



Trends in ESG Investing and Quality Infrastructure Investment in Asia-Pacific



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Foreword

In recent years, Environmental, Social, and Governance (ESG) investing has evolved to become a leading investment approach for investors seeking to pursue forms of sustainable finance and the Asia-Pacific region is no exception.

This report examines the implementation of ESG trends in financial markets throughout the APEC region. It looks at effective approaches and challenges and provides key insights on ESG disclosure and data indicators.

The report then turns to examine how ESG risks are being applied for infrastructure investment, and what considerations and actions could be necessary to advance the application of ESG considerations when investing in infrastructure in the Asia-Pacific region.

APEC Finance Ministers under Chile's Host Year in 2019 commissioned the OECD to produce a report (2019 Joint Ministerial Statement Annex A, para. 6). This report was submitted to the APEC 2021 Finance Ministers' Process in response to this request.

The report is based on the work and efforts of the OECD Committee on Financial Market to assess ESG investing and key findings from evidence-based reports in Asia-Pacific economies, and the OECD Task Force on Long-term Investment Financing to examine ESG data for infrastructure assets.

The report benefitted from the discussions throughout the *High-Level Seminar on Sustainable Finance and Quality Infrastructure Investment in Asia*, which took place on the 15-16 September 2021 and was acknowledged in the 2021 APEC Joint Ministerial Statement (Annex B, No. 6).

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Executive summary

ESG practices have developed at noticeably different speeds across APEC economies. Some Asia-Pacific jurisdictions, such as Japan, have seen a strong increase in ESG coverage and investing, while various other economies have progressed less quickly, and are at varying stages of adoption. Nonetheless, progress has been made through regulatory and reporting guidance. In this regard, the increasing involvement of regulators and stock exchanges, including with respect to ESG disclosure guidance, has helped improve ESG practices. At the same time, they raise and at times increase the differences in practice. In short, good progress can also contribute to aspects of market fragmentation.

ESG performance across ratings and investment products can vary widely, illustrating the complexity of understanding the drivers of performance in ESG based portfolios and funds, which can vary depending on a multitude of factors, among which the ESG approach chosen.

Moreover, while ESG is growing in importance and size, rating providers appear to be giving a higher weight to metrics on the disclosure of company policies, targets and objectives, rather than reduction in carbon emissions and carbon intensity, adaption and renewable energy, raising questions on the extent to which companies will be able to implement a low-carbon transition.

Given these observations, greater attention and efforts are needed to improve clarity in funds and portfolios strategies as they relate to ESG to unlock the potential benefits of ESG investing for long-term sustainable finance.

Efforts are needed to strengthen ESG practices so that they are transparent and comparable - at regional or global level where appropriate - involving financial authorities and standard-setters, the financial industry, end-investors and other stakeholders that are helping to shape ESG practices. To ensure further progress in ESG practices, improve investors' confidence in the instrument and reduce the risk of market fragmentation, the OECD seeks to facilitate awareness and discussion of challenges and solutions related to ESG investing, including the need for guidance on improving transparency of methodologies; clarity on materiality; and good practices of benchmark and fund reporting.

Further OECD work can be developed to address and improve current ESG practices, regarding transparency and interoperability of metrics, while coordinating with framework and standards providers such as TCFD, IFRS and TNFD to ensure the complementarity of work. Given the critical stage of development of ESG, relevant stakeholders will need guidance in order to be able to address existing challenges to strengthen ESG investing in Asia-Pacific Economies.

The OECD Annual Large Pension Fund Survey found that investors are motivated to integrate ESG consideration into their investments. Around 65% of the surveyed pension funds consider these factors in their investments or to plan to incorporate these into their asset considerations in the future. Around 22% of the surveyed funds indicated relatively large green or social investment, reported strong commitment to ESG integration and a vast majority of them described concrete ESG strategies in their asset classes. Around 20% of the pension funds indicated to having made moderate investments in green or social assets and most of them reported to have an ESG strategy in place or to be working on

a policy, strategy or methodology to incorporate ESG aspects into financial assets. Approximately, 17% of the funds consider the ESG principles in their investment activities and to have ESG strategies in place, such as exclusionary screening, although they did not report specific green or social investments.

The OECD annual survey of large pension funds highlighted that investors are faced with incomplete datasets and data that is inconsistently measured. Further, a survey held in 2021 showed that investors became increasingly dissatisfied with the information they received on ESG risks when compared with 2018.

Reflecting the wider sustainable finance discussion and lack of data on infrastructure investments and ESG, empirical evidence that reflects that ESG in investments infrastructure produces better and more resilient long-term risk adjusted returns is lacking as well. Where the relationship between ESG and financial performance has been widely studied, findings were mainly based on equities, for which the pool of data is the deepest.

ESG data for infrastructure may also be affected by the size of reporting firms, as larger firms are likely to be more active in reporting on sustainability issues given their greater resources. In the infrastructure sector, where special purposes vehicles (SPVs) are often used to finance projects and have a shorter life span, this may be resulting in less engagement on sustainability issues.

1. ESG Trends in Quality Infrastructure Investment in Asia – Practices, Progress and Challenges

1.1 Introduction

Over the past decade, Environmental, Social, and Governance (ESG) investing¹ has evolved to become a leading investment approach for investors seeking to pursue forms of sustainable finance, such that assets under management of institutional investors committing to integrating ESG practices has risen to over \$35 trillion globally in 2020. Yet, beyond the acronym, there is very little clarity of what ESG investing is in concept or practice, and a range of objectives, approaches, and metrics that all loosely associate with the term ESG raises attention to the integrity of the investment process.

Sustainable finance is generally referred to as the process of considering environmental, social and governance factors when making investment decisions, which in turn leads 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 economies around the world mobilise efforts to contribute to a global improvement of social and environmental issues. Now finance is taking its active position in trying to implement these concepts in the investing practice.

The broad definition of sustainable finance includes a number of different investment approaches, each with differences in terminology, practices and methodologies (when relevant). For example, the proponents of responsible investing, which include an array of global asset managers and other institutional investors, see the use of ESG factors as a way to enhance long-term value through a more holistic understanding of issuers' strategies and risk management to reduce exposures to controversies. In addition, ESG can be seen as a way to better align behaviours of issuers with environmental and social sustainability to help

¹ 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. For example, the FT Lexicon explains: "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."

achieve established policy goals, such as the sustainable development goals (SDGs). To this end, ESG investing has the potential to help stakeholders and investors to use environmental, social and governance factors to improve alignment with various stakeholder values in order to include risk and opportunities for long-term value improvement, as reflected by the rising demand by investors to align their portfolios with long-term sustainability. In theory, issues that account for certain risks would be more likely to avoid controversies and reputational risks, improve employee talent acquisition and retention, strengthen brand loyalty and maintain shareholder trust. However, in practice market participants often lack the tools they need, such as consistent data, comparable metrics, and transparent methodologies, to properly assess issuers' strategies and behaviours through a sustainability risk lens.

There is growing evidence that investors and financial intermediaries are increasingly factoring ESG assessments into investment decisions. As of June 2021, the number of signatories of the UN Principles of Responsible Investment (UN PRI) that commit to pursuing ESG integration has grown to over 4,000 signatories among institutional investors². At the same time, more and more asset managers in Asia-Pacific Economies are recognising the value of sustainable investing, with the number of asset managers in the region signing up the UN PRI almost tripling in five years.

To better understand the current ESG framework and its development in economies of Asia-Pacific, the OECD has analysed different providers' ESG data. The purpose is to assess the many Asia-Pacific economies relative to a few whose practices are more advanced, such as in Japan, and some others that are at earlier stages of development. The analysis raised various benefits of ESG investing by unlocking issuer information that can help investors better consider long-term financial value and alignment of investments with societal values. However, it also highlighted shortcomings in the investment process, including disclosure metrics, rating methodologies, and performance.

The report also benefitted from a discussion to shed light on the growth of ESG practices in Asia during the "High-Level Seminar Sustainable Finance and Quality Infrastructure Investment in Asia". During the discussion, participants highlighted the growing importance of ESG factors in Asia, as well as need for comparability and interoperability of such approaches, and policies to ensure that meaningful information is disclosed and captured in related market products.

Demand for ESG investment products in the Asia-Pacific region has been climbing significantly, according to several flow reports. According to the Global Sustainable Investment Alliance³ the sustainable investment assets are continuing to grow in most regions, with Japan experiencing a 34% growth over the past two years followed by Australasia (25% growth) from 2018 to 2020. The proportion of sustainable investing assets in Japan, Australia and New Zealand currently stands at almost US\$ 4 trillion, representing about 10% of the total global sustainable assets under management. Research from the CFA Institute⁴, which has administered a survey to professional investors to understand the current ESG state of progress in APEC economies, highlighted the growing awareness, but still limited integration, of ESG Investing.

Research from the ABDI, also indicates that ESG is a topic of growing relevance to Asian Central Banks, particularly given that many economies are being severely affected by climate events. The vast majority of survey respondents indicate that they believe they should be playing a key role in promoting green finance and sustainable funding options, either through amending the regulatory framework, encouraging green loans and products, or introducing climate change considerations in their monetary and financial policy

² UN Principles of Responsible Investment (2021), [Signatories](#)

³ Global Sustainable Investment Alliance (2020); "[Global Sustainable Investment Review 2020](#)"

⁴ CFA Institute (20), "[CFA Institute \(2019\), ESG Integration and Analysis in Asia Pacific: Markets, Practices and Data](#)"

operations. A number of central banks and supervisory authorities are already promoting sustainable financing options explicitly or implicitly.⁵

This strong growth in the sustainable investing industry has been driven by commitments from large domestic institutional investors, but also increasingly by international investors and regulatory pressures. Moreover, retail investors seem to be increasingly factoring in the belief that, to some extent, ESG incorporation has a positive impact on risk-adjusted returns while allowing to keep track of underlying risks.⁶ For example, Japan's Government Pension Investment Fund (GPIF), the world's largest pension fund, has similarly put ESG at the heart of its investment strategy by investing in sustainable indexes, promoting innovative investment practices and improving the ESG standards it applies to its passive portfolios. On the supply side, different providers are creating and updating their own ESG database, with different methodologies and metrics, aimed at identifying ESG ratings to be used by investors.

Asset managers and companies are now accelerating how they integrate ESG into their everyday activities. With this comes significant debate over common definitions and metrics for quantifying ESG costs and benefits. As in other regions, ESG investing began with a negative screening approach. While the method is still used, the dominant ESG approaches are now engagement and, in particular, integration.

The COVID-19 crisis has accelerated the interest in ESG Investing, underlying the need for resilient and sustainable investments. Around 79% of investors in Asia-Pacific economies increased ESG investments "significantly" or "moderately" in response to COVID-19, while at the same time, 57% of investors in the region expect to have "completely" or "to a large extent" incorporated ESG issues into their investment analysis and decision-making processes by the end of 2021, according to a recent MSCI survey⁷.

When focusing on specific pillars of ESG, such as the environmental pillar, Asia's largest companies are comparable with their global peers on their environmental impact, according to Refinitiv⁸. The regional average of 62 slightly exceeds the global average by 2.74 points in Refinitiv Environmental Pillar Scores, which ranges from 0 to 100. In Asia, the number of companies in the region with emissions reduction policies has jumped significantly over five years from just over half (55%) to 69%, surpassing the global average, which is more than 60%, up from 56% five years earlier. Despite this, the number of companies in Asian economies with specific reduction targets, around emissions has remained relatively the same, with only a 2% growth from 28% to 30% in five year, lower than the global average of 35%. This means that many companies are setting policies without demonstrating tangible and verifiable progress on their intentions.

In order to provide a thorough analysis of the current state of ESG, the OECD analysed some selected economies: Australia, Indonesia, Japan, Malaysia, New Zealand, Singapore, Republic of Korea and Thailand. Then, it compared these to economies such as the United States, which currently has a more active use of ESG and which is undergoing a strong shift to sustainable finance as well.

The next sections of the report will provide a review on the current state of regulations and disclosure practices on ESG, followed by an empirical analysis of ESG investing, starting with descriptive statistics and moving to the application of Markowitz Efficient Frontier and a CAPM model. The last part analyses different sustainable funds to understand the divergence with respect to less sustainable funds and how adopted strategies might influence the final result.

⁵ ABD Institute (2020), ["The Role of Central Banks in Scaling Up Sustainable Finance: What Do Monetary Authorities in Asia and the Pacific Think?"](#)

⁶ AVPN and Oliver Wyman (2020), ["Driving ESG Investing in Asia"](#)

⁷ MSCI (2021), ["MSCI Investment Insights 2021"](#)

⁸ Refinitiv (2020), ["Financing a sustainable future in Asia"](#)

1.2 Disclosure practices in Asia-Pacific economies and regulatory drivers

There is growing interest from investors and regulators to improve and integrate international ESG disclosure standards, as different practices are contributing to the market fragmentation of ESG practices. Therefore, many major Asia-Pacific Economies have moved forward with the implementation of ESG disclosure regulation in recent years.

These policy as well as regulatory changes have been important contributors to the strong growth of ESG in several Asia-Pacific economies, improving investors' confidence which in turn drove new capital to sustainable investment products in the region. For example, regulatory developments include:

- In People's Republic of China, the Guiding Opinions on Promoting Investment and Financing to Address Climate Change, was issued in 2020. This is the first ministry-level document on climate change mitigation after People's Republic of China announced the 2060 carbon neutrality target. The Guiding Opinions includes a timeline for having relevant policies for investment ready by 2025 and emphasises the necessity for regulators to support and incentivise financial institutions in developing and supporting climate and green finance products and projects
- In Japan, the Financial Services Agency (JFSA), the Ministry of Economy, Trade and Industry (METI) and the Ministry of the Environment jointly released in 2021 the Basic Guidelines on Climate Transition Finance, which is aligned with ICMA's Climate Transition Finance Handbook and aims to strengthen the position of climate transition finance. The METI and other ministries also introduced a Green Growth Strategy Through Achieving Carbon Neutrality in 2050. The JFSA also established the Working Group on Social Bonds to publish Guidelines on Social Bonds aligned with ICMA Social Bond Principles. In June 2021, the FSA and Tokyo Stock Exchange revised the Corporate Governance Code, requiring prime market-listed companies to disclose TCFD (or an equivalent disclosure framework) -based information. Furthermore, the FSA established a working group under the Financial System Council to discuss further with broad stakeholders on disclosure system including sustainability, which contributes to constructive dialogue between companies and investors.
- Moreover, the Bank of Japan's (BOJ) inaugural Strategy on Climate Change, released in July 2021, may increase the availability of capital for green projects both domestically and internationally, according to Fitch Ratings⁹. The central bank's comprehensive strategy consists of five areas ((i) monetary policy, (ii) financial system, (iii) research, (iv) international finance, (v) business operations and external communication), many of which aim at encouraging climate-related efforts by private sector. As a measure from the monetary policy, the BOJ unveiled a new funds-supplying operations to support private financial institutions in their efforts to address climate change issues. The new operations provide funds to financial institutions against investment or loans that they make to address climate change issues based on their own decisions. The types of eligible investment or loans include green bonds and loans, sustainability-linked bonds and loans with climate-change related performance targets, and transition finance. The new operations will be launched in December 2021. Regarding the financial system, the BOJ is working on pilot exercise of climate scenario analysis targeting large Japanese banks together with JFSA. The BOJ also encourage financial institutions to enhance their disclosures, both qualitatively and quantitatively, based on the TCFD framework. In the area of international finance, the BOJ will purchase foreign currency-denominated green bonds issued by governments and other foreign institutions based on the existing management principles that call for a high degree of safety and liquidity for its foreign currency assets.

⁹ Fitch Ratings (2021), [New Japanese Policies Create Opportunities for ESG Bond Market](#)

- In the Republic of Korea, the National Pension Service (NPS) adopted a Stewardship Code in 2018 and established a department dedicated to fulfilling its stewardship responsibilities. The NPS has started to actively exercise the code which sets out principles aimed at encouraging corporate governance, and has been revised to reflect the incorporation of ESG issues as a component of standard fiduciary duties. Moreover, the Financial Services Commission (FSC) announced a series of measures to improve corporate disclosure rules, including initiatives to promote environmental, social and governance and responsible investing. These include the implementation of mandatory ESG disclosures for listed companies and potential changes to the Korean Stewardship Code to strengthen fiduciary duties related to ESG matters¹⁰.
- In Singapore, the Monetary Authority of Singapore (MAS) issued a set of consultation papers in 2020 for proposed Guidelines on Environmental Risk Management for banks, insurers and asset managers. The Guidelines aim to enhance resilience to environmental risk and support the financial sector's role in supporting the transition to an environmentally sustainable economy.
- In Russia, the Bank of Russia issued Recommendations on Responsible Investing (Stewardship Code) in 2020 to attract institutional investors' attention to responsible investing and ESG-risks analysis. In 2021, the Bank of Russia issued Recommendations for public joint-stock companies on non-financial disclosure based on GRI standards and TCFD recommendations. Currently Bank of Russia is drafting Guidance for the companies' Boards of Directors on ESG risks and opportunities as well as on SDGs agenda.
- Asia-Pacific economies' sustainable investment markets continue to experience strong growth, with demand for environmental-related sustainable investments leading to an ever greater focus on products relating to renewable energy, low carbon, environmental protection, and green transport.
- As such, also different stock exchanges have taken action to tackle the issue of lack of clear and standardised guidance. Table 1 identifies 18 exchanges of 16 Asia-Pacific economies that produced guides for listed companies in order to ease the reporting of ESG factors in an international and standardised way. Three different reporting agencies among the most prominent ones are being used: The Global Reporting Initiative (GRI), the Sustainable Accounting Standard Board (SASB) and the Task Force on Climate-Related Financial Disclosures (TCFD).

¹⁰ Mayer Brown (2021), [South Korean Regulator Announces Measures to Promote ESG and Responsible Investing](#)

Table 1 ESG Disclosure guidance by stock exchange

Economy	Exchange	ESG Guidance	GRI	SASB	TCFD
Australia	Australian Securities Exchange	ESG Reporting Guide for Australian Companies (2015)	X	X	X
Canada	TMX Group Inc.	A Primer for Environmental & Social Disclosure (2020)	X	X	X
Chile	Bolsa de Comercio de Santiago	How to include ESG factors: design and construction of sustainability reports (2017)	X	X	
People's Republic of China	Shanghai & Shenzhen Stock Exchange	Guidelines for Environmental Information Disclosure of Listed Companies in Shanghai Stock Exchange (2008) & Social Responsibility Instructions to Listed Companies (2006)			
Hong Kong, China	Hong Kong Exchange	How to Prepare an ESG Report: A Step-by-Step Guide to ESG Reporting (2020) & Guide for Board and Directors: Leadership role and accountability in ESG (2020) ¹¹	X	X	X
Indonesia	Indonesia Stock Exchange	Application of Sustainable Finance for Financial Services Institutions, Issuers and Public Companies (2017)			
Japan	Japan Exchange Group	Practical Handbook for ESG Disclosure (2020) Corporate Governance Code (2015, revised in 2018&2021)	X	X	X
Malaysia	Bursa Malaysia	Sustainability Reporting Guide (2020)	X	X	X
Mexico	Bolsa Mexicana de Valores	Sustainability Guide: Towards Sustainable Development of Companies in Mexico (2017)	X	X	
New Zealand	New Zealand Stock Exchange	Environmental, Social and Governance: NZX Guidance Note (2017)	X	X	X
Peru	Bolsa de Valores de Lima	Guía de Usuario para facilitar el llenado del Reporte de Sostenibilidad Corporativa (2017)	X	X	
The Republic of the Philippines	Philippine Stock Exchange	Sustainability Reporting Guidelines for Publicly Listed Companies ¹² (2019)	X	X	X
Russian Federation	Moscow Exchange	Guidance for the issuer: how to comply with the best sustainable development practices (2021)	X	X	X
Singapore	Singapore Exchange	Sustainability Reporting Guide (2018)	X	X	
Thailand	Stock Exchange of Thailand	Guidelines for the preparation of sustainability reports (2012)	X		
United States of America	Nasdaq	ESG Reporting Guide 2.0: A Support Resource for Companies (2019)	X	X	X
Viet Nam	Hanoi & Ho Chi Minh Stock Exchange	Environmental and Social Disclosure Guide (2016)	X		

Source: Sustainable Stock Exchanges Initiative

¹² The Sustainability Reporting Guidelines for Publicly Listed Companies build also on the International Integrated Reporting Council's (IIRC) Integrated Reporting (IR) Framework aside from GRI, SASB and TCFD.

Box 1. Understanding the ESG landscape through RBC standards

“Environmental, social, and governance” (ESG) criteria is the term normally used by financial institutions to describe the set of criteria they use when assessing the sustainability performance of a company. While no formal, widespread definition exists for “ESG” and there is diversity with respect to how these concepts are applied by financial institutions and intermediaries, they often pertain primarily to environmental and social risks, which also pose financial risks.

Financial institutions have also been applying responsible business conduct (RBC) standards. The OECD is home to the only government-backed standards on RBC, the OECD Guidelines for Multinationals Enterprises (the MNE Guidelines). Under the MNE Guidelines, RBC means that business should: i) make a positive contribution to economic, environmental, and social progress with a view to achieving sustainable development; and ii) should avoid and address adverse impacts through their own activities and seek to prevent or mitigate adverse impacts directly linked to their operations, products, or services by a business relationship. The latter can be achieved by carrying out risk-based due diligence, a process through which investors will be able to avoid negative impacts of their investments on society and the environment. They will also be able to avoid financial and reputational risks, respond to the expectations of their clients and beneficiaries and contribute to global goals on climate and sustainable development.

The scope of RBC and ESG criteria are highly related. Both relate to understanding and quantifying the impacts of business activities on environmental and social issues. However, RBC is specific to the standards and recommendations set out in the MNE Guidelines and pertains primarily to impacts to the environment and society, independent of financial materiality. Investors should seek to understand the content of Guidelines and assess the differences to ensure they understand the overlaps and differences. Source: OECD RBC Centre

1.3 Empirical Research on ESG Investing in Asia-Pacific Economies

1.3.1 Purpose and findings

In light of the variance in results of existing assessments relative to ESG in Asia-Pacific Economies, the following section analyses ESG ratings, score composition, and performance of portfolios and funds based on portfolio theory and efficient frontier methodology. 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.

Notwithstanding the differences in ESG scoring methodologies, some common biases emerge from the analysis, for example regarding the size of the company analysed and its industry. These differences in attributes and biases affect the final ESG score, which then influences the performances of portfolios applying ESG investing strategies. Therefore, this report assesses how ESG scores application affects portfolios risk and return, through a positive screening approach and using data from different ESG providers. Different screening criteria and different providers most likely imply different outcomes therefore this analysis is limited to the approaches just mentioned. Adding to these considerations, analysed the performance of funds incorporating different strategies and different sustainability scores. These funds will provide a useful point of view on the real performances after the application of ESG scores.

Following the release of an earlier OECD paper on ESG investing¹³, the analysis was extended to Asia-Pacific economies to better understand how ESG ratings are integrated in the region, how performances are affected, the challenges ESG ratings currently face and the differences with respect to other economies.

The report (i) qualitatively assesses rating methodologies and metrics, to evaluate the level of inconsistencies; (ii) provides a thematic literature review to understand the existing research about ESG in Asia-Pacific Economies; (iii) assesses the ESG ratings against credit ratings of corporate issuers to compare the deviation of scores and (iv) assesses the performance of ESG indices, stylised portfolios based on ratings, and existing high vs low-scoring ESG investment funds.

Different methodologies are used to analyse these issues and applied to different providers. Different time frames, investing approaches and providers are likely to provide different outcomes so the analysis is restricted to the approaches mentioned:

- First, by applying the Markowitz Modern Portfolio Theory to understand how the combination of different assets affects the risk-adjusted performance of the portfolios.
- Second, by using the Capital Asset Pricing Model (CAPM), which allows extracting a risk-adjusted measure of performance, which takes into account for the market risk.
- Third, by analysing of high and low scoring ESG funds' performance, to see whether there is a difference in the distribution of returns and what the drivers of these differences may be.

The first findings show that ESG ratings are still at an early stage of development in many Asia-Pacific economies. Even though they are growing at a fast pace, companies that provide ESG disclosures represent a small fraction of the total market. This is reflected in the market capitalisation of companies with an ESG rating, which is relatively smaller if compared to markets such as the United States.

The second finding looks at risk-adjusted returns to show that, depending on which ESG investing approach is adopted, portfolios have a wide range of performances, according to the analysis carried out using historical data. This range of performance depends on different factors, such as strategy chosen, which can make the understanding of ESG performance more complex. 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. What we noticed from the analysis is a slightly higher volatility, but a lower Maximum Drawdown. Nonetheless the results remind us of one important lesson from traditional finance: concentration risk associated with the rotating of investments through ESG approaches can at times lessen risk-adjusted returns relative to the comparable traditional market index.

The third finding focuses on the analysis of sustainable funds. The evidence provides a lack of correlation between ESG fund ratings and performances for most funds. This does not suggest that a portion of highly-rated ESG funds do not outperform, but rather it notes that a portion of low-rated ESG funds also outperform the market. Of course, this indicates that a number of other factors, such as the performance of individual fund managers relative to the benchmark, the investment strategy of the funds and its implementation, the specific asset allocation have a material impact on returns.

The findings of the research show some specific patterns for Asian economies. First, there is a strong development of ESG ratings in Asia in recent years. Second, the same variance of results applies both to the world and to Asia, showing similar patterns for low ESG and high ESG scoring portfolios. The assessment shows that, when analysing risk-adjusted returns, different providers' data and methodologies have a strong impact on the results. This suggests that further work is needed in order to improve ESG investing and that historical returns over the past ten years do not fully reflect the benefits of ESG integration.

¹³ Boffo, R., and R. Patalano (2020), "[ESG Investing: Practices, Progress and Challenges](#)"

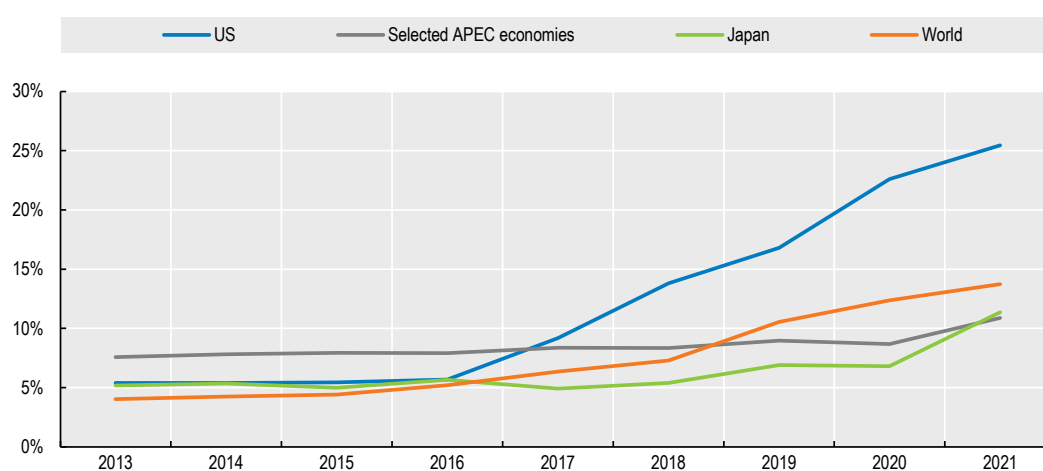
Moreover, the challenges with performance arise because of the inconsistencies and lack of comparability of metrics, as shown by OECD ESG research¹⁴: ESG score differences can occur for a number of reasons. They may relate to different frameworks, measures, key indicators and metrics, data use, qualitative 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. This true also in Asia-Pacific economies, which further invites scrutiny on the matter.

The reporting of additional information provides useful data for investors with a long term view who want to incorporate sustainability into their investments. This will become more effective as ESG ratings mature, particularly in Asia-Pacific economies, and governments and regulation take action in order to increase the efficiency of these instruments. The majority of work is needed in areas such as consistency, transparency and effectiveness of ESG ratings.

1.3.2 Market penetration and attributes in Asia-Pacific economies

The analysis of market penetration and attributes in Asia-Pacific economies starts by analysing ESG scores market coverage in different areas: US, Asia (ex-Japan) and Japan according to Refinitiv data. The percentage of market coverage is relatively low for Asia (ex-Japan) and Japan when compared to the US, even though it has increased in the last years.

Figure 1 ESG rating market coverage share, 2013-2021



Note: Calculated as the number of public companies with an ESG score over the total number of public companies, in each year. The Selected APEC economies include: Australia, Indonesia, Malaysia, New Zealand, Singapore, Republic of Korea and Thailand.

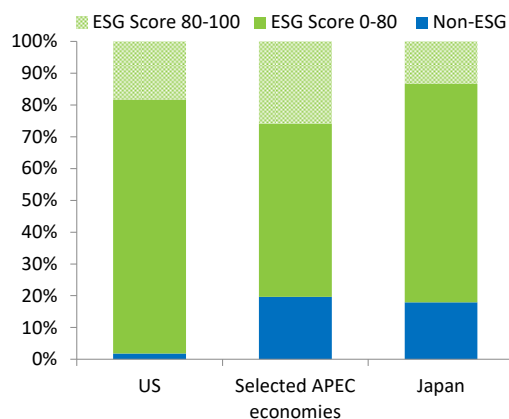
Source: Refinitiv, OECD calculations

However, when considering market capitalisation, there is a different pattern: **The market capitalisation of all ESG scored companies represents 98% of the total market capitalisation in the United States, 80% in selected Asia-Pacific Economies and 82% in Japan.** This shows a trend in line with other economies, where large companies have higher ESG coverage, except for Japan, which has also the greater share of non-ESG-rated market capitalisation. The extent to which large capitalised companies dominate the focus of ESG ratings, according to Refinitiv data, is noteworthy, and has implications for

¹⁴ OECD (2020), *OECD Business and Finance Outlook 2020: Sustainable and Resilient Finance*, OECD Publishing, Paris, <https://doi.org/10.1787/eb61fd29-en>

weighting and potential bias. Possible explanations for the abundance of score availability for the largest companies is that they have wider coverage by analysts and that they have ample resources to invest in disclosing information concerning their ESG practices while small capitalised companies would have a higher hurdle rate given the minimum costs associated with the resources needed to disclose non-financial ESG information.

Figure 2 Market capitalisation as share of ESG by region, 2021



Note: Market capitalisation calculated as of 01/01/2021. The Selected APEC economies include: Australia, Indonesia, Malaysia, New Zealand, Singapore, Republic of Korea and Thailand.

Source: Refinitiv, OECD calculations

Market capitalisation has a strong, positive correlation with level of ESG scores for different providers. As stated previously, 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.

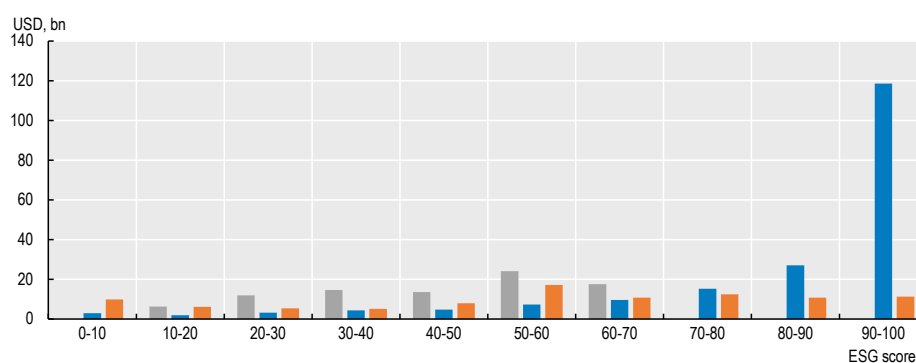
According to research by McKinsey¹⁵, Japan’s large companies perform relatively well on the E pillar of ESG, particularly regarding carbon emissions and waste discharge, including toxic and hazardous materials, broadly ahead of companies in North America and at a similar level to Europe. While measures to incorporate environmental, social and governance metrics in annual executive pay are more widespread in North America and Europe, Japanese companies are now becoming more active in introducing them¹⁶. A survey conducted by consultancy Willis Towers Watson in 2020 suggested that 15% of Japan’s top 100 companies by market capitalisation had such schemes in place¹⁷.

¹⁵ McKinsey (2021), [Charting a path from the shuchu kiyaku to ESG for Japanese companies](#)

¹⁶ Financial Times (2021), [Corporate Japan gets serious about ESG](#)

¹⁷ Willis Towers Watson (2020), [ESG and Executive Compensation: Hearing from board members globally](#)

Figure 3 Average market capitalisation by ESG score and by different providers, selected Asia-Pacific economies, 2021

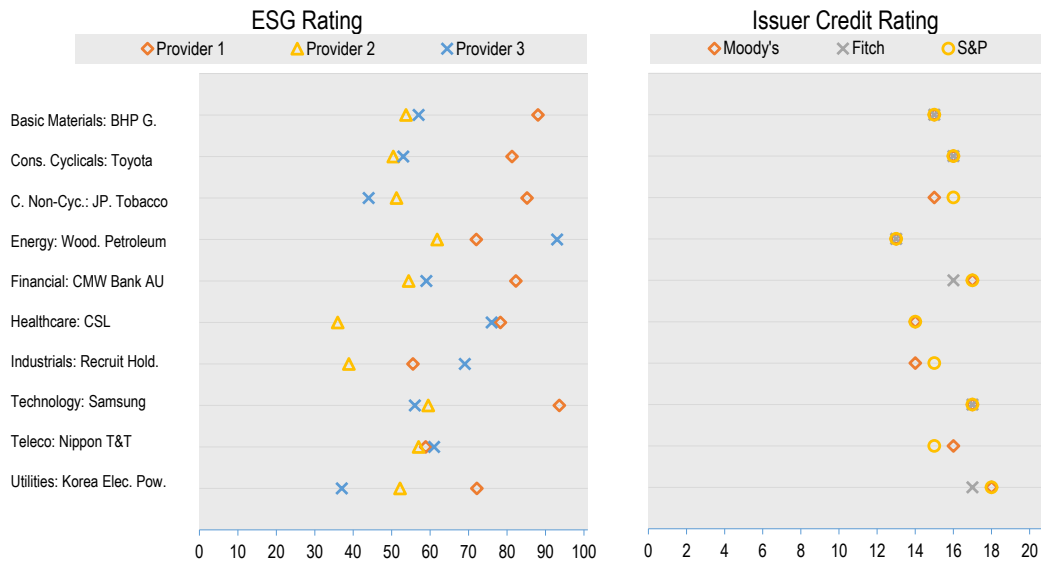


Note: Comparison of three different providers of ESG scores (shown in different colours) in terms of average market capitalisation; One provider lacks enough data relative to ESG scores in the range from 70 to 100 to be included in the analysis. Market capitalisation calculated as of 01/01/2021. The Selected APEC economies include Australia, Indonesia, Japan, Malaysia, New Zealand, Singapore, South Korea and Thailand. Source: Bloomberg, MSCI, Refinitiv, OECD calculations

1.3.3 ESG vs credit ratings score comparison in Asia

ESG ratings were compared with a selection of issuer credit ratings by major providers and it was 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 providers 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. The results are similar to the global assessment of ESG in that there is a much wider dispersion, whereas credit ratings in all regions looked at are much closer. While ESG methodologies have been developed recently, credit ratings have a much longer history. The development of the latter have allowed credit ratings to be tested in different occasions, therefore improving the usefulness of the tool and creating a stronger convergence in the credit risk methodologies.

Figure 4 ESG Ratings and Issuer Credit Ratings, selected companies in Asia-Pacific economies, 2021



Note: Sample of public companies selected by largest market capitalisation and data availability as to represent different industries in Asia. The issuer credit ratings are transformed using a scale from 0 to 20, where 0 represents the lowest rating (C/D) and 20 the highest rating (Aaa/AAA). Where ratings were not available in 2021 previous years' ratings have been used.

Source: Refinitiv, Bloomberg, MSCI, Moody's, Fitch, S&P; OECD calculations.

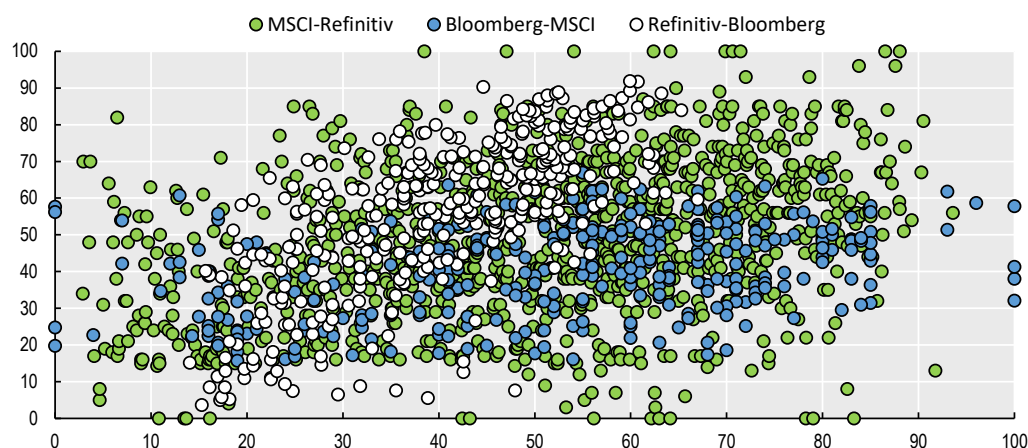
As a result of the engagement of various market participants in the financial ecosystem ESG ratings are created by specialised ratings agencies. In this regard the process is divided in two phases:

Company disclosure: A rapidly growing number of issuers are disclosing non-financial information related to ESG. As described, a number of framework providers are providing reporting frameworks, some of which serve primarily financial investors (SASB, TCFD) while others are more likely to be utilised for reporting to a range of stakeholders with societal interests that could span human rights, labour standards, and environmental preservation. However, currently there are no global standards for ESG disclosures, and the differences are now becoming accentuated by diverging expectations from central and supra-central authorities in different parts of the world. Given the differences and difficulties in the reporting of sustainable metrics, stakeholders are urging for a stronger standardisation of guidelines. Moreover, more than 80 stock exchanges now provide guidance on ESG disclosures, based in large part on prominent frameworks from the aforementioned organisations. While progresses are being made, the different extent to which frameworks are being incorporated creates a divergence on ESG standardisation. More than 90% of stock exchanges make reference to GRI, while less than 50% refers to TCFD, making it harder to compare listed companies on certain metrics.

ESG ratings: ESG investment decisions are commonly shaped by ESG ratings of issuers, which are derived from non-financial disclosures of companies, as well as public data and third party analysis. As such, a small group of prominent ratings providers have considerable influence over the ways in which institutional investors perceive how companies and other issuers rank in terms of ESG factors. While these ratings providers offer a valuable service to help investors consider ESG factors when making investment decisions, the ratings processes can result in lack of consistency and comparability in several ways. First, widely differing choices of metrics to assess the myriad disclosures from issuers. Second, different methodologies for assessing and weighing the metrics can contribute to different scopes even if the source of disclosures and metrics were to be very similar. Third, the use of qualitative judgment to arrive at financial E, S and G scores, particularly when such judgment compensates for data gaps. Combined, these factors result in very different ratings outcomes for individual companies, such that some large-cap

exchange-listed companies can receive a high score from one well-established rating provider, and a relatively low score from another. Differences in frameworks, measures, key metrics, and weightings contribute to wide differing ratings for individual issuers.

Figure 5 Different providers' rating correlation for selected APEC economies' companies



Note: The Selected APEC economies include: Australia, Indonesia, Japan, Malaysia, New Zealand, Singapore, Republic of Korea and Thailand.
Source: Bloomberg, MSCI, Refinitiv, OECD calculations

1.3.4 ESG portfolio performance based on efficient frontiers

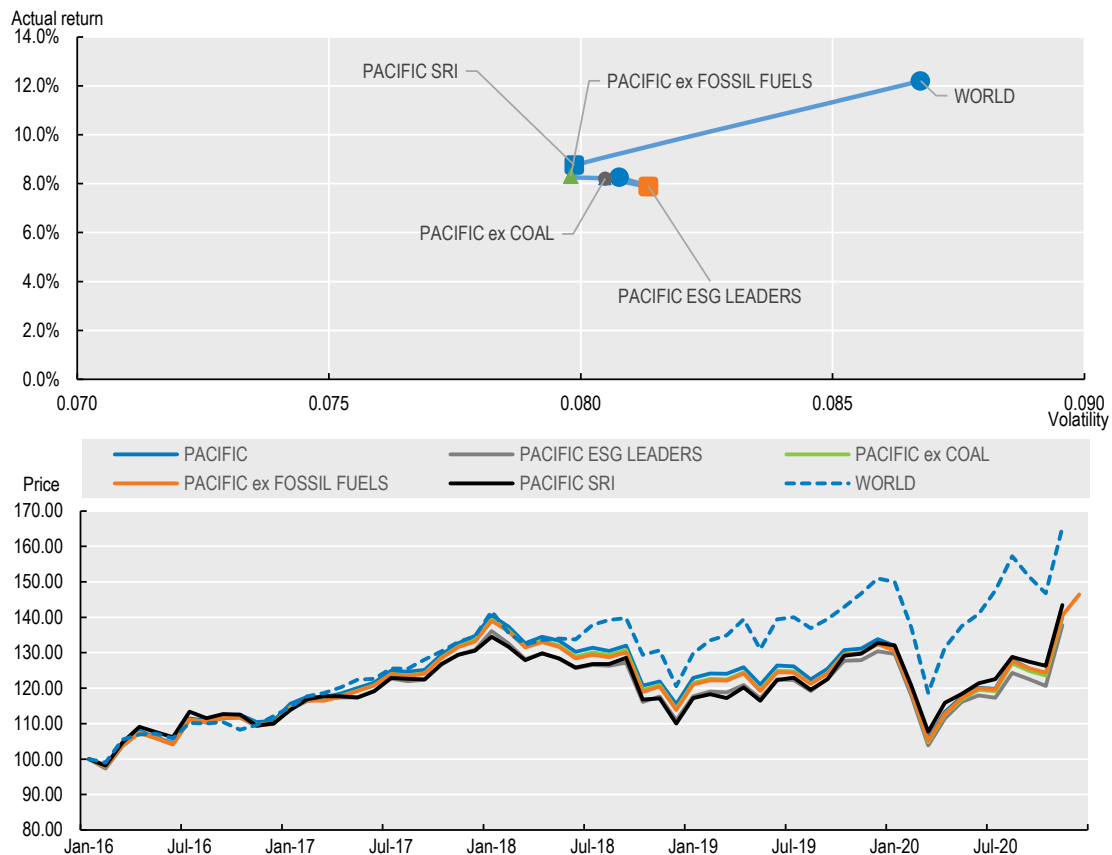
The analysis of Markowitz's efficient frontier provides an understanding of how performances vary depending on risk, in this case volatility, based on ESG categorisations. A framework is used where every index is treated as if it was a single asset. A total of six MSCI indices, five of which are ESG indices, are being analysed to assess returns and risk-adjusted returns. These indices are considered even though they are built using different methodologies and with different objectives in mind in terms of sustainability and risk management.

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 tilted or excluded by the product. This can have different effects on the risk of the index or fund, since both exclusion and rebalancing towards companies that are well represented in the portfolio could further concentrate the index sensitivity to price fluctuations. This could happen both with regard to size of the companies or industry. For example, if the application of ESG results in the rebalancing towards larger firms and away from small firms, this could increase risk in some cases. Another scenario could lead to a lower volatility, if for example, the sector removed is generally more volatile. This could also have an effect on the maximum drawdown in the future, which 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.

The Minimum Variance Portfolios are computed to develop an efficient frontier of portfolios of risky assets. The results show that different ESG indices have varying risk and performances depending on how they are built. For example, the MSCI Pacific ex Fossil Fuels has the lowest volatility and the Pacific Quality the best 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. The analysis can be compared to the global findings, with some of the

ESG indices being in the efficient frontier and some others not. In general ESG indices increase slightly the general volatility, but reduce the maximum drawdown risk, a measure of systemic risk. 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.

Figure 6 Minimum variance frontier and price index using Asia-Pacific MSCI Indices, 2016-2021



Source: MSCI, OECD calculations

1.3.5 Capital Asset Pricing Model performance

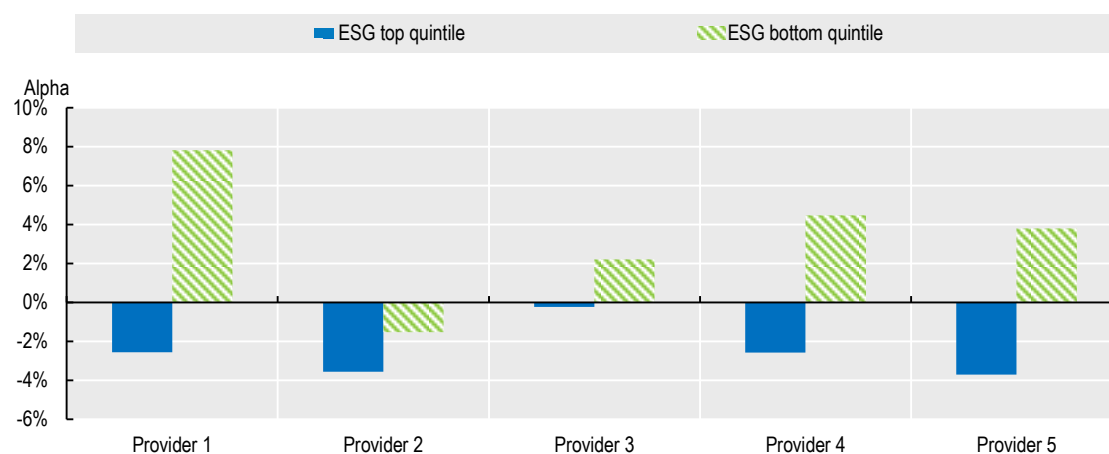
The following analysis uses the Capital Asset Pricing Model to determine the relationship between ESG scores and financial returns, based on backtesting of various portfolios using different providers' ESG data. In this case, results can vary due to different providers' methodology, investment strategies and periods. 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 market.

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. Similarly, the correlation between ESG and future performance is low, so the outcome can be influenced by other factors such as implementation strategies and approaches.

The excess return generated depends on the provider chosen to build the portfolio, even though low scoring portfolios generally perform better than the market. This could depend on different factors which are not taken into account by the CAPM such as the size of the firms in the portfolio considered and on the fact that the portfolios, built by equally weighting different companies, do not take into account companies without an ESG score, which are generally small capitalised companies. Moreover, the CAPM does not take into account tail risks.

The model aims at pricing assets after taking market risk into account. The alpha extracted from the model measures the excess return of an investment relative to the return of a benchmark index, in this case the MSCI Pacific index. The results are a comparison between the performances of selected portfolios (in this case the ESG portfolios built using different providers), after taking into account for the general risk of the market, also known as systemic risk.

Figure 7 ESG top and bottom quintile Alpha by different providers, selected APEC economies, 2009-2019



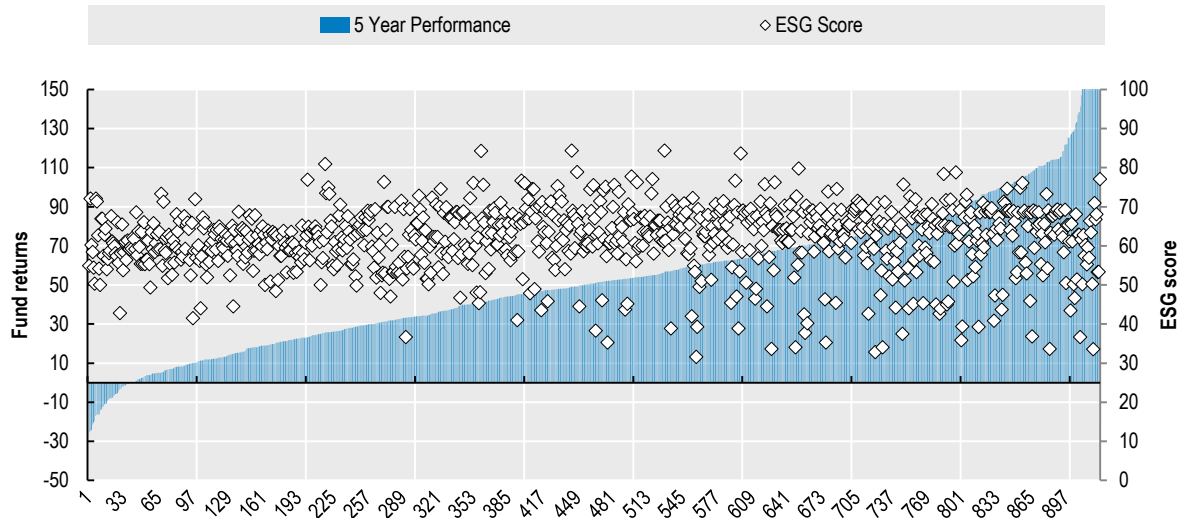
Note: The Selected APEC economies include: Australia, Indonesia, Japan, Malaysia, New Zealand, Singapore, Republic of Korea and Thailand.
Source: Bloomberg, MSCI, Refinitiv, RobecoSAM, Sustainalytics, OECD calculations

1.3.6 Performance review of ESG funds

An analysis of a sample from Refinitiv of funds with a wide range of ESG ratings in selected Asia-Pacific economies reveals the best and worst rated ESG sustainable funds. This analysis focused on understanding eventual links between ESG and the risks and performance of these funds.

The evidence shows no correlation between best and worst rated ESG funds and their performance measured in equity returns. These findings correspond to the findings for the analysis of world funds in the ESG Investing report by the OECD. The charts show that ESG is clearly not the key driver, and there are other factors at play. Certainly, investment objectives and constraints of each fund, their strategies, geographic and industry focus, and even the performance of individual portfolio managers all influence the outcomes. More work is needed in this area to better understand performance attribution

The results show performances ranging from around -25% to +250%, with very little difference between low scoring funds and high scoring funds. In addition, the returns and performances are generally more influenced by the type of strategy adopted. For example, funds with negative performances generally invested more in small capitalised companies or high-yield fixed income, while funds performing the best invested in large capitalised companies.

Figure 8 Distribution of over 900 funds and relative ESG ratings, 2021

Note: Analysis of 921 funds domiciled in selected APEC economies, including Australia, Indonesia, Japan, Malaysia, New Zealand, Singapore, Republic of Korea and Thailand. The ESG score used are as of September 2021. The returns used are 5 years to September 2021.
Source: Refinitiv, OECD calculations

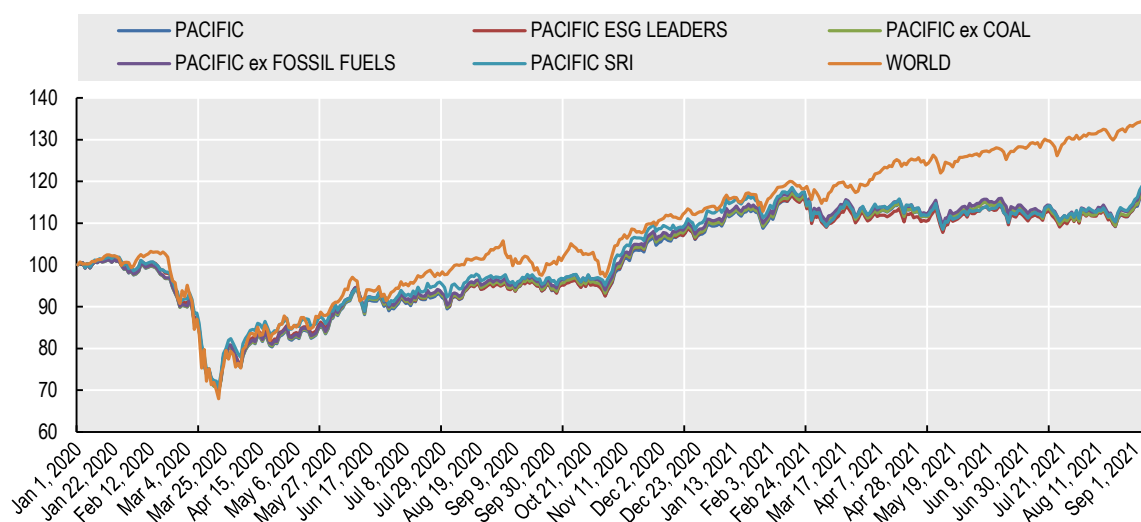
1.3.7 The COVID-19 crisis and ESG performance

Building on the previous section's findings, and in the context of downward pressure on financial markets as a result of the COVID-19 pandemic, there is also a need to understand the dynamics and performance of ESG funds and ESG investing more broadly throughout the COVID-19 period.

While some studies suggest underlying ESG factors could have had an impact on performance throughout the early COVID-19 period, there are also a number of other factors that could have impacted performance. While some ESG funds and indices showed a lower underperformance if compared to non-ESG indices, hinting to an increased resilience of sustainable investments, a number of external drivers may have also had an impact on this performance. One factor is that many funds use screening and tilting methodologies which exclude or significantly reduce the representation of certain industries (e.g. coal, oil and gas) in an index or fund and over weight others (such as technology); such investment positions have benefitted from the reduction in energy demand and the surging use of social media and e-commerce during the pandemic. Moreover, biases such as investing in companies with larger size could have also contributed making the funds more value-oriented, including more resilient companies (with unimpaired access to finance) in the index or fund.

Initial research on this (Demers, 2020) found that once the firm's industry affiliation, accounting and market measures of risk have been controlled for, ESG scores offer no positive explanatory power for returns during COVID-19. Moreover, ESG investing was negatively associated with returns during the recovery period in the second quarter of 2020, suggesting that industry affiliation was the greatest driver of returns.

Figure 9 Performance of selected ESG indices during the COVID-19 crisis



Source: MSCI, OECD calculations

To understand the extent of this lower underperformance, different indices from MSCI were analysed and compared. The graph represents different MSCI PACIFIC indices in order to compare MSCI ESG indices with the region's MSCI standard index.

The relative performance shows that while some MSCI ESG indices had lower underperformance than the PACIFIC standard index during this period, others had worst performances. Among indices that performed better than their ESG counterparts is the MSCI World index, which performed better than others did since the beginning of 2021.

There has been significant discussion over ESG indices 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 overperformed 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.

1.4 Conclusion and next steps

Efforts to assess the potential for ESG investing to deliver long-term value, and also to align with sustainability goals, as well as to identify key challenges, have delivered a set of compelling observations with respect to ESG methodologies and metrics, performance, and materiality. In this regard, the report has shed light on the current state of ESG ratings and ESG investing in Asia-Pacific by analysing the current disclosure framework and the performances of ESG portfolios and funds, showing that more progress needs to be done in areas of transparency.

While important progress has been made to improve ESG rating and investing approaches, methodologies will need to move from rewarding disclosure to rewarding alignment of company

activities with sustainability, particularly in Asia-Pacific Economies. The analytical results show that ESG investment is at a critical stage of development, in which stakeholders need guidance in order to be able to improve the instrument and address existing challenges. Consistency of findings leads to policy considerations which include:

Strengthen the transparency of ESG rating and investing approaches, and improving the quality of data used for investment decisions. ESG ratings often lack transparency in their calculation and differ substantially in the metrics on which they draw, as well as the methodologies used in their calculation, raising questions as to the extent to which their aggregation contributes to long-term value. Methodologies also tend to differ substantially across rating providers, and result in a lack of correlation between ESG ratings supplied by different providers. Therefore policies are needed to ensure global transparency of core ESG metrics in reporting frameworks, ratings, and definitions of ESG investment approaches.

Improve ESG methodology frameworks and further strengthen TCFD disclosure practices to improve granularity, reliability and transparency of metrics and targets. The current environment surrounding the regulation of ESG investment is still fragmented, with different standards and a lack of comparability in the disclosure of essential metrics. The sustainable finance industry should assess available ESG reporting metrics from prominent providers (e.g. IFRS, SASB, GRI, TCFD) to determine a set of core metrics that are highly relevant to investors and other stakeholders based on availability, relevance, and materiality as they relate to the needs of financial investors or other stakeholders, such as impact or social investors. Building on progress from 2021 TCFD Proposed Guidance on Climate-related Metrics, Targets and Transition Plans,¹⁸ regulatory authorities should consider moving towards to mandatory financial and non-financial sustainability corporate reporting to support greater data reliability in line with domestic regulatory frameworks. In this regard, the IFRS Foundation has proposed the launch of the International Sustainability Standards Board through a consultation, the aim of which would be to replace current guidance with a single set of norms for firms reporting the impact of climate change on their business and to contribute core metrics' relevant to investors on sustainable finance. Greater assessment by central banks and international organisations of the impact of anticipated policy measures with respect to elements of the TCFD framework are also warranted.

Clarifying alignment with decision-useful information to investors. Investors that integrate ESG factors for sustainable finance should have sufficient information from ESG providers as to the extent to which ESG products – indices, portfolios, funds – align with the investment objectives in terms of returns and deviation, and constraints. As well, for those investors that wish to better align investments with societal values, that can also contribute to more resilient finance over the long-term, such metrics should also be made clear. The inconsistencies and lack of comparability of ESG ratings and lack of alignment with long-term enterprise value and sustainability goals, raise questions about the extent to which current ESG metrics are fit for purpose and align with decision-useful information to investors.

Improving performance attribution to understand how ESG approaches, relative to other factors, contribute to long-term value. Given the wide differences in ESG methodologies and the multitude of factors that can affect performances of ESG portfolios, the performance attribution of ESG approaches to portfolio returns and volatility is difficult to ascertain. In many instances not enough information is provided to understand if ESG considerations are the real drivers behind the performance of sustainable funds. More clarity on how ESG approaches have impacted asset selection, distinct from the chosen investment strategy, should help investors to better understand this.

Improve transparency with respect to alignment with sustainability goals, such as climate transition and net-zero, so that investors who wish achieve particular outcomes can use ESG to help rebalance portfolios accordingly. While some rating providers take into consideration carbon

¹⁸ TCFD (2021), [Proposed Guidance on Climate-related Metrics, Targets and Transition Plans, Task Force on Climate-related Financial Disclosures](#)

emission, this is not done on a systematic basis, and does not reward companies for investment to support a low-carbon transition. Therefore, greater coordination is needed between rating providers, market participants and policymakers to improve transparency of metrics by which to measure progress in line with a low-carbon transition for a subset of metrics of the environmental pillar of ESG. This should include transparent metrics that measure, among other metrics, changes in carbon emissions, carbon intensity, environmental R&D, use and investment in renewable energy. Greater transparency should also be achieved as to the extent to which these metrics are used to define E scores, with clarity as to the extent to which estimates or metrics on company disclosure are relied upon to make an E score assessment.

International co-operation is needed to ensure that ESG practices progress in a manner that does not give rise to market fragmentation, and upholds investor confidence and market integrity.

Addressing challenges related to information on sustainability-related risks and opportunities is of vital importance to ensure that capital is allocated to investments that support sustainable growth and to improve the path for Asia-Pacific economies to meet net-zero and climate goal targets by 2030 or 2050. This report aims to highlight areas for improvement to strengthen ESG scores in Asia-Pacific Economies, and support international efforts, such as those undertaken by the G20, to improve the transparency of core ESG metrics.

2. The application of ESG considerations in infrastructure investment in the Asia-Pacific

2.1 Introduction

The OECD has highlighted the importance of infrastructure as a driver of economic prosperity and the basis for strong, balanced, and inclusive growth and development. Mobilising investment in infrastructure, combined with maximising economic impact that support sustainability, is critical to meet these objectives.

For the Asia-Pacific region, rising and ageing populations, and continued rapid growth are generating new and diverse infrastructure demands. In 2018, the Asian Development Bank reported that the unmet investment needs in transport alone amounts to USD 600 billion annually in the Asia region¹⁹. Additionally, investment needs to meet the multiple challenges that the region faces include climate change, natural hazards, shifts in demographics and enhancing connectivity.

The integration of environmental, social and governance (ESG) factors in infrastructure investment decision-making processes by institutional investors is an important consideration for the Asia-Pacific region. It could support the development of resilient and sustainable infrastructure, and the further implementation of Quality Infrastructure Investment (QII). If institutional investors can contribute to QII in the Asia-Pacific region, there is the potential to release trillions of assets into the infrastructure of the region.

The availability of sufficient and adequate data is as an important prerequisite to support the integration of ESG factors in infrastructure investment. This report examines some aspects of data availability for infrastructure investment, ESG investment practices, and the integration of ESG factors into infrastructure investments. Challenges and potential solutions related to data and its collection in general, as well as specific to the Asia-Pacific region are presented. Further, the report discusses the relevance of regulations and taxonomies in improving data availability.

Based on the findings of this report, further OECD work can be developed to address the challenges around data availability and collection regarding the integration of ESG factors into infrastructure investments. This analysis could examine data gaps of data collection efforts related to ESG investments in infrastructure, and could contribute to support APEC economies in scaling up and improving their investments in sustainable infrastructure.

¹⁹ Asian Development Bank. (2018), [Closing the Financing Gap in Asian Infrastructure](#)

2.2 Data collection by the OECD related to institutional investors

This section gives an overview of the annual data collection carried out by the OECD and the scope of data collected. The OECD annually collects data on pension funds' asset allocation as part of the work of the OECD Task Force on Long-term Investment. The data is collected at the individual pension fund level. Data on institutional investors' assets – for insurance companies and pension funds – is collected annually at the central level as part of the OECD Global Pension and Global Insurance Statistics exercise from the relevant authorities.²⁰

2.2.1 Outcomes of the 2019 data collection of large pension funds and public pension reserve funds and relevant findings

Since 2012, the OECD has collected data on an annual basis of individual pension funds that are amongst the largest in their respective economies, including large pension funds (LPFs)²¹ and public pension reserve funds (PPRFs)²². The survey sent to the institutions is comprised of qualitative and quantitative questions, with collected information encompassing key figures related to the funds' investment programmes and investment portfolios, including total assets under management (AUM), asset allocation, and domestic and foreign investments with a breakdown by region. The survey also gathers specific information on investments in infrastructure and sustainable assets, as well as qualitative information on the institutions' approach to sustainability. The data that sets it apart from other publicly available information on pension funds' asset allocation is the granular data on infrastructure investments, since available information on investment in alternatives – and in particular infrastructure – is scarce. Therefore, the collected data sheds light on the role that large institutional investors play as a source of stable, long-term capital.

In 2020, the OECD data collection captured 90 large pension funds (LPFs) and public pension reserve funds (PPRFs) which in total had USD 6.6 trillion in asset under management (AUM). The survey captured data of the year 2019, and pension funds included in the survey were based in Europe, Asia-Pacific, South America, North America and the Middle East. Economies represented from the Asia-Pacific region were Australia, New Zealand, India and Hong Kong, China.

In 2019, the average portfolio for the LPFs based in the OECD showed that 41.7% of total assets were invested in fixed income and cash, 32.6% in equity, and 18.8% in alternatives or other investments. For LPFs in non-OECD members, the average portfolio held 69.5% in fixed income and cash, 23.9% in equities, and 6.6% in alternatives or other investments. Typically, in non-OECD members, portfolios were tilted toward safer assets.

Pension funds have mostly invested across borders by diversifying equity and fixed income portfolios, but some also invested in foreign alternatives, such as real estate, private equity and infrastructure. Emerging market investments are part of the foreign allocations of both the LPFs and PPRFs, with emerging markets equities the most common. The average surveyed LPF based in OECD members invested 62.5% of their total assets in foreign markets. The funds based in non-OECD members invested much lower amounts in foreign markets, 12.4% on average. Seven Indian LPFs invested 100% of their portfolio domestically.

²⁰ The OECD [Global Pension Statistics](#) and OECD [Global Insurance Statistics](#)

²¹ The survey does not utilise a strict definition of a large pension fund, but seeks to capture trends by looking at the largest investors in the world, compared on an absolute basis, followed by the largest investors within specific economies.

²² PPRFs hold reserves established by governments or social security institutions to support public pension systems, which are financed on a pay-as-you-go basis.

Some PPRFs have diversified investments into foreign markets. With the exceptions of PPRFs that reported zero foreign exposure (four pension funds), other PPRFs had large exposures to foreign markets. The PPRF New Zealand Superannuation Fund invested 87% of its portfolio in foreign economies, of which 30% was invested in Japan, Korea, Australia and New Zealand, and 11% in other Asian economies. The Australian LPFs CBUS and Hostplus both invested around 40% of their portfolio abroad, of which CBUS invested 6.4% and Hostplus 6.9% in Asia-Pacific.

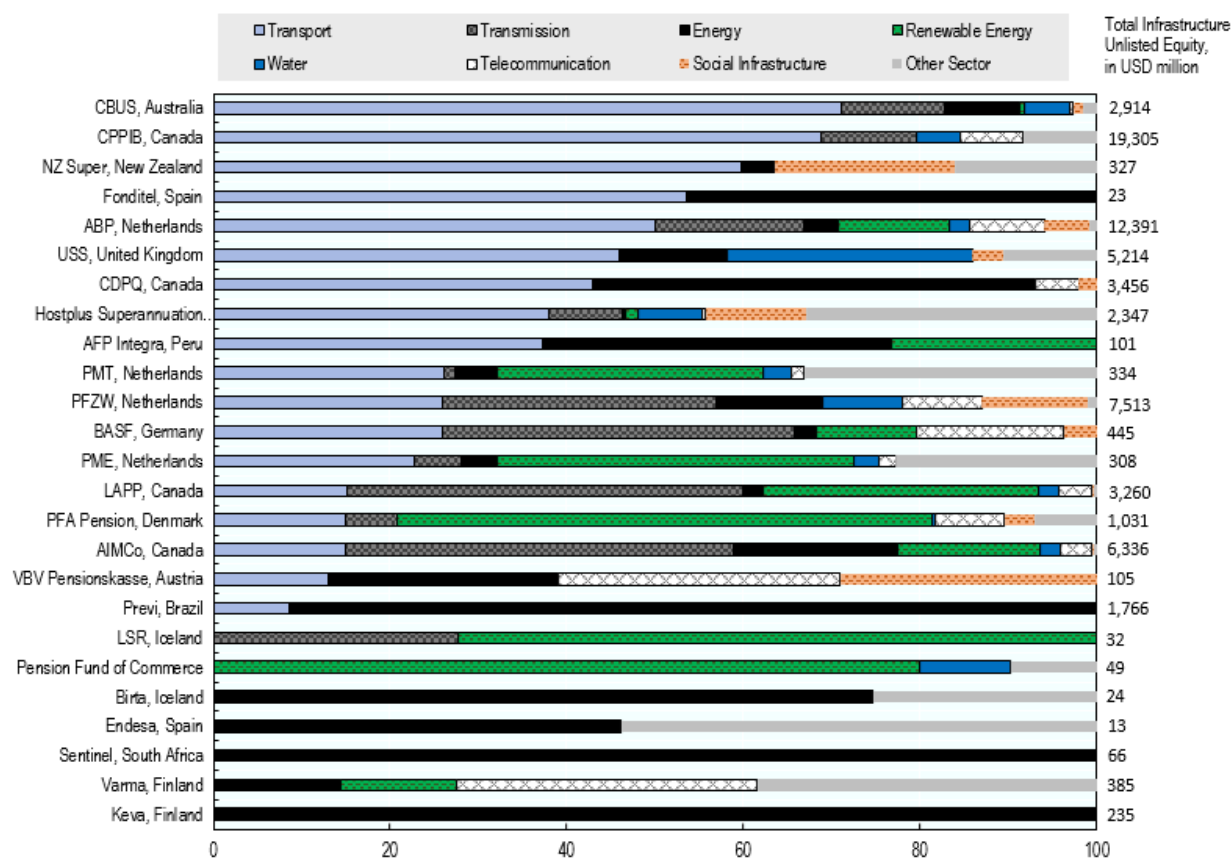
Out of the total 90 LPFs and PPRFs that responded, 35 funds reported investment in unlisted infrastructure equity. The pension funds in this group allocated on average 3% of total assets to unlisted infrastructure equity – an overall moderate amount of investment. These funds have varied experience in the infrastructure sector with some having well established investment programmes in this sector, and others recently adding allocations.

The overall low levels of investment observed in the 2019 data are likely to be in line with the broader pension fund market, as not all investors have established infrastructure investment allocations. Amongst funds that reported allocations to unlisted infrastructure equity portfolios, energy was the largest component, with the average fund investing 26.5%, followed by transport with an average of 25.4% and renewable energy with 15.7% (Figure 10). Survey results show widely varying investment levels by pension funds in the various sectors, yet most funds were diversified. The data shows that pension funds are significant investors in renewable energy.

While a number of funds are expressing greater interest in investing in greenfield assets, relatively few funds reported exposures to such assets, indicating that policies targeted at attracting investment in new projects is needed, along with improving business and financing models to cope with construction risk.

Figure 10 Infrastructure sector allocations of selected LPFs and PRPFs in 2019

As a percentage of total unlisted infrastructure equity investment



Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs.

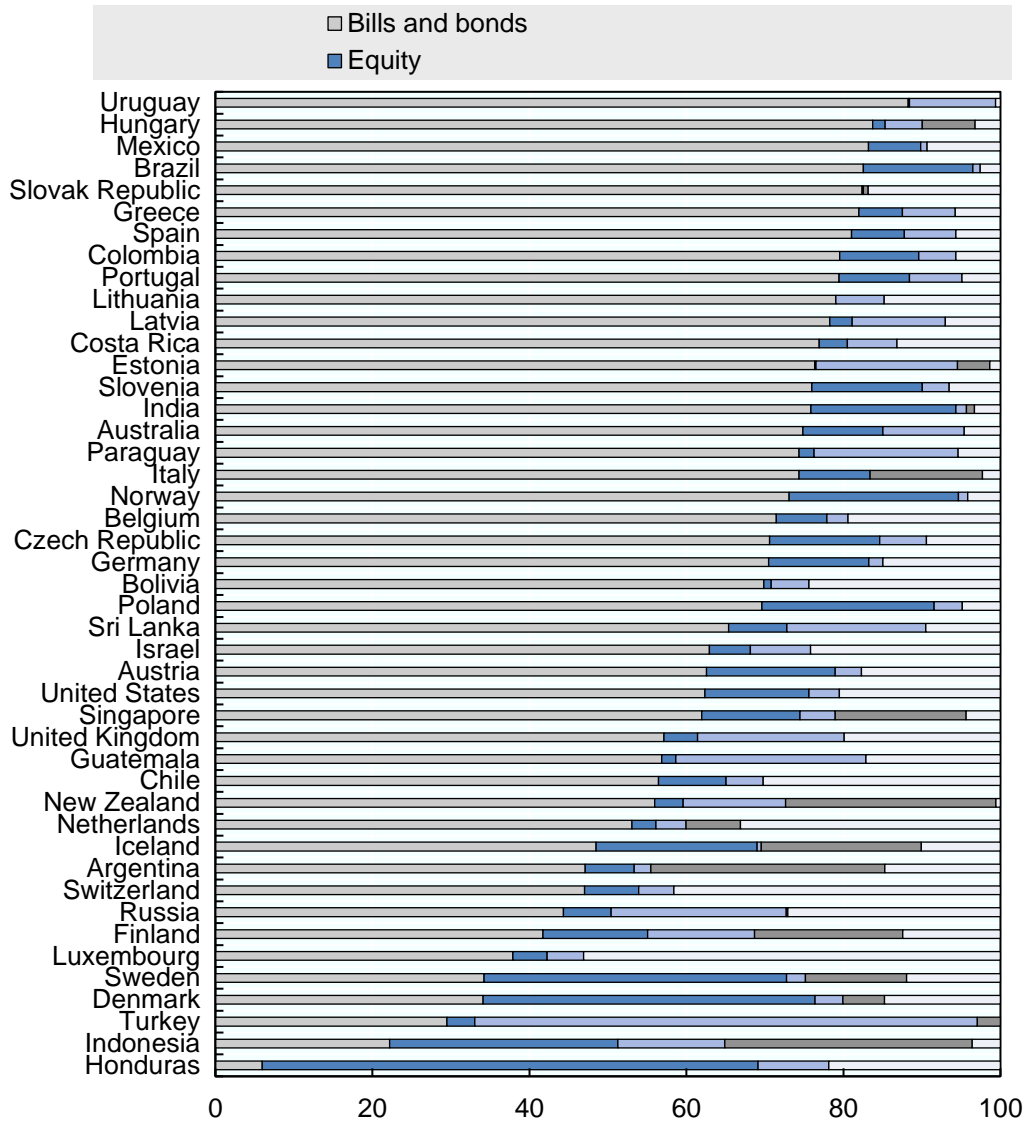
2.2.2 Outcomes of the 2019 data collection of institutional investors

The OECD Global Pension Statistics include detailed administrative data on pension funds, which is gathered at the central level. The data is collected annually and includes data on outstanding amounts of financial assets, such as currency and deposits, securities, loans, and shares and when relevant it is further broken down according to maturity and residency. The detailed breakdown in asset allocation does not include a category for alternative, nor infrastructure investments. In 2019, the Asian-Pacific economies represented in these statistics were Australia, Chile, People's Republic of China, Hong Kong, China, India, Indonesia, Japan, Korea, New Zealand, Singapore and Thailand.

The OECD Global Insurance Statistics encompass information on insurance premiums and investments of insurance companies based in OECD members and non-OECD members and are gathered at the central level. The statistics include all insurance companies licensed or authorised in the reporting economy and exclude statutory system of social security administered by the government. In 2019, Asian-Pacific economies included were Australia, Chile, India, Indonesia, Japan, Korea, Malaysia, New Zealand, Singapore, Chinese Taipei, and Sri Lanka. Further, the detailed breakdown in portfolio allocations does not include a category for alternative investments, nor infrastructure investments.

Figure 11 OECD insurance statistics: Asset allocation of domestic insurance companies (all sectors), 2019

As a percentage of total unlisted infrastructure equity investment



Note: Life, non-life, and life and non-life.
Source: OECD Global Insurance Statistics.

With regard to the portfolio allocations of the economies' domestic insurance companies, most investments were allocated to bills and bonds, as well as equity, as presented in Figure 2.

2.3 Infrastructure data collection

This section provides an overview of data on infrastructure that is collected by the OECD, data providers specialised in infrastructure assets, and of the availability of infrastructure investments information in the Asia-Pacific.

2.3.1 Types of infrastructure data that is available in OECD LPF Survey

Through the OECD annual survey of LPFs and PPRFs, the OECD collects information on infrastructure investment, using a broad definition of infrastructure, including transport, utilities and energy, communications and social infrastructure. The survey collects data on amounts allocated to infrastructure investments by all types of financial instruments. Further, data on amounts allocated to infrastructure equity investments is gathered by sector and by phase. The sector breakdown includes energy generation, energy transmission and distribution, telecommunication, water and social infrastructure. Energy generation is broken down into renewable energy, which in turn is detailed into solar, onshore wind, offshore wind and other renewables. The phase breakdown includes greenfield, brownfield and uncategorised.

Detailed, publicly available aggregated information on institutional investor's infrastructure investments is limited. Information on infrastructure investments is often part of different allocation headings, such as private equity or real estate. Indeed, in the 2020 data survey round, only few pension funds indicated to have a separate allocation for infrastructure investments in their investment portfolio. For instance, the PPRF New Zealand Superannuation Fund indicated that it invests in infrastructure as opportunities arise, but that it does not have a predefined allocation. Amongst some pension funds, infrastructure debt is not reported separately as infrastructure investments, and can be, for instance, part of the "private debt", "foreign debt" or "fixed income" allocation. Moreover, most financial statements and annual reports lack infrastructure data on a granular cash flow level or are missing a breakdown by financial instrument.

2.3.2 Types of infrastructure and ESG data that is being collected by data providers

Despite the increasing interest in alternative investments, publicly available data on institutional investors' investment in infrastructure is limited when compared to other asset classes more broadly. Central statistical agencies do not collect separate data on these investments and information is often included under different asset allocation headings.

EDHECinfra is an infrastructure data provider that collects data, develops methodologies, and produces research and tools to identify the financial, economic and social value of infrastructure. It provides market indices, performance benchmarks and valuation analytics for investors in unlisted infrastructure equity and private debt. For instance, the globally used Infrastructure Company Classification Standard (TICCS) is a standard created by EDHECinfra to categorise and benchmark infrastructure assets and companies in both the unlisted and listed space. Further, EDHECinfra's research is based on a database of infrastructure data that tracks investments in 25 economies over the past 20 years (EDHEC, 2021)²³.

Currently, EDHECinfra is developing tools to measure the current and evolving risks and impacts that ESG considerations bring to infrastructure investment. The main objective of the project is to develop a set of indicators to measure the magnitude of infrastructure assets' contribution to climate change, as well as climate-related risks faced by the assets. In these endeavours, EDHECinfra is using a variety of data sources, including satellite information produced by the United States National Aeronautics and Space Administration (NASA). Further, it attempts to take into account the social acceptability risk by using digital tools that filter online information on how infrastructure assets are perceived by society. Beneficiaries of this project are envisioned to be, amongst others, private and public investors, which can use the tools to optimise portfolios using objective climate risk estimations (EDHEC, 2021)²⁴.

The Global ESG Benchmark for Real Assets (GRESB) collects and analyses data on the ESG characteristics of infrastructure investments through its annual Infrastructure Assessments, which are

²³ EDHECinfra. (2021), [A new era of data & analytics for infrastructure investors, retrieved August 2021](#)

²⁴ EDHECinfra. (2021). [Creating green investment knowledge for infrastructure investors, retrieved August 2021](#)

aligned with international reporting frameworks²⁵. It produces the Real Estate Benchmark, Real Estate Development Benchmark, Infrastructure Fund Benchmark and the Infrastructure Asset Benchmark²⁶.

The GRESB Infrastructure Fund Assessment and Infrastructure Asset assessment provide a score and peer benchmark of ESG management – and for assets additionally ESG performance – of infrastructure funds and assets worldwide. The GRESB Infrastructure Fund Assessment measures the funds' management component, based on the funds' leadership management, policies, reporting, risk management, and stakeholder engagement approach (GRESB, 2021)²⁷. The Infrastructure Asset assessment measures the performance component, which comprises of performance information collected at the asset level, including aspects, such as energy, greenhouse gas emissions and air pollution (GRESB, 2021)²⁸.

In the 2020 round of the OECD Survey of LPFs, many pension funds that reported infrastructure investment indicated that they use GRESB data and analytical tools in their investment management and engagement process, including almost all Australian pension funds.

2.3.3 Types of ESG metrics available in infrastructure

ESG metrics are used to assess a company's exposure to a range of ESG risks. These metrics can be used for ESG integration approaches, such as benchmarking and scenario analysis (more details on ESG metrics in the accompanying OECD report, *ESG Investing - Trends in APEC Economies: Practices, Progress and Challenges*).

Schemes and guiding frameworks that are designed specifically for the infrastructure sector or cover the infrastructure sector in some detail include GRESB infrastructure asset assessment, the SuRe standard (Global Infrastructure Basel Foundation), CEEQUAL (BRE Global Limited), the IS rating scheme (Infrastructure Sustainability Council) and the Envision rating tool (Institute for Sustainable Infrastructure).

Schemes, more broadly, use different metrics to measure ESG alignment. In assessing the greenhouse gas emissions, GRESB infrastructure asset assessment, GRI standards, Refinitiv ESG Scores and the SuRe standard ask for the reporting of greenhouse gas emissions in tons of carbon-dioxide equivalents, but the level of detail and associated reporting requirements vary between the schemes.

Fitch Ratings ESG scores (ESG.RS) provides insight into the credit relevance and materiality of ESG factors for the infrastructure sector. The scores show how ESG factors affect global infrastructure and project finance issuer or transaction ratings. The ESG.RS consider 14 general ESG issues for these issuers or transactions, and are expressed on a 1 to 5 scale, with 1 indicating irrelevance and 5 being highly relevant for the rating.

2.3.4 Asian infrastructure information availability

In 2020, the OECD Survey of LPFs covered 13 LPF and PPRFs that are based in the Asian-Pacific region, including Australia, India, Hong Kong, China, and one PPRFs based in New Zealand, of which 11 provided infrastructure data on asset allocations and three provided a detailed breakdown by infrastructure sector.

A web search of 80 institutional investors in Asian-Pacific economies revealed that approximately two-third of these investors invest in infrastructure assets according to their annual reports or financial statements. However, the majority of these investors does not disclose their infrastructure investments on a granular

²⁵ International reporting frameworks, such as GRI, PRI, SASB, DJSI, TCFD recommendations, the Paris Climate Agreement, UN SDGs, region and country specific disclosure guidelines and regulations.

²⁶ GRESB. (2021), [About GRESB and ESG benchmarking](#).

²⁷ GRESB. (2021), [Infrastructure ESG Benchmark – GRESB Infrastructure Fund Assessment, retrieved August 2021](#)

²⁸ GRESB. (2021), [Infrastructure ESG Benchmark – GRESB Infrastructure Fund Assessment, retrieved August 2021](#)

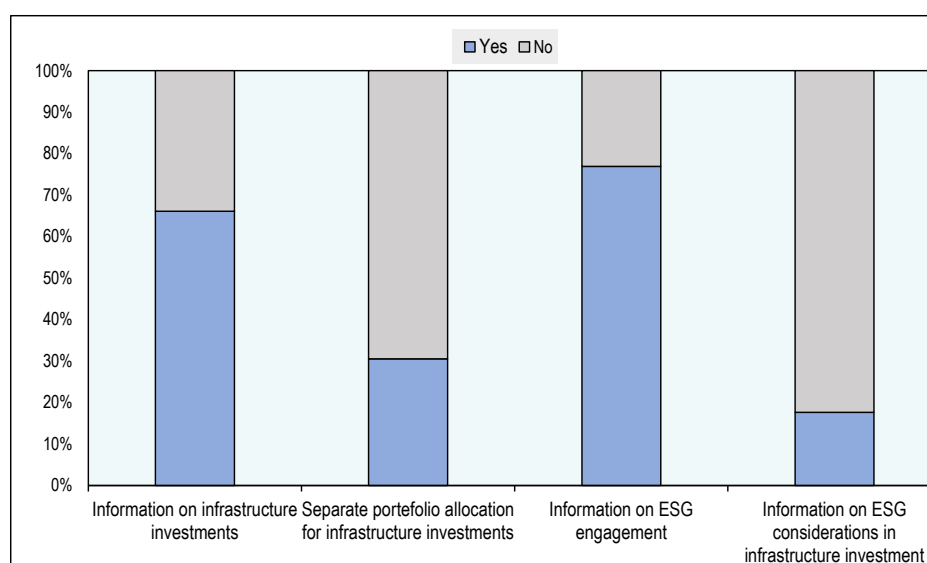
level¹². Further, around 30% of the institutional investors included in the search had a separate portfolio allocation for infrastructure investments in their financial statements.

Several institutional investors state future plans to invest in this asset class. For instance, the Japanese insurance company Nippon Life indicates in its annual report to focus and strengthen its investment and financing activities in infrastructure as one aspect of the new and growing fields¹³.

Most institutional investors provide information on ESG engagement on their website, however only around 20% of these investors explicitly disclose information on ESG considerations in infrastructure investment.

Figure 12 Web research on infrastructure and ESG investment disclosure in Asia-Pacific

As a percentage of total number of institutional investors included in the web research



Note: Economies in the web research include: Australia, People's Republic of China, Hong Kong, China, India, Indonesia, Japan, Korea, Malaysia, Nepal, New Zealand, the Philippines, Singapore, Chinese Taipei, Thailand, and Viet Nam.

Source: Web research of annual reports and financial statements of the main institutional investors in the above economies by OECD.

In 2021, the GRESB infrastructure results covered 149 funds and 558 assets in 69 economies. Of these, 76 assets were in Asia-Pacific (21 in Asia and 55 in Oceania).

2.4 ESG data collection from institutional investors by OECD

This section provides an overview of the OECD data collection related to ESG investments and official data providers' outlook on ESG data. It further presents issues around data collection on ESG investments more generally, as well as those more particular to Asia-Pacific.

2.4.1 OECD Survey LPFs (both LPF and institutional investors)

The OECD annual survey of LPFs and PPRFs collects quantitative and qualitative information on “green”²⁹ and “social”³⁰ investments³¹. In 2019, the main questionnaire was accompanied by a separate addendum with specific questions related to the ESG integration into investments, of which 20% of the pension funds responded. The following results reflect findings from the survey round covering the year 2019; and findings from questions included in the ESG addendum, which covers the year 2018. Further, a one off OECD survey on pension funds’ and insurance companies’ sustainable investment behaviour provides further insights on the topic covering the year 2018.

The OECD annual survey of LPFs and PPRFs found that investors are motivated to integrate ESG consideration into their broad investment strategy. Around 22% of the surveyed funds indicated relatively large green or social investment, reported strong commitment to ESG integration, and a vast majority of them described concrete ESG strategies in their asset classes. Around 20% of the pension funds indicated having made moderate investments in green or social assets, and most of them reported having an ESG strategy in place or to be working on a policy, strategy or methodology to incorporate ESG aspects into their investment allocation. Approximately 17% of the funds considered ESG principles in their investment activities and reported to have ESG strategies in place, but did not report specific green or social investments. Around 4% indicated to have no ESG investment policies set up yet, but expressed interest to do so in the future. Finally, approximately 35% of the investors provided no answer to ESG specific questions or reported to have no ESG policies in place.

Approximately 42% of the pension funds responding to the 2020 survey indicated to have “green” investment allocations, including green bonds³² and green equities³³. As shown in Figure 4, pension funds based in Sweden, the Netherlands, Finland and Lithuania reported sizeable allocations to green equities of which the majority targets renewable energy and low-carbon investing. Alecta (Sweden) reported that it invested nearly 43% of its portfolio in green equity and 4% in green bonds. It considers ESG factors in all of its investment decisions, including new investment strategies, product mandates and investment

²⁹ “Green” investments refer broadly to low carbon and climate resilient investments made in companies, projects and financial instruments that operate primarily in the renewable energy, clean technology, environmental technology as well as those investments that are climate change specific or ESG screened.

In terms of the OECD’s Green Growth Strategy, these would include energy efficiency projects, many types of renewable energy (excluding large scale hydroelectric power), carbon capture and storage, nuclear power, smart grids and electricity demand side-management technology, new transport technologies (electric vehicles), floodplain levees and coastal protection as well as sustainable agriculture and water infrastructure.

³⁰ “Social” investments refer broadly to investments made into companies, organisations, funds, and financial instruments with the intention to generate social impact alongside financial returns. Impact investing is a rather new phenomenon and a widely agreed upon definition is yet to emerge. Survey participants were encouraged to share their thoughts on this matter, as well as to provide data on social impact investments. Social impact bonds and development impact bonds are examples.

³¹ If a pension fund engages in “green” investments, which corresponds to the “E” component of ESG, it does not necessarily mean that this “green” investment has taken into account all ESG components. Similarly, if a pension fund engages in “social” investments, which corresponds with the “S” component of ESG, it does not necessarily mean that this investment has taken into consideration all ESG components.

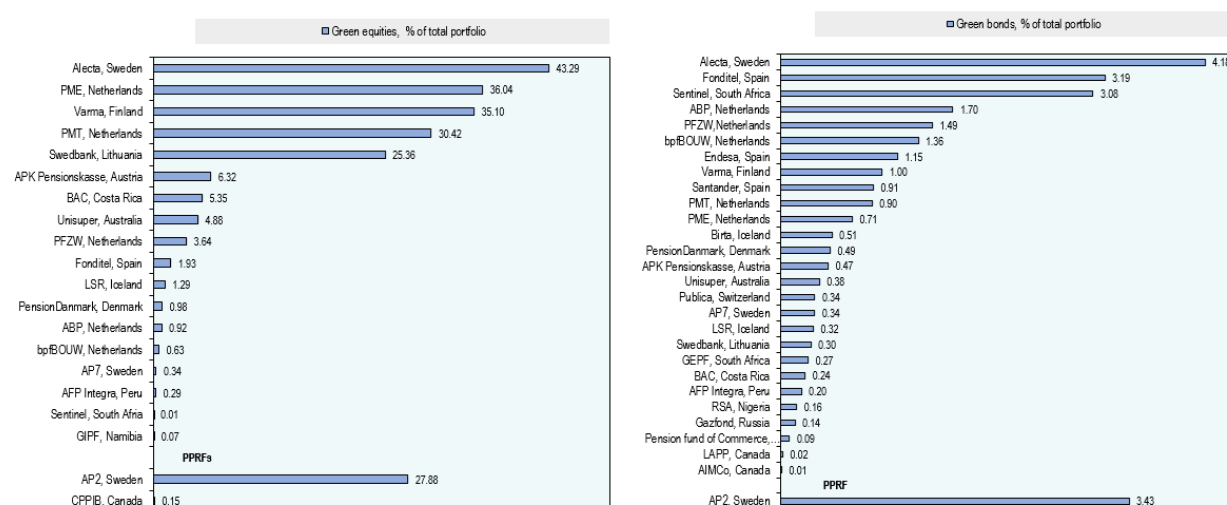
³² Green bond exposure could include labelled green bonds or climate-aligned unlabelled green bonds, with a diverse set of issuers such as government, supranational, agency, corporates, project bonds and ABS.

³³ Green equity could include products that invest actively or passively against green equity indices such as S&P Global Eco Index (or from any index provider), strategies that employ ESG screening techniques (negative and positive screens), engagement strategies, ESG equity overlays, and more specific strategies that focus on, for example, renewable energy, water, and low-carbon investing.

proposals. PME (Netherlands) reported 36% of its total portfolio to be held in green equities. While the Swedish AP2 (PPRF) allocated 28% of its portfolio to green equity, 3% to green bonds and 10% to alternative green asset classes, it also indicated to have invested 5% of its portfolio into forestry and farmland. Similarly, the New Zealand Superannuation Fund stated to have invested 4.4% of its total investments in timber. Pension funds in Sweden, Spain and South Africa indicated relatively high investments in green bonds. The PPRF AP2 (Sweden) noted that it only considers a bond to be green if it is included in Barclays Green Bond Index or issued under a green programme. Santander (Spain) remarked that it also started investing in green bonds via its non-ESG funds next to its sustainable product range, given their financial soundness.

Figure 13 Green investments of selected pension funds in 2019

As a percentage of total investment

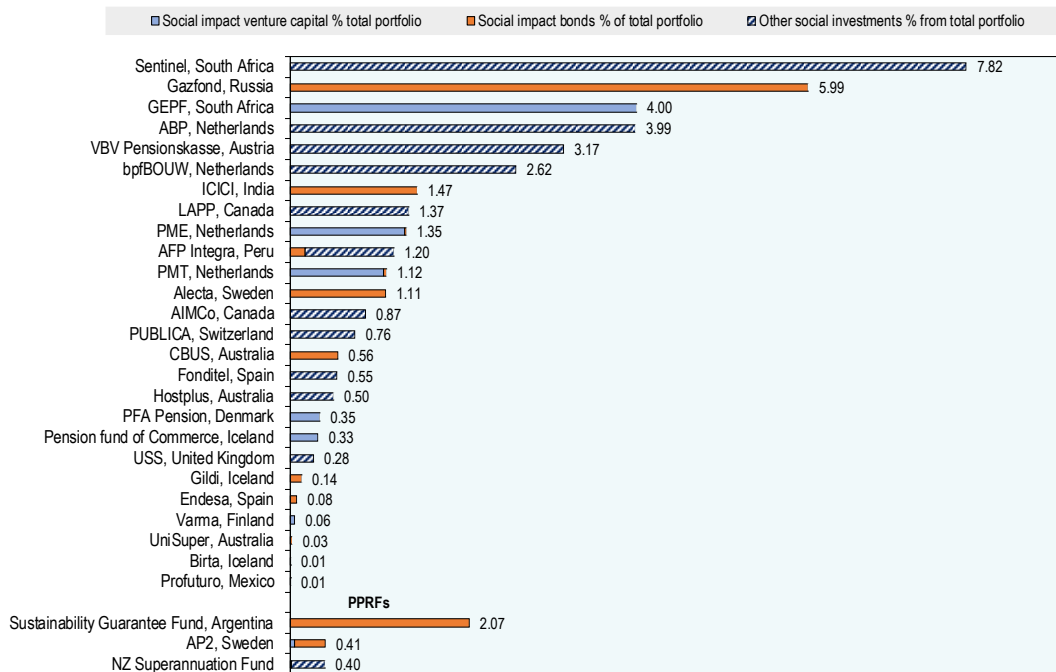


Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs.

Approximately 36% of the pension funds reported to invest in social impact capital venture or small and medium enterprise (SME) finance, social impact bonds or other social investments. As illustrated in Figure 5, the South African pension fund Sentinel invested 8% of its portfolio in investments with a social or development impact, mainly related to South Africa’s future. Many investors indicated their investment to be in the area of social and affordable housing, including the New Zealand Superannuation Fund (PPRF), Birta (Iceland), CBUS and PME (Netherlands). Even though the Argentinian PPRF Sustainability Guarantee Fund indicated to have no policies in place that require social investments, it allocated 2% of its portfolio to a social bond related to social housing. The Russian LPF Gazfond invested 6% of its portfolio into a bond that was issued to finance projects addressing social issues, including the development of basic infrastructure and the improvement of access to social services. LAPP’s (Canada) social investments are fixed income securities issued from central and sub-central agencies in the education, healthcare and community housing sectors. Several pension funds state ambitions for social investments in the future, such as AustralianSuper (Australia) stating to have committed over USD 695 million into venture capital investments targeting emerging Australian industries and companies, including an investment in innovative affordable housing.

Figure 14 Social investments of selected pension funds in 2019

As a percentage of total investment



Source: OECD calculations based on responses to the 2020 OECD Survey of LPFs and PPRFs.

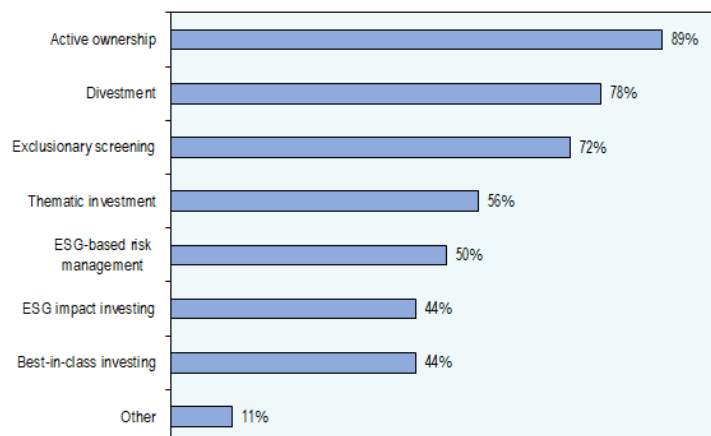
Pension funds' ESG strategy varies largely. Pension funds based in Australia, the Netherlands, Sweden and Norway tend to report more detailed ESG or socially responsible investment strategies. Some funds do not have a separate, ESG-oriented investment strategy, but consider ESG factors along with other risk and opportunities factors during the investment decision-making process. Several funds consider ESG in the context of the long-term investment horizon. Common among funds is to have a climate change strategy in place, including a carbon footprint measure to – as a few funds noted – make the investments more resilient to climate change over the long-term. Pension funds also reported various approaches to track ESG investments. For instance, AIMCo (Canada) stated to record its green investments by tracking the percentage of its investments in renewable energy and the climate change related impact of its investments. PFA (Denmark) developed an approach based on quantitative methods to define investment possibilities in leading low carbon footprint companies and in companies that are converting their products and operations towards a smaller climate burden.

Active ownership, dialogue and engagement with investee companies to promote sustainable business practices and disclosure on ESG-related issues is the most frequent ESG strategy mentioned among surveyed pension funds, including stewardship programmes or activities in which they engage directly with investees or influence them by voting at annual meetings. As shown in Figure 6, 89% of the funds that responded to the question on ESG strategy indicated to have an active ownership strategy in place. The Dutch pension plan ABP noted that it aims to generate excess returns by helping companies improve on ESG measures. Other more frequently mentioned strategies are divestment and exclusionary screening, as well as thematic investment. Pension funds recurrently reported to do a screening of ESG characteristics before investing in a fund or asset, based on external data providers' ratings and scores or on in-house knowledge and data. VBV Pensionskasse (Austria) uses a proprietary, due diligence questionnaire on ESG integration in the asset managers' selection process. In the ESG survey addendum

that covers the year 2018, 6 pension funds indicated their ESG investments by asset class, which shows that most of their ESG investments are direct investments rather than via designated funds that specialise in ESG investments.

Figure 15 ESG Investment strategies in 2018

As a percentage of total pension funds that responded to the question



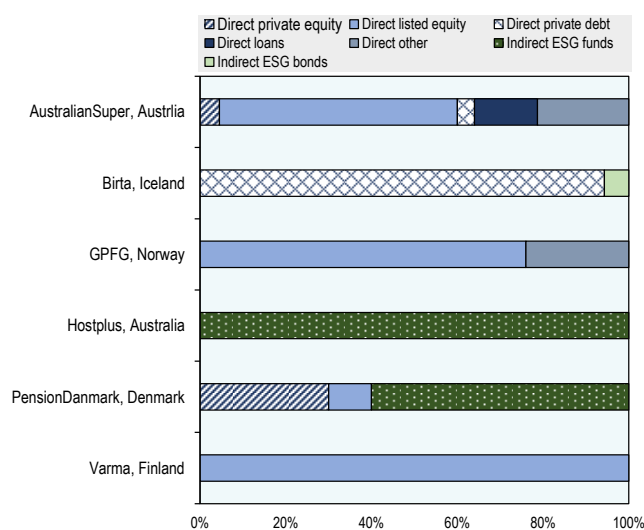
Note: 18 pension funds responded to this survey question.

Note: Active ownership: engagement with investee companies to promote sustainable business practices and disclosure on ESG-related issues. Divestment: withholding from assets not compatible with ESG criteria. Exclusionary screening: blacklisting sectors or companies based on one or more ESG characteristics. Thematic investment: investments in ESG related funds or assets. ESG-based risk management: including through some of the other mentioned investment strategies, to change portfolio allocation and reduce exposure to certain assets. ESG impact investing: investing to support ESG-related objectives. Best-in-class investing: include best-performing companies within each sector or industry according to ESG criteria.

Source: OECD Annual Survey of Large Pension Funds and Public Pension Reserve Funds, ESG Addendum, 2019

Figure 16 ESG investment by asset type in 2018

As a percentage of total ESG investment



Note: GPF, Norway is a Sovereign Wealth Fund. Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs ESG addendum, 2019.

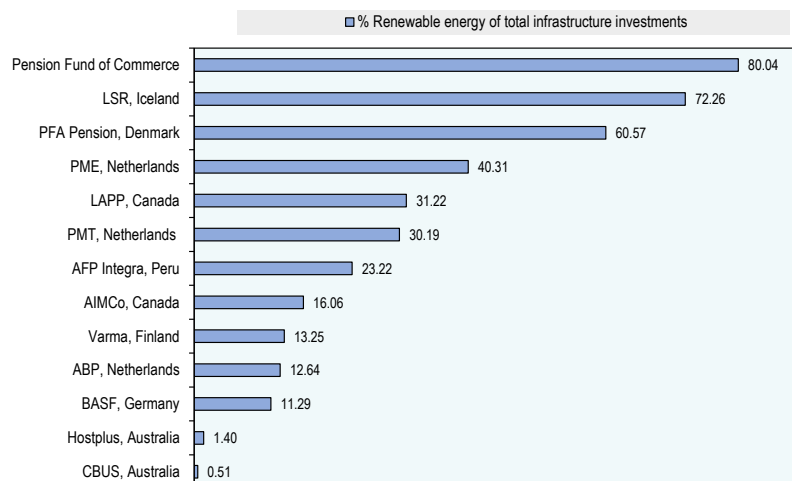
Some pension funds mentioned ambitious goals in the Survey, among others, Danica (Denmark) aims at investing DKK 100 billion in the green transition by 2030 and CBUS (Australia) committed to net zero emissions for property assets by 2030. ABP (Netherlands) established various investment goals targeting climate change and the Sustainable Development Goals (SDGs), which include the reduction of its CO2 footprint in its listed equity portfolio by 40% between 2015 and 2025 and a 20% increase of sustainable development investments in assets under management (AuM) in 2025.

Numerous pension funds rely on external rating and data providers, such as Sustainalytics, MSCI and Thomson Reuters for ESG research on companies, as well as having the data providers that are infrastructure focussed such as GRESB and EDHECinfra. Moreover, some indicated to comply with various international principles and agreements and to require investees to align to them, most commonly the UN supported Principles for Responsible Investing (PRI), the United Nations Sustainable Development Goals (UN SDGs) and the Global Reporting Initiative (GRI).

In terms of ESG practices in the infrastructure sector, pension funds made large investments in renewable energy. Of these, the largest investors were located in Iceland, Denmark, the Netherlands and Canada. The Icelandic Pension Fund of Commerce and LSR invested respectively 80% and 70% of their portfolio into renewable energy. The Danish PFA invested USD 912 million (60% of its portfolio) in renewable energy, mainly in offshore wind and other renewable energy. Further, the Swedish AP2 (PPRF) indicated that in 2019 the decision was taken to add sustainable infrastructure as a new asset class to its strategic portfolio. PensionDanmark (Denmark) indicated in the ESG addendum to be the owner of five wind farms, as well as the founding partner of Copenhagen Infrastructure Partners (CIP), a global investing vehicle in renewable energy.

Figure 17 Infrastructure investments in renewable energy in 2019

As a percentage of total infrastructure investment

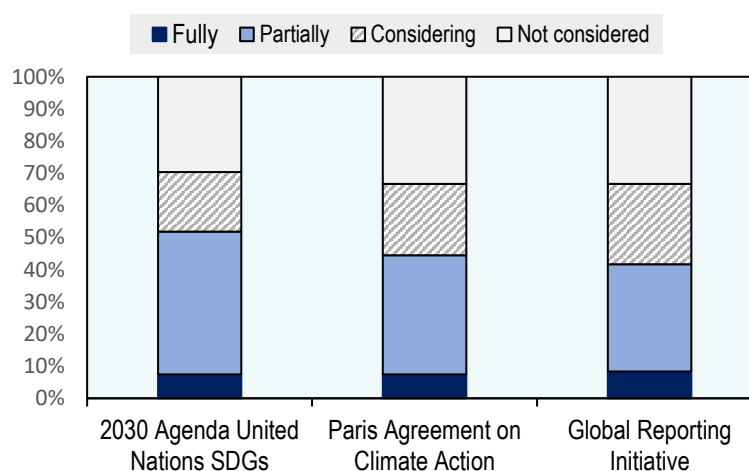


Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs.

The 2019 OECD survey on pension funds' and insurance companies' sustainable development behaviour covered 21 pension funds and 37 insurance companies, mainly based in Europe and Asia-Pacific. As shown in Figure 9, among Asian-Pacific insurance companies, 52%, 46% and 43%, respectively, responded to being partially or fully aligned to the UN SDG's, the Paris Agreement and Global Reporting Initiative.

Figure 18 Asian-Pacific insurance companies' alignment to international agreements, 2018

As a percentage of total number of respondents



Source: OECD calculations based on responses to the 2019 OECD Survey of pension funds and insurance companies' sustainable investment behaviour.

2.4.2 Data providers' outlook on ESG data for infrastructure

There are numerous ESG data providers in the market that are gathering, assessing and rating companies and assets on their ESG practices and present an alternative for institutional investors to conducting extensive due diligence themselves. Data providers have their own methodologies to derive ESG scores, which differ significantly across providers. Examples of ESG data providers are: MSCI, Refinitiv, Sustainalytics, ISS-ESG, Bloomberg ESG and GRESB (for real assets), whereas S&P Trucost is specialised in providing carbon, climate, sector revenue and fossil fuel reserves data.

GRESB highlights that digitalisation in ESG reporting could facilitate data collection, calculation, analyses and performance comparison and could allow for more effective reporting³⁴. Further, as there are numerous reporting frameworks and standards on the market, technologies, such as artificial intelligence, can be used for matching ESG data with applicable ESG reporting frameworks to satisfy the needs of relevant stakeholders³⁵.

EDHECinfra investigated the link between ESG, risk and asset prices to understand the relationship between ESG and the market value of infrastructure investments. Especially in the infrastructure sector this question is relevant, as incorporating ESG considerations in alternatives is likely to lead to more attractive risk-adjusted returns. However, research on this topic is so far lacking. EDHECinfra reviewed and mapped major existing ESG schemes used by investors, including SASB (standard), GRI Standards (standard), GRESB infrastructure asset assessment (tool), MSCI ESG Ratings (tool), EU Taxonomy (tool), PRI (guiding principles) and the SDGs (international development goals). It found that the assessed schemes are primarily designed to assess ESG "impacts" rather than ESG "risks" to assets – such as the ESG transition risk, as well as physical risk, stemming from, for instance, climate change exposure – of infrastructure companies. Without knowledge of these risks, it is difficult to determine the value of infrastructure investments. EDHECinfra put forward a roadmap to develop the investment knowledge

³⁴ GRESB. (2021), [New Practices of ESG Reporting in Digital Era](#).

³⁵ Ibid.

necessary to manage risks related to ESG in infrastructure assets (EDHECinfra, 2021)³⁶. Part of its plan is to address the lack of data and knowledge on ESG risks with the use of technology. According to EDHECinfra, infrastructure data can be collected without contributors, available from various sources of information, ranging from satellite photos to alleviation data³⁷. With this approach, EDHECinfra is addressing the data collection challenges the infrastructure sector faces, including measurement problems and the difficulty of obtaining reliable data.

2.4.3 Issues of data collection on ESG more generally

ESG data collection to evaluate assets' and companies' ESG investment practices is important, both for the investors' investment decision making process, as well as for external research bodies that evaluate ESG performance. Pension funds and fiduciaries, such as asset managers and boards should be managing material ESG risks in a way that supports long-term value creation – but are not necessarily able to obtain the data and information they need to do so.

Collecting quality data remains an obstacle, most of all because of the qualitative and subjective nature of the ESG concept. As a result, data tends to be unstructured and subjective in nature. For instance, in the 2019 ESG addendum to the OECD Survey, several funds responded to the question how they weight ESG parameters in the final decision for investment as ESG not being weighted, as it is considered as a qualitative factor. Indeed, there is a significant overlap between E, S, and G factors in practice. For example, climate change can have both E and S implications, and, as a result some practitioners may resist classifying metrics into separate categories. This shows the need for more consistent data.

Reflecting the wider sustainable finance discussion and lack of data on infrastructure investments and ESG, empirical evidence that reflects that ESG in infrastructure investments produces better and more resilient long-term risk adjusted returns is lacking as well. Where the relationship between ESG and financial performance has been widely studied, findings were mainly based on equities, for which the pool of data is the deepest. In 2019, EDHECinfra investigated the link between ESG performance and financial performance in unlisted infrastructure firms using the EDHECinfra and GRESB ESG rating databases on infrastructure companies. Due to data limitations, this research covered only three years of ESG performance data, even though the relationship between ESG performance and financial performance is generally expected to be a long-term one. The research did not reveal either a positive or a negative relationship between ESG performance and financial performance.

Given the complex nature of infrastructure assets, accurate and well measured ESG data is costly to produce. If infrastructure companies' are providing ESG data on a voluntary basis, this can lead to potential biases. Even for large companies, the capacity for ESG measurement may be limited. Data collection in the infrastructure sector typically happens in different manners per sub-sector and data harmonisation across sub-sectors is challenging.

ESG data for infrastructure may also be affected by the size of reporting firms, as larger firms are likely to be more active in reporting on sustainability issues given their greater resources. In the infrastructure sector, where special purposes vehicles (SPVs) are often used to finance projects and have a shorter life span, this may be resulting in less engagement on sustainability issues.³⁸ However, there are varying views on this too, so it does require further examination. While environmental factors have attracted much interest more broadly, governance is the most relevant issue for infrastructure issuers in the ESG realm, with social factors coming second and environmental last.³⁹ Renewable energy projects compose the main issuance

³⁶ EDHECinfra. (2021). [Towards a Scientific Approach to ESG for Infrastructure Investors](#).

³⁷ Interview with EDHEC, July 2021.

³⁸ EDHECinfra. (2019). [ESG Reporting and Financial Performance: the Case of Infrastructure](#)

³⁹ Fitch Rating. (2021) [Governance Most Influential Global Infrastructure ESG Factor](#).

for sustainable issues, while transportation and water management are only emerging for issuers, which is in line with the OECD findings.

There is a strong need for ESG disclosures underpinned by appropriate governance structures, reviews and controls. The lack of mandatory and consistent reporting of ESG information by companies makes it challenging for data collectors to attain this information and challenges investors to make informed investment decisions. The 2020 OECD Survey of LPFs and PPRFs highlighted that investors are faced with incomplete datasets and data that is inconsistently measured. Further, a survey held in 2021 by EY showed that investors became increasingly dissatisfied with the information they received on ESG risks when compared with [2018](#), even though 91% of respondents also said that non-financial performance played a vital role in investment decision-making.⁴⁰

The lack of global reporting standards and agreement on what should be considered as material for each sector has led to ESG data and ratings providers adopting their own methodologies and processes. The different methods that are used to weight ESG factors result in diverging opinions of ESG ratings by data providers. This makes it difficult for companies and investors to determine how best to allocate internal resources in terms of data sourcing.

The specific questions on ESG integration in the 2020 OECD Survey on LPF and PPRFs showed that several pension funds are developing their own ESG ratings by leveraging multiple data sources, which makes the ESG investment approaches of investors even more complicated to compare. Further, according to the European Securities and Markets Authority (ESMA), the unregulated and unsupervised market for ESG ratings and other assessment tools combined with increasing regulatory demands for information in ESG integration increases the risk of greenwashing⁴¹. This poses a challenge to the quality of the collected data.

While there has been growing recognition of the importance of measuring ESG factors in infrastructure, adoption of third-party ESG tools by investors has been limited, partly due to investor preference for internally developed methodologies for ESG analysis. However, as private markets do not have the same disclosure requirements as listed markets, investors must rely significantly more on their asset managers and other service providers to track their exposure and performance. This has implications for the availability of information and explains the lack of evidence-based studies in this area⁴².

2.4.4 Issues that may be particular to Asia

ESG reporting in the Asia-Pacific region is not as regular a practice as in the European Union (EU) or the United States. In general, Asia is slow on uptake although Australia and New Zealand have been more advanced in their approach. While data coverage is improving, it might take a few more years to develop the dataset required for quality ESG insights. Further, the lack of transparent ESG data coverage is even more apparent in unlisted assets and alternatives⁴³.

Generally, regional ESG disclosure frameworks in Asia-Pacific are not as well established as those in the European Union and the United States. In addition, the number of global ESG standards, frameworks and initiatives has caused confusion with regard to which ESG data points are material and regionally relevant.

Among the ESG components, the “G” component is perceived to be the most established in the region.⁴⁴ Further, currently exclusionary approaches based on sustainable energy, such as coal exclusion, are tougher to implement in the region than in Europe, due to investors’ current portfolio that is still relatively

⁴⁰ EY. (2020, July 22). [How will ESG performance shape your future? Retrieved August 2021](#)

⁴¹ ESMA. (2021). [ESMA calls for legislative action on ESG ratings and assessment tools](#)

⁴² OECD. (2020). [Business and Finance Outlook 2020: Sustainable and Resilient Finance](#)

⁴³ OMFIF. (2021). [Asia Pacific working to narrow ESG gaps](#)

⁴⁴ Ibid.

heavily exposed to fossil fuels. In India, for example, coal generated more than 50% of its electricity in 2019. Even though Asia's energy transition from conventional to renewable is well underway and investments in renewable energy nearly tripled between 2015 and 2019, in absolute size renewables investments continue to be smaller than those in conventional power investments⁴⁵.

Nevertheless, Asia-Pacific has seen substantial progress in ESG reporting by listed companies. The data provider MSCI notes that while APAC markets tended to have low MSCI ESG ratings compared to global peers, this is changing rapidly, with some of the worst performing sectors, such as energy and materials, starting to improve in terms of ESG practices. The largest improvement was made in the social ESG factor, notably among previous worst performing companies in the consumer intensive sector in the People's Republic of China, Hong Kong, China and Korea, and the energy sector in People's Republic of China, due to better human capital management.⁴⁶ Accordingly, leading institutional investors in the region today are disclosing ESG practices in their portfolios in detail. For example, Thailand's Government Pension Fund (GPF) describes how they calculate customised industry ESG weightings and company ESG scores, and incorporate them into their asset valuation. Likewise, Japan's Government Pension Investment Fund (GPIF) not only explains their ESG initiatives in their ESG report, but also provides detailed analysis on climate change-related risks and opportunities in their portfolio in line with Task Force on Climate-Related Financial Disclosures (TCFD) recommendations. In the beginning of 2021, the Association of Southeast Asian Nations (ASEAN) announced their support for an ASEAN Taxonomy of Sustainable Finance, which could be a starting point towards achieving coherent and comparable ESG standards and frameworks in this part of the region.⁴⁷

However, Asia-Pacific still lacks well-established ESG disclosure frameworks comparable to that of the EU's Non-Financial Reporting Directive and Corporate Sustainability Reporting Directive. As a result, relevant disclosures not only vary in scope and quality across investors, but also tend to be on anecdotal rather than on a quantitative basis. For example, while Japan's sustainable assets under management largely increased in recent years and a vast majority of companies in the Nikkei 225 index currently report sustainability initiatives, there are still increasing demands from investors for enhanced transparency in ESG disclosures. This lack of transparency may be particularly difficult to overcome for infrastructure investments due to the nature of the asset class.

2.5 Concluding and moving forward

2.5.1 How ESG data collection could be improved for infrastructure assets

Given that ESG data collection for infrastructure is still in its early stages, there is scope to implement a more meaningful data standard, and identifying when infrastructure investment is ESG compliant, and what measures governments can take to ensure that relevant data collection can be better facilitated. This may involve using more technological and innovative means for data collection, which can start from the administration of corporate reporting, which in some jurisdictions may be paper-based, posing a barrier for both collection and aggregation.

While there is yet to be a recognised standard for ESG reporting more broadly, it would be worthwhile to consider what characteristics of an infrastructure project could be considered to be adhering to ESG principles and how this can be monitored on an ongoing basis. This can feed into the wider ESG discussion, as well as enabling more infrastructure projects taking on sustainability, ESG and quality infrastructure considerations.

⁴⁵ AIIB. (2020), [Asian Infrastructure Finance 2020](#)

⁴⁶ MSCI. (2021), [Are APAC's High-ESG-Risk Stocks Cleaning Up Their Act?](#)

⁴⁷ Mayer Brown. (2021), [ASEAN to Develop Sustainable Finance Taxonomy for Southeast Asia. Retrieved October](#)

Further, institutional investors are already active investors in renewable energy projects, which can more easily be recognised as sustainable infrastructure. However, to provide broader investment opportunities into the infrastructure sector, and to enable more diverse infrastructure projects being sustainable and bankable, a broader examination of what constitutes sustainable infrastructure would be useful.

For institutional investors, the question of fiduciary duty towards principals and how to integrate ESG factors into investment decisions remains outstanding for many. While regions such as the EU and investors based in EU are actively engaging and advancing on integrating ESG factors, this remains weak in the Asian region. It is not clear whether this is due to the lack of data or the investment strategy that is being taken although it is likely to be a combination of various factors.

While infrastructure investment in equity and fixed income may be easier to capture, the extent of project financing in the sector should not be forgotten, and how information on such projects could be reflected for ESG purposes.

Currently, various initiatives are being developed to address the need for a label for sustainable infrastructure. The FASTInfra initiative attempts to establish a consistent, globally applicable labelling system for sustainable infrastructure assets. Additionally, it is developing financial mechanisms to mobilise private investment at scale for the financing of labelled projects. The initiative was founded in 2020 by the Climate Policy Initiative (CPI), HSBC, the International Finance Corporation (IFC), OECD and the Global Infrastructure Facility. Over 50 global entities, representing governments at all levels, the financial sector, investors, DFIs, insurers, rating agencies and NGOs are participating in the FASTInfra initiative⁴⁸.

2.5.2 The role of regulation in improving data collection on ESG

Asia-Pacific economies such as Australia, Hong Kong, China, Japan, Singapore, Chinese Taipei, the Philippines and Thailand, have established reporting requirements and guidelines related to ESG. In 2020, Hong Kong, China's stock exchange regulator (HKEX) made amendments in its ESG reporting guidelines to implement more stringent disclosure requirements under the "comply or explain" approach, which made ESG reporting mandatory for listed companies. Similarly, the Philippines Securities and Exchange Commission (SEC) released the Sustainability Reporting Guidelines for Publicly-Listed Companies (PLCs) in 2019, which requires all PLCs to submit a sustainability report as part of their annual report each year and to adopt a "comply or explain" approach for the first three years upon implementation⁴⁹. In addition, Singapore Exchange Regulation (SGX RegCo) recently proposed a roadmap for climate-related disclosures to be made mandatory in issuers' sustainability reports⁵⁰. These initiatives are expected to grow in scope in the Asia-Pacific region.

In the 2020 OECD annual pension fund survey, some funds mentioned the pressure to be more transparent on sustainable investing, due to global voluntary frameworks that are becoming a standard. Among these funds, a few mentioned the EU regulation as a driver. The VBV (Austria), which in 2019 indicated it had social investments and no green investments, is working on an investment policy compliant with the EU regulation. Raffeisen (Croatia) responded to currently have no ESG policy in place, but is expected to implement it once the EU regulation comes into force.

2.5.3 Asia focused regulatory considerations

Faced with increasing demographic shifts, connectivity demands and climate change events, and in particular extreme weather events, the application of ESG characteristics in Asia-Pacific is especially vital in the infrastructure sector. While broader ESG reporting and considerations are being applied, ESG

⁴⁸ Climate Policy Initiative. (2021), [Fast-Infra. Retrieved August](#).

⁴⁹ BusinessWorld, [Sustainability reporting in the Philippines: Year One review. Retrieved October](#)

⁵⁰ SGX. (2021), [Consultation Paper on Climate and Diversity - Singapore Exchange \(SGX\)](#).

considerations in infrastructure remain minimal. Even though there is awareness, and investors demonstrate ambition and interest around ESG investing in infrastructure, large data gaps exist. Data gaps are apparent in other sectors too, but especially in the infrastructure sector. Possible reasons for this data gap are the lack ESG data standardisation, collection, verification and disclosure.

Once reporting moves from voluntary to mandatory disclosures, reporting guidance is needed to ensure quality data and prevent green-washing⁵¹. Guidance is needed especially in the unlisted and alternative sectors, such as infrastructure, since the lack of transparent ESG data coverage is even greater. ESG knowledge and training, and greater education and human capital development could help investors to develop a better understanding of the concept and reporting requirements.

Given the wide variation in Asian-Pacific markets, effective implementation of any ESG standard would require cross-border co-operation. Further, given the complexity of infrastructure assets, scope for recognition of potential deviation should also be taken into account. Having in place credible auditors to review reported information could ensure enhanced reliability of the data.

⁵¹ OMFIF. (2021), [Asia Pacific working to narrow ESG gaps.](#)

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