure in a consistent and comparable fashion, yet noting that terminology may differ across jurisdictions given the different practices and regulatory initiatives.
- Clarify how ESG approaches interact with fund types and strategies.
- Explain how the chosen ESG approach has affected the fund composition by sector and industry relative to the benchmark index from which the fund performance is assessed.
  - ESG asset exclusion and portfolio tilting can be achieved to various degrees, which has a material impact of returns, volatility, industry or asset concentration, and other risks. Explaining how ESG exclusion and tilting contributes to these factors would help investors judge whether the fund aligns with their own investment (financial, and/or social) return objectives.
  - In fixed income funds that utilise credit ratings to determine allowed assets or asset composition, compare how ESG affected the overall asset allocation and credit risk, and expected returns relative.
  - Where ESG integration is embedded in the decision-making of assets, explain how the ESG assessment contributed to the asset allocation associated with the fund's investment strategy.
- Explain how the ESG approach impacted fund performance relative to the performance of stated benchmark or ESG-neutral portfolio of the same strategy.
  - In this respect, simply stating that the use of ESG criteria may affect the fund's investment performance relative to similar funds that do not use ESG criteria is insufficient to adequately inform investors.
  - If the ESG fund performance is compared to stylised ESG benchmark from a third party provider, the fund disclosure should include information on how the ESG benchmark differs from the non-ESG similar benchmark (or make reference to the product's own disclosures, so it is clearly accessible to investors).

In light of these issue, more transparency is be needed to ensure that funds are disclosing the full spectrum of performance criteria in terms of past returns and risks, and the extent to which this is due to portfolio decisions that could compromise absolute or risk-adjusted returns relative to a suitable traditional index, based at least on past performance.

Greater stakeholder engagement at the global level

An implicit theme throughout this report is that improvements to ESG practices will require greater global engagement among policy-makers, the financial industry, end-investors, and other stakeholders that are helping to shape ESG practices. While progress has been made to develop ESG practices by several ESG framework providers, and by various regulators, it has accentuated the persistence of metric inconsistencies and lack of comparability risks. More efforts are needed at the global level to ensure that ESG practices further progress in a manner that does not give rise to market fragmentation, and upholds investor confidence and market integrity.

In this regard, there is scope for considering how the OECD can further facilitate awareness and discussion of challenges and solutions related to ESG investing, including with respect to the need for guidance on improving consistency and transparency, alignment with materiality, frameworks, and good practices of benchmark and fund reporting.

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ESG financial ecosystem

Further assessment of the ESG financial economist warrants a review of various other bodies and organisations that continue to influence the development of ESG metrics and methodologies. A number of stock exchanges have provided guidance on ESG disclosures. The FASB, the National Institute of Investor Relations, and many bodies that focus specifically on one of the themes (E, S, or G) help shape this through discussions with practitioners. Other players also provide such guidance, to help ease the disclosure process.

These framers and influencers are highlighted because, they (and others not mentioned) have both advanced the awareness and policy relevance of the use of information and data that is material for investors to consider for long-term investing, for both social and financial returns. As well, the reporting standards are still considered a work in progress, as there is not sufficient international harmonisation such that assessors – be they raters or investors – do not have an agreed upon approach for what metrics and submetrics related to ESG approaches are sufficient to enhance shareholder and creditor value. This differs significantly from the assessment of credit rating, for example, where the key metrics for ratings has been well-established and there is a wide body of empirical literature demonstrating the alignment of metrics, criteria, ratings, and incidents of downgrade and default. It is for this reason – predictability – that credit ratings have been relied upon for decades, even despite some periods where the predictability has underwhelmed markets (e.g. during the Global Financial Crisis, particularly with respect to structured products that had much less track record of predictability).

Guidelines and principles. Without purpose, frameworks would be little more than a shell. While not the focus of this piece, the underlying driver of such frameworks are standards and principles that are grounded in a broader concept of sustainability with respect to societal values related to the environment, human rights, gender equality, and other related issues. They are provided by ethical standard setters, which are distinct from standard setters of industry practice, such as disclosure. On this topic, examples of these standard setters include international organisations such as the OECD, the United Nations, and the World Bank. has a number of standards relevant to the broader ESG effort.

The OECD has several standards that are embedded, explicitly or implicitly, in the ESG process:

OECD Due Diligence Guidelines for Responsible Business Conduct;

OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas;

OECD Principles for Corporate Governance; and,

OECD Guidelines for Multinational Enterprises.

These responsible investment guidelines collectively provide guidance to companies and investors with how to operationalise theme to ensure that minimum standards related to human rights, fair treatment of workers, supply chains, gender diversity, among many related issues. Also, the principles for corporate governance give high level guidance to oversight authorities and issuers evaluate and improve the legal, regulatory, and institutional framework for corporate governance, with a view to supporting economic efficiency, sustainable growth and financial stability. For example, the principles explicitly state that in addition to their commercial objectives, companies are encouraged to disclose policies and performance

relating to business ethics, the environment and, where material to the company, social issues, human rights and other public policy commitments; and, that issuers should disclose foreseeable risks with respect to the environment.[77]

Also, principles offered by the United Nations are being used to help align long-term shareholder value with societal values, where investment objectives chose to incorporate them. Such principles include

UN Global Compact, which includes ten principles that draw from UN principles on Labor, Human Rights, Environment, and Anti-corruption;

UN Sustainability Development Goals (SDGs), are a set of 17 global goals focused on sustainable-development themes ranging from poverty, equality, education, climate change, infrastructure, land and water. These factors are gaining traction as an organising framework for global asset owners to utilise for approaches to thematic investment.

The Range of Exchange Intervention on ESG

Low (35 exchanges)	Medium (40 exchanges)	High (12 exchanges)
• No action • Promote ESG "best practices"* • Participate in exchange/investor dialogues* • Join working groups* • Publicly support ESG frameworks* • Offer awards	• Create stakeholder & company dialogue* • Create indexes, financial products (green bonds)* • Create voluntary ESG guidance* • Tiered disclosure recommendations • Report or explain	• ESG-related listing rules • ESG-tiered listing fees • Delisting for ESG noncompliance • Publication of ESG reporting data • Audit enforcement • Requiring more sophisticated reporting standards (IIRC)

*Nasdaq actions to date

Some of these principles that incorporate societal values, such as the OECD Guidelines for Multinational Enterprises and the UN Global Compact, form part of the widely used metrics in ESG investing, whereas others such as the UN SDGs, are meant to be aspirational goals that are part of impact investing.

Bodies that set rules and requirements. ESG facilitators include those bodies who engage with market participants and set expectations, guidelines and rules for ESG disclosure. Exchanges are important actors in this regard, particularly where they are now providing specific guidance on ESG disclosure, including listing rules. At the current time, a number of regulators serve as facilitators, and in some jurisdictions, particularly in the European Union, taxonomies and specific guidance are being developed that would elevate such roles to more formal standards. As it is not the purpose of this report to assess the role of regulators or regulation being developed regarding ESG approaches, the report will not reflect upon recent efforts by national, supranational regulators and international bodies of regulators to formalise guidance on ESG approaches.

ESG framing, guidance and oversight. Loosely defined, ESG framing, guidance and oversight includes an array of enabling actors that influence and help broadly define forward-looking, non-financial reporting. They do so by determining what is material to the long-term sustainability of the business, and also its interaction with broader issues of sustainability aligned with the global economy and financial system, the environment, and society, including social values such as human rights. These such institutions include, at a minimum, a web of issuer information disclosure bodies at national and international levels; exchanges, self-regulating bodies, and related industry associations, oversight authorities, such as markets regulators, and bank and pensions supervisors; and, international organisations that set standards and guidelines regarding responsible investing and sustainability goals. While the many institutions that engage in the ecosystem beyond issuers and investors can help bring relevance, substance and different perspectives, the current state of development merits further attention to ensure this potential benefits are achieved in practice.

Examples of **disclosure organisations** include:

The Sustainability Accounting Standards Board (SASB), which provides guidance to guide materiality of metrics across industries, which in turn are used by ESG assessors.

Global Reporting Initiative (GRI), an international independent standards organisation, provides specific standards of reporting key sustainability metrics by industry, based on engagement with a host of stakeholders and standard setters on sustainability issues.

International Integrated Reporting Council (IIRC) is a global coalition of regulators, investors, companies, standard setters, the accounting profession, academia and NGOs. The coalition promotes communication about value creation as the next step in the evolution of corporate reporting.

The Taskforce for Climate-related Financial Disclosures (TCFD), under the auspices of the Financial Stability Board, developed a set of key recommendations for the disclosure of climate-related financial disclosures considered to be material to investors and lenders.

Climate Disclosure Standards Board (CDSB) is an international non-profit organisation working to provide material information for investors and financial markets through the integration of climate change-related information into mainstream financial reporting.

International Corporate Governance Network (ICGN) is to promote effective standards of corporate governance and investor stewardship to advance efficient markets and sustainable economies world-wide.

The Corporate Reporting Dialogue (CRD)[78], is a set of 8 providers of standards for corporate reporting, and includes traditional financial reporting bodies and those that address non-financial disclosure, such as several bodies listed above.

Methodology

The efficient frontier: Markowitz Modern Portfolio Theory

The Markowitz Portfolio optimisation model tries to identify the best complete portfolio by allocating to the optimal risky portfolio and the risk-free asset. It does so assuming that investors are risk averse and that, given equal returns, an investor would prefer the one with less risk. The portfolio construction is based on two phases: The first step is to identify the minimum-variance frontier of risky assets. The second part is to search for the capital allocation line with the highest Sharpe ratio.

The frontier represents the lowest variance that can be attained for a given portfolio expected return. Assets that lie inside of the minimum variance frontier are inefficient. The upper part of the Minimum Variance Frontier is the Efficient Frontier, given the fact that they have a higher expected return for the same level of risk of the lower part of the frontier. Diversification plays an important role as the sole way of reducing risk.

Some assumptions are necessary for the model to work:

1. No transaction costs and no taxes
2. An investor has a chance to take any position of any size and in any security. The market liquidity is infinite and no one can move the market.
3. Investors are rational and risk adverse. They are aware of all the risk contained in investment and actually take positions based on the risk determination demanding a higher return for accepting greater volatility.
4. The risk-return relationships are viewed over the same time horizon.
5. Investors share identical views on risk measurement. All the investors are provided by information and their sale or purchase depends on an identical assessment of the investment and all have the same expectations from the investment.
6. Investors seek to control risk only by diversification.

An important part of the theory regards constraints. Some investors could be subject to limitations, for example an institution could be prohibited from taking short positions in any asset, even thou it is not the only kind of constraints. An efficient frontier built subject to extra constraints will offer a Sharpe ratio inferior to that of a less constrained one. Investors should be aware of this cost and should carefully consider imposing constraints.

In order to compute the efficient frontier we selected different ESG and non-ESG indices by different providers (as reported: MSCI, STOXX and Thomson Reuters) among the most prominent ones. We then compute the monthly price returns ((P2-P1)/P1) for each index and calculate the average return and the standard deviation. We then create a Variance-Covariance matrix using the different indices. This allows us to identify the best and worst indices in terms of Sharpe Ratio and to create the efficient frontier.

Fama & French 5 factors model

First, we gather monthly price returns for companies that have an ESG score in May 2019 through the Thomson Reuters database for the past 10 years (July 2009 to May 2019) for different regions. All data are collected in US dollars.

Second, we divide the companies using a best-in-class approach and selecting the top and bottom 20% companies with an ESG rating in 2019. We then retrieve the monthly price returns ((P2-P1)/P1) of each company from Datastream (Refinitiv). The following step is to average the returns among the bucket of companies (representing our ESG portfolio) that we have collected. This allows us to have returns of a portfolio comparable to a benchmark.

Third, we download the data for benchmarking from the Kennet R. French website. For example, when analysing the US region, we download the 5 factors data for the US. The dataset provides five columns of raw data. The first three are Market, Small minus Big (difference between the returns of small cap firms and large cap firms) and High minus Low (difference between the returns of high book-to-market firms and low book-to-market firms). The last two were added afterwards and are Conservative minus Aggressive (difference between the returns of firms that invest conservatively and firms that invest aggressively) and Robust minus Weak (difference between the returns of firms with robust (high) and weak (low) operating profitability).

We then run a regression analysis to identify the significance of the different factors taken into account. The equation is the following:

$$\text{Alpha} = R(p)-[R(f)+\beta*(R(m)-R(f)) +\beta*SMB+\beta*HML+\beta*RMW+\beta*CMA+\epsilon]$$

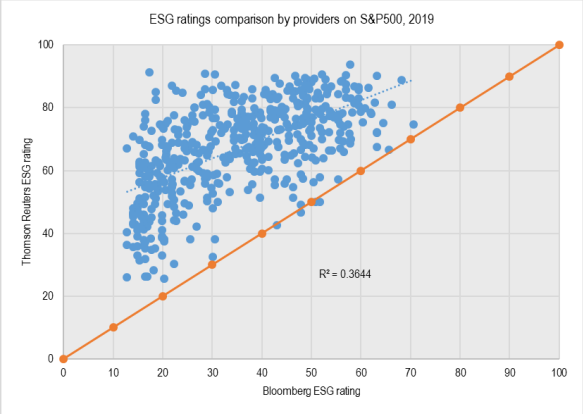
The intercept in the graph represents the Jensen's Alpha after taking into account for the risks identified by the other factors. This allows us to extract a risk-adjusted Alpha. We do the same for the single pillars: E, S and G to measure how they each perform. We chose the US as main market because of the large coverage of ESG ratings in the region.

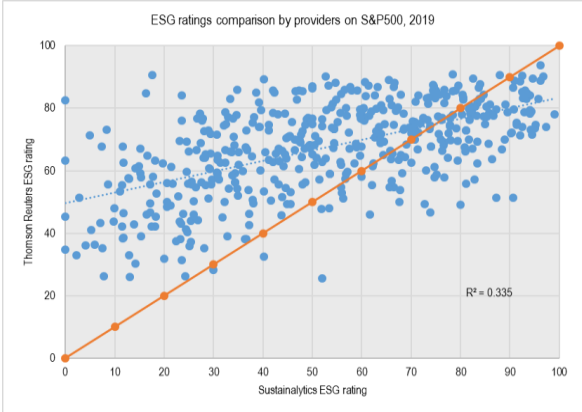
Portfolio analysis

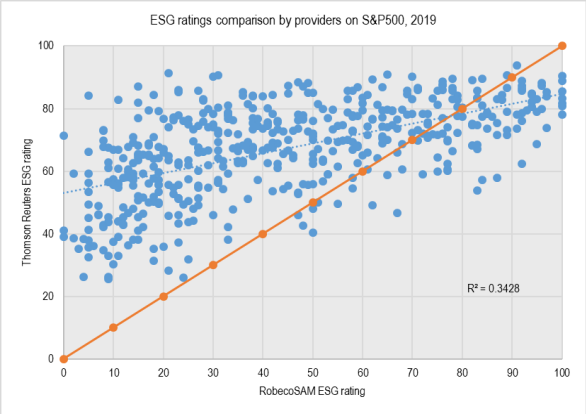
Regarding the portfolio analysis a similar data gathering approach is adopted. We collect price data from Datastream for each company with an ESG score in 2019. Then we divide the companies, but instead of using a percentile approach, we rather divide them based on their current ESG score. This creates five buckets of companies (five portfolios) with ratings from 0-20, 20-40, 40-60, 60-80 and 80-100. This was done in order to have a clearer view of how each bucket would perform following the Fama and French analysis. We then compute the average return of each portfolio and after subtracting the risk-free rate we divide it by the standard deviation of the portfolio. This allows us to compute the Sharpe Ratio, a measure of the performance of the portfolio analysed.

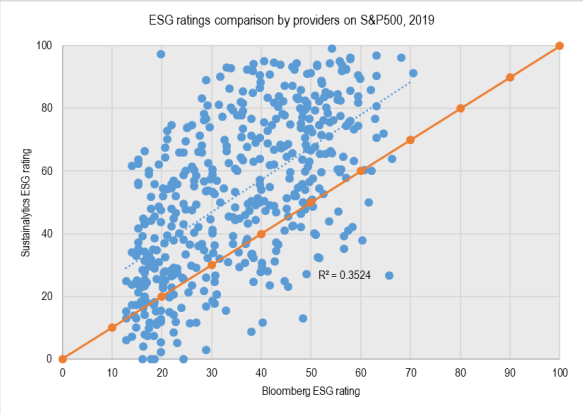
ESG Rating by provider

ESG rating by Thomson Reuters and Bloomberg on companies that are part of the S&P500 in 2019.





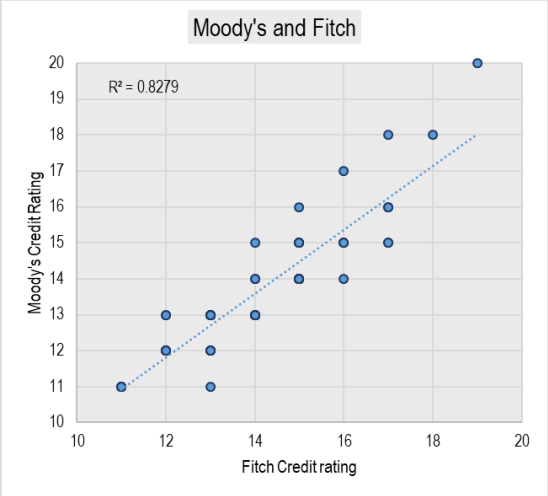


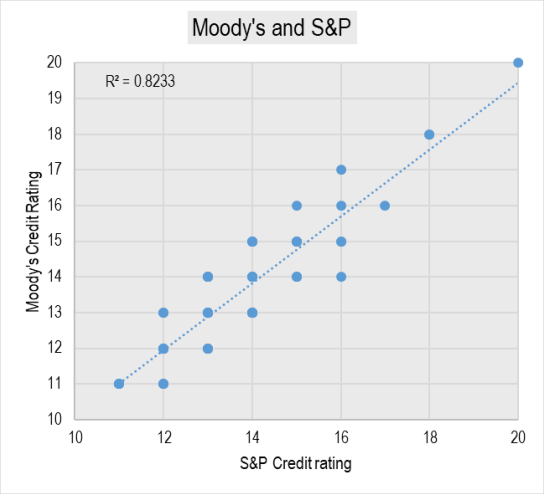


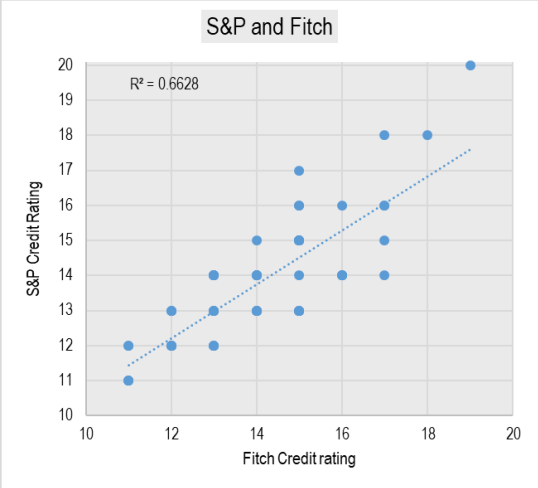
Source: Refinitiv, Bloomberg, OECD calculations

Issuer Credit rating by provider

Issuer credit rating by Moody's, S&P and Fitch on companies that are part of the S&P500 in 2019.







Source: Moody's, Fitch, S&P, OECD calculations

Empirical Analysis details

Fundamental analysis

Descriptive statistics

	World	#: 6586				US	#: 2384			
Variable:	Mean	Median	SD	Min	Max	Mean	Median	SD	Min	Max
ESG	50.62	49.88	17.85	4.85	95.81	46.48	43.15	16.75	4.85	92.66
ENV	50.73	49.18	22.86	3.02	99.42	43.21	37.78	21.09	4.41	98.80
SOC	50.79	50.43	21.48	2.23	99.03	46.07	43.41	18.82	2.23	97.81
GOV	50.26	50.32	21.25	2.42	98.59	50.59	50.67	21.35	6.38	98.58

	EU	#: 1300				JPN	#: 434			
Variable:	Mean	Median	SD	Min	Max	Mean	Median	SD	Min	Max
ESG	58.87	59.79	16.32	12.04	95.81	55.01	57.84	18.59	10.84	92.25
ENV	63.75	64.86	20.04	9.18	99.42	62.15	64.17	20.90	11.98	98.81
SOC	62.07	64.06	19.62	6.75	99.03	52.23	56.47	24.25	4.17	96.17
GOV	49.73	49.63	21.23	2.42	96.16	50.29	51.41	21.37	5.39	94.79

2013-2018:

18/13	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	
0-10	0	1	0	1	0	0	0	0	0	0	2
10-20	1	38	19	7	1	1	0	0	0	0	67
20-30	1	37	92	44	9	3	1	1	0	0	188
30-40	0	25	117	133	42	17	4	0	0	0	338
40-50	1	21	101	187	143	54	16	2	0	0	525
50-60	0	9	73	163	209	183	62	12	2	0	713
60-70	0	9	24	78	162	230	230	81	9	0	823
70-80	1	2	10	22	47	125	205	185	55	0	652
80-90	0	0	0	4	6	14	47	138	101	9	319
90-100	0	0	0	0	0	1	3	4	16	5	29
	4	142	436	639	619	628	568	423	183	14	3656

Worst:	453	12%
Better:	2093	57%
Same:	1110	30%

Fundamental Ratios:

ESG score: Thomson Reuters ESG Score is an overall company score based on the self-reported information in the environmental, social and corporate governance pillars.

ROE: Calculated as the Income Available to Common Excluding Extraordinary Items for the fiscal period divided by the same period Average Common Equity and is expressed as a percentage. Average Common Equity is the average of the Common Equity at the beginning and the end of the year.

Price/Earnings: This is the ratio of fiscal period Price Close to EPS Excluding Extraordinary Items, Avg. Diluted Shares Outstanding for the same period. A security's price divided by its Earnings Per Share mean estimate.

P/B: A security's price divided by its Book Value Per Share mean estimate.

Notes

[1] (Global Sustainable Investment Alliance, 2018[25])

[2] For example, the FT Lexicon provides a helpful explanation of ESG: "ESG (environmental, social and governance) is a *generic term* used in capital markets and used by investors to evaluate corporate behaviour and to determine the future financial performance of companies. ESG factors are a subset of non-financial performance indicators which include sustainable, ethical and corporate governance issues such as managing the company's carbon footprint and ensuring there are systems in place to ensure accountability."

[3] FSB's (Taskforce on Climate-related Financial Disclosures, 2017[26]), "Recommendations of the TCFD", notes that, because the transition to a lower-carbon economy requires significant and, in some cases, disruptive changes across economic sectors and industries in the near term, financial policymakers are interested in the implications for the global financial system, especially in terms of avoiding financial dislocations and sudden losses in asset values.

[4] (UN Principles for Responsible Investment,, 2019[27]), "What is Responsible Investment?"

[5] Here, societal values broadly relates to investors' collective moral values and beliefs, and could be conceptualised as aligning with the UN Sustainable Development Goals. However, some forms may align more specifically with desire to limit use of weapons, gambling, tobacco, etc.

[6] Over the past several years, numerous ESG investor surveys have been conducted. In a 2017 ESG survey published by the CFA Institute, 73% of investor respondents said they take ESG issues into account in their investment analysis and decisions.

[7] This will be further explored in Section 5 of the document, based on research of returns from sell-side strategists.

[8] Definitions and categorisations differ across market institutions. Morningstar, for example, makes a differentiation between funds that "consider" ESG factors although sustainability is not central, and ESG focus, which has an explicit asset selection based on ESG criteria. In this respect, the distinction between ESG consideration funds and traditional investing may further merge as practices and standards further develop; for example, CFA Institute's position statement, released in 2018, states that it "encourages all investment professionals to consider ESG factors, where relevant, as an important part of the analytical and investment decision-making process, regardless of investment style, asset class, or investment approach."

[9] (ICI, 2020[52])" Funds' Use of ESG Integration and Sustainable Investing Strategies: An Introduction."

[10] An additional point of ambiguity is that Socially Responsible Investing, which seeks to incorporate ethics and social concerns into portfolios, and Sustainable and Responsible Investing, which incorporates ESG metrics to enhance risk management and long-term value, both use the acronym SRI.

[11] US SIF (2018), "Sustainable and Responsible Investing."

[12] Morgan Stanley (2018), "Sustainable Investment Asset Owner Survey."

[13] BNP (2019)," The ESG Global Survey 2019".

[14] Bank of America Merrill Lynch (2018), "The ABCs of ESG."

[15] Current energy, transport, building and water infrastructure make up more than 60% of global greenhouse gas emissions.

[16] (OECD, The World bank, UN Environment, 2018[53]) "Financing Climate Futures," published under the responsibility of the Secretary-General of the OECD.

[17] (NGFS, 2019[48]) "A Sustainable and Responsible Investment Guide for Central Banks' Portfolio Management."

[18] (OECD, 2018[49]) "OECD Due Diligence Guidance for Responsible Business Conduct."

[19] For further information, see (OECD, MSCI, 2018[50]) "Institutional Investing for SDGs: A Joint Discussion Paper from MSCI and the OECD."

[20] Work has been underway at the OECD with respect to the issues and challenges associated with ESG investing and fiduciary duties, particularly with respect to pension plans, and includes guidance by the IOPS (international organisation of pensions supervisors). See (IOPS, 2019[54]) "Supervisory guidelines on the integration of ESG factors in the investment and risk management of pension funds." Thus, topics related to fiduciary duty will not be covered further by this report.

[21] See NGFS (2019), "A Sustainable and Responsible Investment Guide for Central Banks' Portfolio Management."

[22] See, for example, the three European Supervisory Authorities (EBA, EIOPA and ESMA - ESAs), Consultation on ESG disclosures, April 2020.

[23] See (IOSCO, 2020[55]) "Sustainable Finance and the Role of Securities Regulators and IOSCO."

[24] See The World Federation of Exchanges (2020), "Sixth annual sustainability survey."

[25] https://business.nasdaq.com/media/Nasdaq-ESG-Reporting-Guide-2019_tcm5044-70227.pdf

[26] Ibid.

[27] See (OECD, 1999[56]) "Corporate governance: effects on firm performance and economic growth." See also G20/OECD Principles for Corporate Governance.

[28] See (Moody's, 2006[57]) "Lessons Learned in Moody's Experience in Evaluating Corporate Governance at Major North American Issuers."

[29] For example, see S&P (2020), "The Big Picture on Climate Risk" suggests that over 60% of S&P 500 entities (with a market capitalisation of USD 18 trillion) hold assets that are at high risk of at least one type of climate-change physical risk.

[30] See BNP (2019), "The 'S' of ESG – Part 1: A challenging factor."

[31] Invesco (2020), "Why the 'S' in ESG matters, " Invesco Global ESG Team; see also Franklin Templeton (2020), " 'Build Back Better': COVID-19 Brings the "S" From ESG Into Focus."

[32] For an assessment of climate risk and financial materiality, see CDSB (2018), "Position paper: Materiality and climate- related financial disclosures."

[33] SASB references metrics already in use by industry, from more than 200 entities such as WHO, CDP, EPA, OSHA and industry organisations such as ICAO, IPIECA, EPRI and GRESB.

[34] See (Task Force on Climate-related Financial Disclosures, 2017[28]), "Final Report: Recommendations by the Task Force on Climate-related Financial Disclosures." The framework has sought to integrate reporting assessment and standards from a range of relevant bodies, including Climate Disclosure Standards Board, SASB, and others.

[35] (Climate Disclosure Standards Board, 2012[29]), "Climate Change Reporting Framework Advancing and aligning disclosure of climate change- related information in mainstream reports." The Climate Disclosures Standards Board (CDSB) issued a Climate Change Reporting Framework, published in 2012, which sought to align with the objective of financial reporting, which is to provide information about the reporting organisation that is useful for equity investors, lenders and other creditors in their investment and lending decision-making process.

[36] (Russell Investments, 2018[30]), "Materiality Matters: Targeting ESG Issues that can affect performance – the material ESG score."

[37] (Khan, Serafeim and Yoon, 2015[14]), "Corporate Sustainability: First Evidence on Materiality"

[38] (UN PRI and ICGN, 2018[31]) UN PRI and ICGN (2018), "A Discussion Paper By Global Investor Organisations On Corporate ESG Reporting."

[39] The FSB created the Task Force on Climate-related Financial Disclosures, chaired by Michael Bloomberg, to strengthen this challenging aspect of ESG disclosures, develop voluntary, consistent climate-related financial risk disclosures for use by companies in providing information to investors, lenders, insurers, and other stakeholders. The Task Force considers the physical, liability and transition risks associated with climate change and what constitutes effective financial disclosures across industries.

[40] (World Economic Forum, 2019[32]), in collaboration with Allianz and Boston Consulting Group (2019), "Seeking Return on ESG: Advancing the Reporting Ecosystem to Unlock Impact for Business and Society."

[41] https://morphicasset.com/esg-ratings-no-quick-fixes/, referring to CLSA, GPIF

[42] (State Street Global Advisors, 2019[33]), "The ESG Data Challenge."

[43] See https://www.wsj.com/articles/is-tesla-or-exxon-more-sustainable-it-depends-whom-you-ask-1537199931

[44] These firms were chosen in large part because they have publicly available methodological overviews, they are widely used, and the OECD has access to their commercially available ESG data.

[45] GRI defines materiality as having impact, which is the effect an organisation has on economic, environmental and society, which in turn can contribute to sustainable development, and factors that are important to stakeholders. This differs from the traditional concept of financial materiality in corporate finance, which is a subset of this definition.

In this regard, identifiable economic performance such as sales and impact on human rights are both considered high in terms of materiality. See (GRI, 2018[34]), "The Materiality Principle: The Deep Dive."

[46] United Nations Global Compact (UN Global Compact): "The Global Compact asks companies to embrace, support and enact, within their sphere of influence, a set of core values in the areas of human rights, labour and environmental standards, and the fight against corruption.

[47] (J.P. Morgan, 2016[35]), "ESG, Environmental, Social and Governance Investing"; makes a particular distinction between exclusion and norms-based investing.

[48] See (BNP, 2018[36]), "Investing for tomorrow: applying ESG principles to emerging market debt."

[49] (Cerulli and UN PRI, 2019[37]), "Survey: Responsible Investment in Hedge Funds -The Growing Importance of Impact and Legacy."

[50] (Bos, 2017[38]), "Sustainability Scores for Investment Funds," CFA Institute Magazine.

[51] Ibid.

[52] (J.P. Morgan, 2016[12]), "ESG Investing: A quantitative perspective on how ESG can enhance your portfolio."

[53] Moreover, under the voluntary disclosure theory, (Verrecchia, 1983[44]) and (Dye, 1985[45]) firms with a large involvement in sustainability will report extensively while those that are not involved will report the minimal amount necessary.

[54] Supporting the findings mentioned, Ciciretti, Dalo and Dam (2017) published a paper aimed at identifying the drivers of SRI. They find evidence supporting what they call the taste effect, which entails the exclusion of stocks from the portfolio based purely on the taste for such assets, and an associated underperformance at 4.8% annually.

[55] The four papers developed use MSCI data, ESG ratings and indices to provide a complete analysis on ESG investing:

Part 1: How ESG Affects Equity Valuation, Risk and Performance (The Journal of Portfolio Management) (Giese et al., 2019[22])**:** the research seeks the correlation between ESG and Corporate Financial Performance, through the analysis of transmission channels.

Part 2: Consistent ESG integration through ESG benchmarks: the research provides a framework at various strategic levels, from the top policy benchmark level to the performance benchmark of individual allocations.

Part 3: Performance and Risk Analysis of Index-Based ESG Portfolios (The Journal of Index Investing) (Giese et al., 2019[23])**:** provides an insight on how asset owners can implement ESG through index-based allocations to portfolios that seek to replicate ESG indexes.

Part 4: Integrating ESG Into Factor Strategies And Active Portfolios: The research provides a methodology based on a two-step approach, where a standard factor methodology is applied on top of an ESG index, and a one-step approach, where the strategy is optimised to minimise the sacrifice in factor exposure per unit of ESG improvement

[56] (Bannier, Bofinger and Rock, 2019[18]) : Doing safe by doing good: ESG investing and corporate social responsibility in the U.S. and Europe, CFS Working Paper Series, No. 621, Goethe University, Center for Financial Studies (CFS), Frankfurt a. M., http://nbn-resolving.de/urn:nbn:de:hebis:30:3-480587

[57] https://www.goldmansachs.com/insights/pages/new-energy-landscape-folder/esg-revolution-rising/report.pdf

[58] Fama and French provide five different factors, among which is the market factor. This factor represents a proxy of the market. When adding the others factors, the result is a risk-weighted performance measure.

[59] More details on the methodology are provided on Appendix B.

[60] Previous research from (Dolvin, Fulkerson and Krukover, 2017[24]), focused on the efficiency of sustainable funds and how they perform using Morningstar sustainable metrics. As a result of the analysis, they found no difference in risk adjusted returns of ESG funds against non ESG funds returns. However, they find a relevant difference in risk profile, with high Sustainability scores largely confined to large cap funds.

[61] "How Does European Sustainable Funds' Performance Measure Up?" Morningstar, 2020 www.morningstar.com/content/dam/marketing/emea/shared/guides/ESG_Fund_Performance_2020.pdf

[62] Green bond standards are also being developed, but are not covered in this report.

[63] See European Commission, "Overview of Sustainable Finance" website. More specifically, environmental considerations may refer to climate change mitigation and adaptation, as well as the environment more broadly, such as the preservation of biodiversity, pollution prevention and circular economy. Sustainable finance at EU level aims at supporting the delivery on the objectives of the European Green Deal by channelling private investment into the transition to a climate-neutral, climate-resilient, resource-efficient and just economy, as a complement to public money.

[64] ESMA (2020), Strategy on Sustainable Finance.

[65] Government Accountability Office (2020), "PUBLIC COMPANIES: Disclosure of Environmental, Social, and Governance Factors and Options to Enhance Them." GAO-20-530.

[66] Ibid.

[67] See SEC (2020), "SEC Release Nos. IC–33809; File No. S7-04-20 RIN 3235-AM72 Request for Comments on Fund Names." https://www.sec.gov/rules/other/2020/ic-33809.pdf

[68] See Finalisation of Japan's Stewardship Code (Second revised version) on JFSA website, and Asian Development Bank (2020), "Sustainable Finance in Japan."

[69] See GAO (2020).

[70] See https://www.jpx.co.jp/english/corporate/sustainability/esg-investment/handbook/index.html

[71] Market participants suggest that (i) preferences for data availability vs completeness have influenced different ESG reporting frameworks, and (ii) perspectives on this balance can range by industry.

[72] This approach is constructive to support relevance and prioritisation of ESG metrics. However, the fact that SASB gives very low prioritisation of any of the environmental metric categories as related to the financial sector or any of its industries, despite the fact that medium-term climate risks – physical and transition – are being given heightened attention by banks, insurance and asset managers, raises questions about the timeframe of financial materiality.

[73] The OECD has used ratings of major ESG raters as a proxy for how investors assess ESG factors of firms. Given the time intensity to collect and assess the data from individual firms, it is likely that all but the ESG raters and the largest institutional investors have the resources to thoroughly assess smaller firms, based both on firm disclosure and industry information. As such, it is possible that the overall bias is even greater than what is illustrated in rating agency ESG ratings across large and small firms.

[74] See https://www.nasdaq.com/docs/2019/11/26/2019-ESG-Reporting-Guide.pdf. NASDAQ created a short list of what it considered to be "the most pervasive and persuasive ESG metrics—the Key Performance Indicators (KPIs)" that it believes provide the greatest insight into the sustainability performance of the greatest number of companies.

[75] For example, in 2020 MSCI made public the MSCI ESG Fund Ratings for 36 000 multi-asset class mutual funds and ETFs, and MSCI Limited has made public ESG metrics for all of its indexes covered by the European Union (EU) Benchmark Regulation. The ESG ratings and metrics are available as part of two new search tools now available to anyone on the MSCI website. The launch is part of a wider ESG transparency initiative to provide consistent and comparable ESG metrics at the company, fund and index level. This follows the release of the MSCI ESG Ratings of over 2 800 issuers in November last year and is part of MSCI's ongoing effort to encourage and support investors to integrate ESG considerations throughout their investment processes.

[76] See (World Economic Forum, 2019[46]), “Seeking Return on ESG,” which raises observations about the level of opacity that hinders comparability to the level desired by a number of market participants.

[77] OECD (2015), G20/OECD Principles of Corporate Governance.

[78] Members include: The Carbon Disclosure Project (CDP), Climate Disclosure Standards Board (CDSB), Financial Accounting Standards Board (FASB), The Global Reporting Initiative (GRI), International Organization for Standardisation (ISO), International Financial Reporting Standards (IFRS), International Integrated Reporting Council (IIRC) and The Sustainability Accounting Standards Board.

www.oecd.org/finance/financial-markets/

OECD