Foresight

Measuring Impact SustainEx

Schroders

Measuring Impact

We want to understand the impact that our investments have on people and planet. Our award winning impact measurement tool SustainEx allows us to quantify the costs that companies would face if their negative impacts were priced, or the boost if the benefits were recognised financially.

It also allows us to give our clients a choice, to measure and manage the impact of their investments and to invest in a way that aligns with their values.

We show our clients the 'social dividend' of their investments; representing the overall social contribution of the companies expressed as a percentage of sales.

Contents

Authors

Andrew Howard
Head of Sustainable Research

Sustainable Investment Team

Executive summary

Companies historically enjoyed unencumbered growth...

Companies do not operate in a vacuum. They are part of the societies from which they draw their employees, to which they sell their products and under whose laws they compete. For most of the last few decades, large companies have grown and thrived even as social and environmental challenges have intensified. Corporate tax contributions fell, real wages stagnated and environmental damage went unpenalised. Companies were largely able to focus on maximising current profits without too much concern for the costs their actions created elsewhere in societies or economies.

...the social and environmental impact of which is starting to be realised

In recent years, that strategy has started to unravel and will become more untenable going forward. Costs are growing and governments are less able to absorb them. As a result, social pressure and government intervention are forcing companies to take responsibility for the costs their actions create. Among other measures, minimum wage legislation, sugar taxes, gambling restrictions or carbon prices are all spreading, creating financial expenses in place of previously unaccounted social problems.

As a result, costs that were previously externalised to society will become internalised on companies' financial statements. As that transfer plays out, companies whose profitability have relied on avoiding the costs their products or operations impose on society will find their business models come under growing pressure.

SustainEx quantifies a company's cost or benefit to society...

New approaches to investment analysis are needed to identify, measure and manage the risks those externalities impose on companies' profitability. SustainEx measures the costs companies would face if all of their negative externalities were priced, or the boost if benefits were recognised financially.

SustainEx is designed to help our analysts, fund managers and clients identify those risks, to help ensure they are reflected in investment decisions and valuations. It attributes previously unaccounted social and environmental costs and benefits to individual companies, using economic logic to systematically combine robust academic analysis with company data. Our research has identified and examined 47 externalities to date, drawing on over 400 academic studies and applied to around 9,000 global companies.

...and how that cost or benefit might impact profitability

Our analysis highlights the growing costs listed companies create, and the rising importance of considering the risks those externalities pose to future earnings. The US$4.1 trillion earnings listed companies generate for shareholders would fall by 55% to US$1.9 trillion if all of the social and environmental impacts our research identifies crystallised as financial costs. One third of companies would become loss-making. The risk to profit pools and competitive positions is clear.

By quantifying social and environmental impact in economic terms, SustainEx provides our analysts, fund managers and clients with a measurement approach that is comparable across companies, funds and indices.

We measure impact so we can have impact

By measuring impact we can give our clients the choice to invest in a way that aligns with their values. To invest for a better future.

SustainEx combines a wide range of sources and measures to examine companies' social and environmental impact

47 measures of social or environmental impact

Over 400
academic and industry studies of social and environmental impacts and externalities

70
reported data points for each company, estimated where not disclosed e.g. wages, taxes

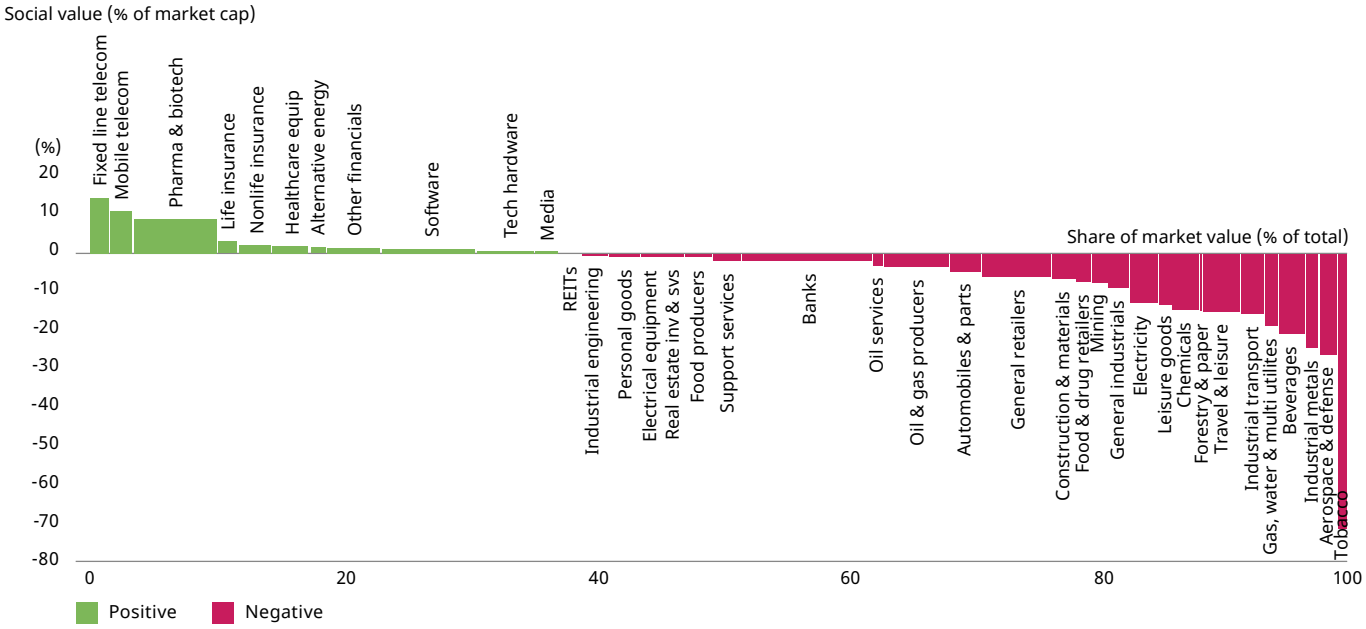
Unconventional data
from public sources e.g. patent registrations, stress perceptions

~9,000 large global companies examined

Source: Schroders.

Bottom-up analysis of around 9,000 global companies using the SustainEx model demonstrates a wide range of impacts across companies and sectors. We will continue to add measures and strengthen existing analysis where possible.

Figure 1: Wide range of impacts across sectors



Source: Schroders.

Sustainable investing is maturing as a field, but too often remains vague and idealistic in its application. By examining both current profits and potential externalities through a common monetary lens, SustainEx aligns social and environmental impact with investment risk. As a result, it is uniquely placed to help our analysts, fund managers and clients identify the threats and opportunities companies face from social and environmental trends, before they become financial costs.

The social cost of corporate growth

For decades, companies became freer to pursue unencumbered growth. Large corporations benefited from less regulation, open trade and a political conviction that free markets lead to the best economic outcomes.

As a result, large businesses have become bigger and more powerful. Their shares of employment, business revenue, exports or economic output have risen by 20-30% over the last 20 years in most developed countries[2]. The large multinationals listed in the Fortune Global 500 now generate revenues close to 40% of the value of global GDP (Fig 2).

The expanding role of large companies has come in tandem with intensifying social and environmental challenges, exacerbated by larger, wealthier, consumption-hungry populations putting further pressure on finite global resources and ecosystems (Fig 3). Climate change is perhaps the highest profile outcome; close to 90% of the world's population is now connected to an electricity grid, 70% of the power on which comes from fossil fuel combustion[3], around one-third of it generated by listed utilities[4], tracing a direct link from economic expansion and corporate growth to environmental damage.

Similar challenges are evident across a spectrum of trends spanning areas such as wage stagnation, government pressures, social unrest and inequality.

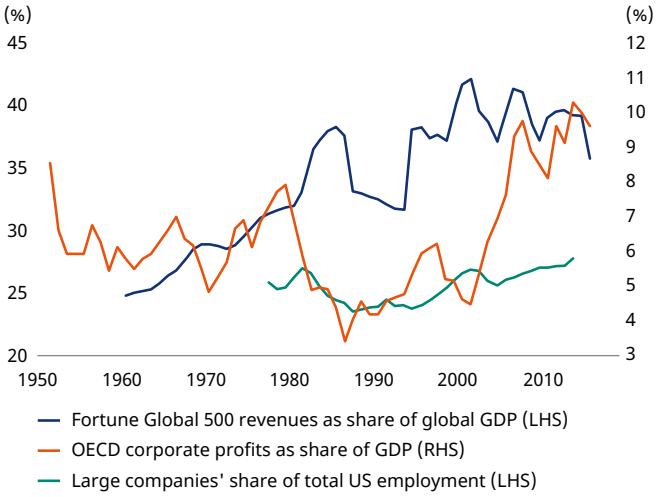
On the other hand, the public sector has become less and less able to absorb those social and environmental challenges. The World Inequality Lab calculates the capital controlled by each sector of major economies, net of debt, showing that the public wealth of developed economies has sunk into the red while their private sectors have thrived (Fig 4). That divergence has reached a breaking point in those countries; social and environmental costs cannot continue to be absorbed by societies and governments.

2 See for instance the US Census Bureau showing the share of the top 200 US companies in total business revenue, or the Annual Economic Survey of Employee Share Ownership in European Countries (2017).

3 Data from the International Energy Agency's (IEA) 2017 Energy Technology Perspectives model shows 69% of global electricity generation is from fossil fuel sources.

4 Based on World Bank analysis.

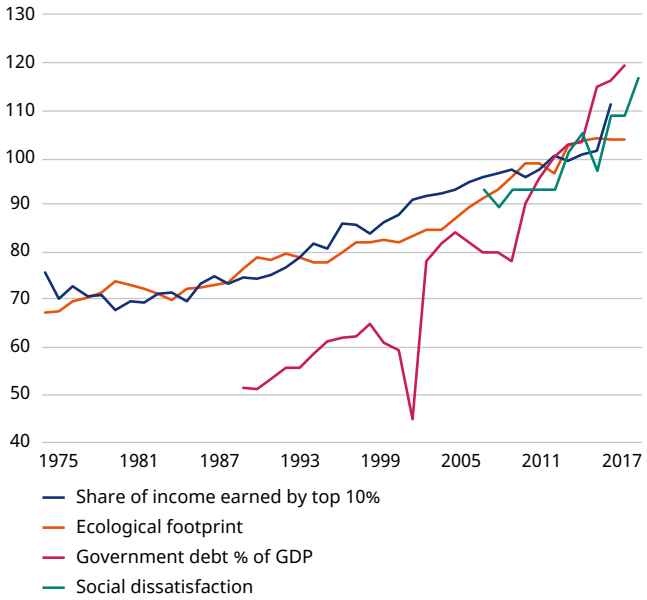
Figure 2: Multinational companies have become more important to the global economy



Source: Fortune, IMF, OECD, BEA, Grullon et al. Note: Fortune data is not available prior to the 1990s; we have estimated the equivalent values, using data from Thomson Reuters.

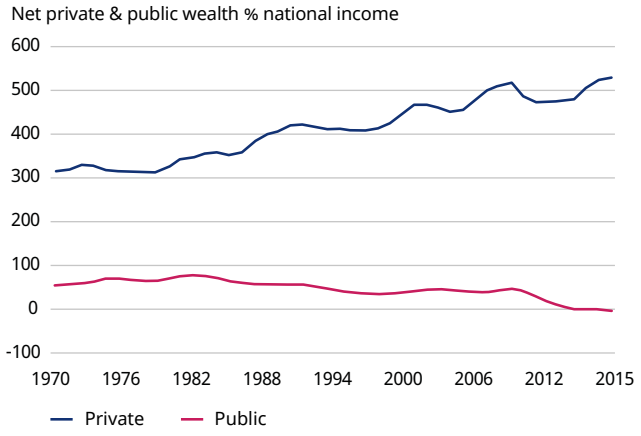
Figure 3: Rising social and environmental challenges; ecological damage, social inequality & public debt

Indexed so that 2007-18 average value of each series is 100



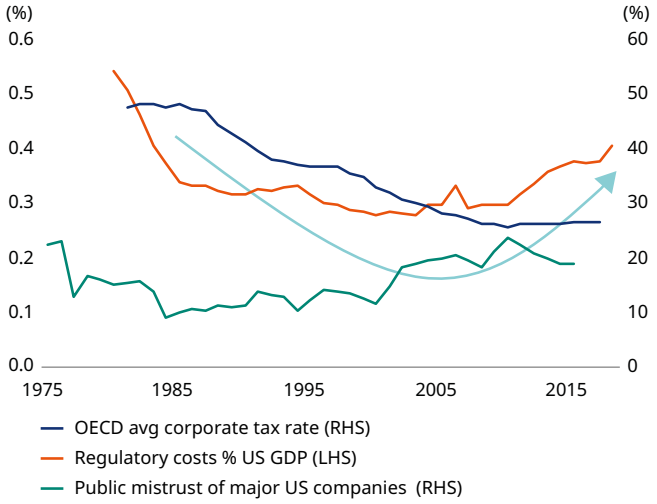
Source: World Bank, Global Footprint Network, World Inequality Database, Schroders calculations.

Figure 4: Private sector has gained while public sector has lost, across major developed economies



Source: World Inequality Lab. Based on data for Germany, Spain, France, UK, Japan & US, weighted by their respective GDPs.

Figure 5: Growing signs of increased government intervention to control corporate behaviour



Source: OECD tax database, General Social Survey, American Action Forum, Heritage Foundation, Schroders calculations and estimates.

Companies face growing costs from government intervention

The blame for these social and environmental problems cannot be laid solely at the door of big business. However, as their impacts have grown, and governments have become more equipped to intervene and more empowered to regulate, the threat companies face has risen. Those whose business models create the most social and environmental damage will come under increasing pressure to shrink or compensate for the costs they impose.

That shift has already begun; we are passing an inflection point that could redefine cost structure and leadership in many industries. Over the last decade – spurred by changes in social attitudes following the global financial crisis – governments have already begun to move costs they have borne back to the private sector (Fig 5). Some of the steps they have taken so far include:

- Minimum wages: 28 of the 36 OECD countries have established minimum wage legislation, doubling since the turn of the century[5]
- Carbon pricing: Following China's announcement last year that it will roll out a national carbon trading scheme, just under one-quarter of the world's carbon emissions will be subject to a financial penalty
- Tax clampdowns: In 2014, the G20 countries agreed to coordinate their efforts to crack down on corporate tax avoidance[6]
- Sugar taxes: 35 countries have established sugar taxes; more of the world's soft drink market is now covered by a sugar tax than the proportion of carbon emissions which are priced
- Gambling restrictions: The UK and Australia, two of the five largest gambling markets in the world, have introduced legislation to protect vulnerable gamblers over the last few years[7]
- Water pricing: Average global municipal water prices have roughly doubled over the last decade[8]

We expect this trend of rising government intervention to continue, reversing the imbalances that built during the decades in which public finances and future generations disproportionately shouldered the burden of companies' negative externalities.

The rules of business and investment success are being rewritten

The scale of the externalities companies impose has grown so large that in many industries, those costs exceed their total earnings. Moves to push those costs back to the corporate sector will have dramatic impacts on many companies' financial statements. Some previously winning business models may unravel while others will prove robust.

Building business models that are resilient to changes in cost structures will be critical to companies' continued profitability. By extension, forward-looking risk analysis demands investors consider the effects of internalising new costs on earnings and valuations. We have developed the SustainEx model to provide our analysts, fund managers and clients with a systematic and objective view of companies' social and environmental impacts and the risks they face as a result. By gauging where those threats are largest, investors will be better prepared for the risks they pose and better able to engage with management teams on their plans to manage those risks.

5 The five Nordic countries are notable exceptions. While they have not introduced legal minimum wages, union agreements achieve a similar result.

6 See for example this FT article: G20 governments agree to crackdown on tax avoidance.

7 See for example this Statista chart: Americans lose 199 billion through gambling.

8 Based on a simple average of municipal water prices monitored by Global Water Intelligence.

SustainEx: Our proprietary framework to measure impact

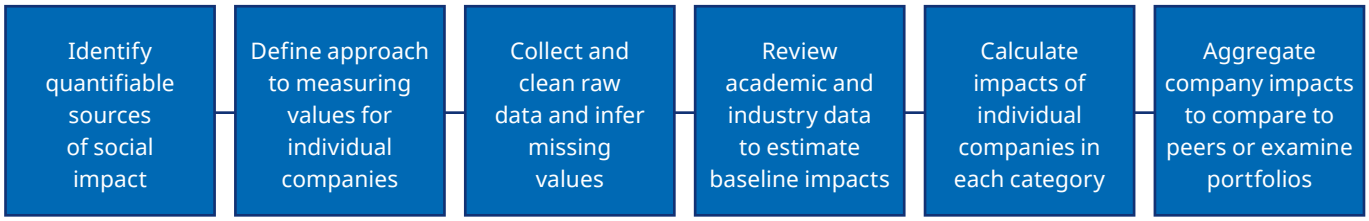
SustainEx is a robust, objective framework to measure the costs companies impose, on people and the planet or the benefits they provide, which are not currently recognised as financial costs or benefits. It combines economic logic with sustainability expertise, industry knowledge, company data and academic research to deliver a transparent, impartial and robust measure of corporate impact across around 9,000 global companies.

Most approaches to impact measurement compare portfolios to their benchmarks across a few discrete indicators, such as carbon footprints or workforce diversity, which are widely disclosed by public companies. That approach allows comparisons across fund managers and can be valuable for many investors.

However, those measures can't provide meaningful conclusions on companies' overall impact, the relative importance of different measures or the financial risks companies face. SustainEx overcomes those shortfalls by translating companies' social benefits or costs into economic terms. It translates hazy ESG concepts into hard figures.

The SustainEx model identifies the corporate sector's impacts, quantifies them and systematically examines the impacts of individual companies. It represents an annual cost or benefit based on the company's activity during the year, rather than the "pent-up" impact of their resources or assets. For instance, ownership of unexploited fossil fuel reserves is not included whereas annual CO_2 emissions are counted.

Figure 6: Translating principles into practice



Source: Schroders.

Mapping the range of impacts

We start by mapping as many ways companies impact society, positively or negatively, as possible. The stakeholder model that underpins much of our sustainability analysis across Schroders provides a framework, focusing on the constituencies with which companies have an economic exchange.

To ensure comparability between companies, the measures we select are:

- Quantifiable so that costs and benefits can be measured and compared objectively
- Attributable to ensure impacts can be sensibly allocated between companies
- Disclosed widely enough that comparison between global companies is possible
- Transparent so that users can understand their meaning

We initially hoped to draw on existing work in this area. Surprisingly, there are few analyses or studies mapping or measuring corporate externalities and we have found none which provide comprehensive views. The Economics of Ecosystems and Biodiversity (TEEB) has examined natural capital and the costs of its damage[9]. Consultants including KPMG and PWC have developed frameworks to assess companies' social and environmental impacts, but focus on companies seeking to measure their own footprint using proprietary data, rather than systematic analysis across companies using public data[10]. A number of companies have developed and applied their own analyses, a summary of which the World Business Council for Sustainable Development (WBCSD) has helpfully compiled[11], but this too comprises a series of case studies rather than a comprehensive framework.

We have reviewed all of those public reports, and many others, to develop the list of externalities on which our analysis is based. The large majority come from our own insights, rather than those existing studies. The impacts we have included in our analysis are summarised below, with many combined in the interests of readability (Fig7).

Our goal is to be comprehensive, rather than to pre-judge the most important externalities – by putting economic costs to companies' impacts the most important externalities will automatically assume more importance. By quantifying all impacts, we sidestep debates over which factors are most material to each industry.

9 See TEEB website.

10 KPMG's True Value framework is framed as a tool to connect corporate and societal value creation. PWC's Total Impact Measurement framework is designed to help companies understand how their activities contribute to the economy, environment and society.

11 See Measuring and valuing social capital: Insights into employment, skills and safety.

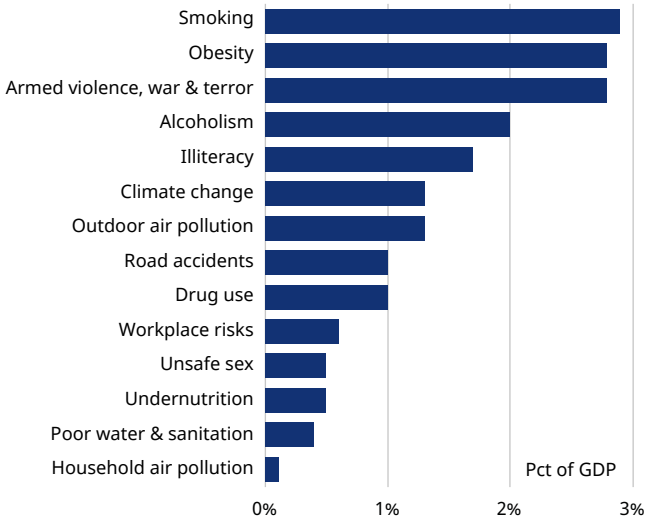
Figure 7: Mapping impacts across stakeholders

Source: Schroders. Note: Some impacts are combined to aid readability. Please see figure 14 for the full list of impacts.

We have undoubtedly missed some impacts from our list, but believe we have captured the most important aspects.

For instance, the World Health Organisation (WHO) and consultancy firm McKinsey have examined the activities with the largest social and environmental costs which are currently unpaid or uncompensated for (Fig 8). We have included all but four in our analysis, reflecting the difficulties of attributing robust estimates of the effects of illiteracy, road accidents, illegal drug use or household air pollution to individual companies.

Figure 8: WHO's assessment of the biggest unpriced social burdens



Source: McKinsey, WHO, Schroders.

Similarly, we also recognise that some social benefits, although potentially significant, cannot be quantified robustly enough to include them in our analysis. For instance, consumer rent is created when companies price products below the level buyers would be willing to pay, which represents a benefit to customers. Search engines allow users to access information and knowledge at minimal cost, which similarly provides social benefits we have been unable to quantify objectively.

Going forward, we will continue to seek ways to bring additional costs or benefits into our research, as well as refine our analysis of impacts already examined.

Translating impacts to costs

We translate all of the impacts we identify into economic costs or benefits, measured in monetary terms. That quantification relies on systematic analysis of global impact costs or benefits, company exposures and impact attribution. We use three approaches depending on the type of impact we examine (Fig 9). Those approaches are described in more detail on the following pages.

We realise that a systematic model distilling multifaceted externalities into dollar values for individual companies cannot fully reflect the complexity of the issues, individual company positions or the nuances of which actors in value chains should bear the burden of those impacts. It is deliberately blunt, forces values on activities that are not typically priced and aggregates very different activities in a single monetary figure.

Nonetheless, the analysis provides a valuable insight into companies' exposures. Costs are thoroughly researched and transparent, and their translation to company impacts is systematic and objective.

Figure 9: Three approaches to measuring social and environmental impacts

Global value	Estimated annual global social burden / impact (e.g. alcohol production)	Define activity responsible for impact	Share global cost between companies based on activity	
Unit activity	Estimated impact of individual actions (e.g. GHG emissions)	Quantify or estimate level of activity for each company	Calculate burden associated with company actions	
Geographically defined	Impacts which vary between countries (e.g. tax payments)	Calculate baseline requirement based on company exposure	Compare actual contribution to required baseline	

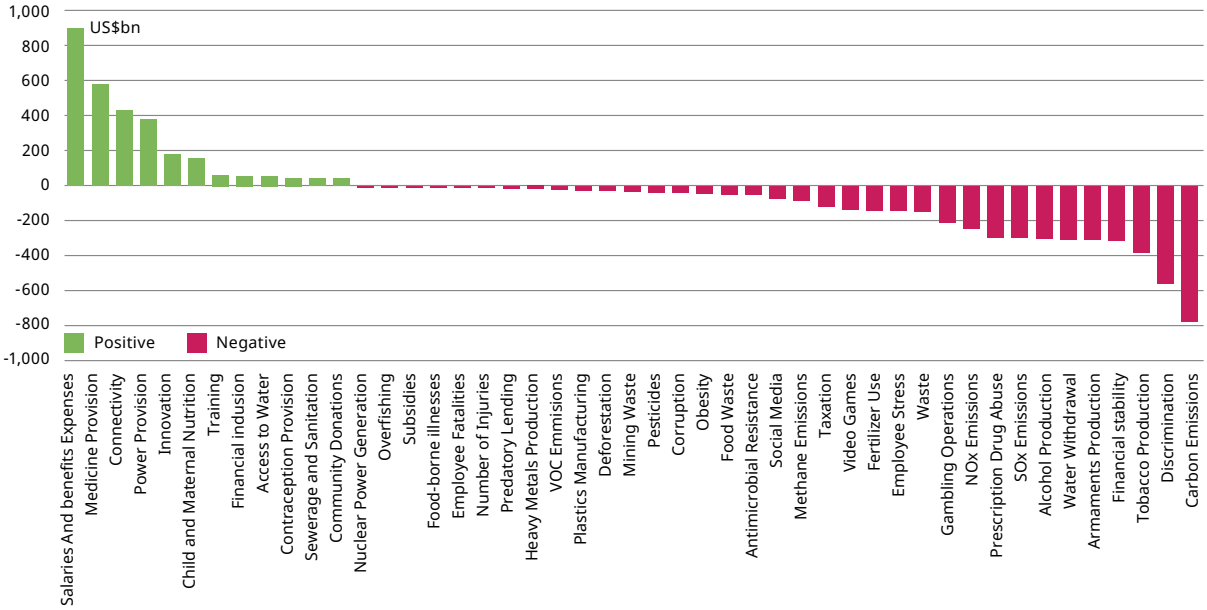
Source: Schroders.

Summarising the results

The social impact of listed companies

The different impacts we have identified span large positive benefits to large negative costs. The chart below shows the total positive or negative impacts attributable to the ~9,000 listed companies in the global MSCI All Country World Investable Market Index. The most important – by the magnitude of their impact – are generally unsurprising: the wages companies pay and their discrimination in doing so, the medicines they develop, the environmental damage they create. Taxation also plays a critical role for many companies, with the overall value reflecting a combination of positive and offsetting negative effects.

Figure 10: Listed companies' social and environmental impact by measure, $ trillion



Source: Schroders.

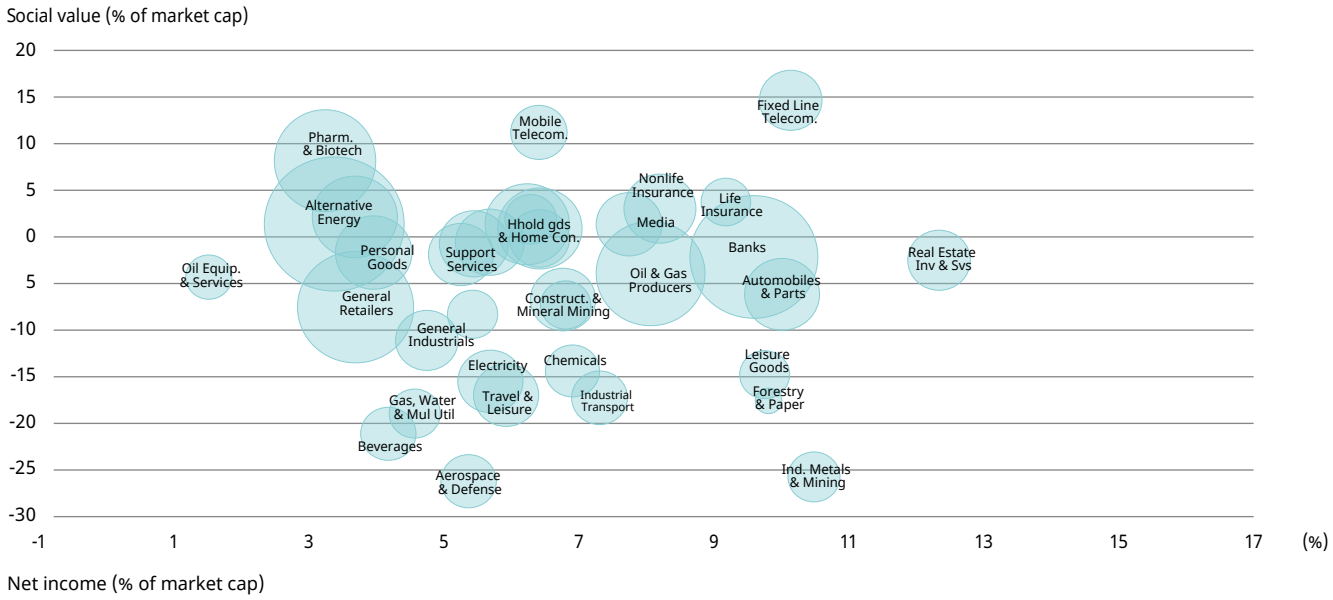
Taking the analysis a step further, the scatter chart below plots social value creation of each sector against its net income, both shown as percentages of market capitalisation. It compares the value companies create for investors with the costs and benefits they impose on other stakeholders. While we have shown sector aggregates here, a similar picture emerges looking at individual companies.

Companies toward the bottom left of this chart – where earnings are low and social externalities are high – face the greatest threats. Those toward the top right, where the earnings they generate for shareholders are supported by strong social benefits, are more secure.

It is also clear that there is no necessary trade-off between the calls shareholders and other stakeholders have on companies' value. Insofar as doubts remain about the compatibility of considering sustainability factors with delivering investment returns, our analysis underscores the opposite conclusion.

It's clear that social and environmental externalities are significant and growing. The negative externalities of listed companies equate to almost half of their combined earnings. We believe many of those economic costs will become tangible financial costs or income in the future, borne out by intensifying regulation and social pressure.

Figure 11: No evidence of trade-off between generating value for shareholders and value for society

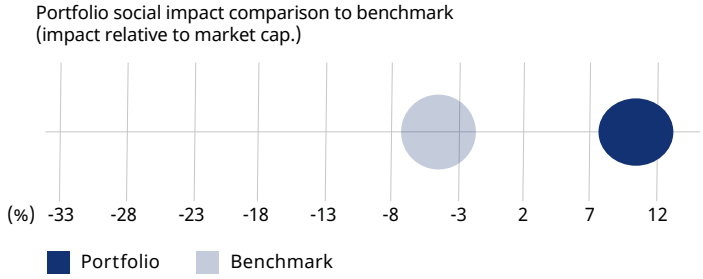


Source: Schroders. Based on analysis of c9,000 global companies, aggregated to Industry Classification Benchmark (ICB) sub-industries. The size of each bubble represents its market value.

Using SustainEx as an investment tool

SustainEx has practical application, as well as compelling theoretical logic. It is designed to help our analysts, fund managers and clients better understand companies' social and environmental impacts, to assess the risks or opportunities they face if, or as, those impacts become financial risks or benefits. Our analysis provides those users with a systematic, quantitative measure of sustainability risk that can be applied across investment strategies.

Figure 12: Assessing overall portfolio exposures (illustrative analysis)



Source: Schroders.

Measuring and monitoring social and environmental impact

Investors have long been able to assess certain aspects of their portfolios through portfolio reporting and question managers on apparent disconnects. We would expect our clients to question us if holdings in a value fund traded on particularly high valuation multiples, if a small cap fund was dominated by large companies or if a healthcare fund took a large position in resource stocks.

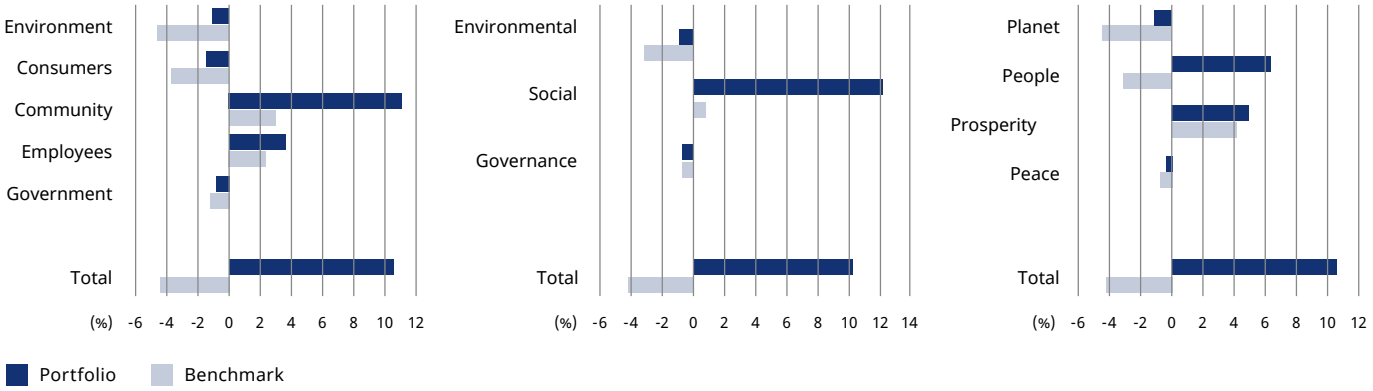
However, similarly objective measures of sustainability-related outcomes have not typically been possible. Investors in these funds have had to rely on the stories managers tell and their trust in them to deliver the outcomes they promise. Alternatively, they have to depend upon generic and generally inappropriate ESG ratings.

Over the last few years, we have been trying to address this blindspot. We have developed tools to allow our clients to assess their portfolios using objective performance measures such as carbon footprints or workforce diversity. We believe SustainEx augments this by providing a more holistic view of social and environmental impact. We will continue to develop tools to help our clients better understand and evaluate the funds we manage for them, along the dimensions that matter to them.

For example, we can use SustainEx analysis to compare portfolio exposures to benchmarks, or to identify outlying companies within a portfolio. Because economic costs or benefits are measured for each impact separately, they can be combined in different ways, for instance by assigning each impact to relevant SDGs, by mapping them to the stakeholders impacted or by separating them into ESG categories. The total costs remain the same, irrespective of how they are allocated.

Figure 13: Examining impacts through different category lenses

Social and environmental impact relative to sales



Source: Schroders. Based on a hypothetical portfolio and benchmark.

Impact measurement vs. impact investing

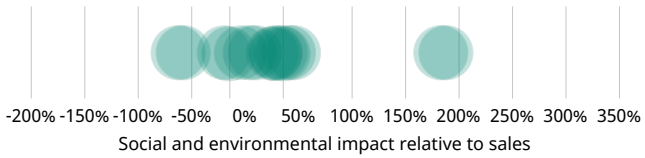
There is a distinction between impact measurement and impact investing.

Every company has a positive or negative social and environmental impact, which can be measured and aggregated to examine the impact associated with every dollar invested in a portfolio. Insofar as most funds invest in public markets, there is rarely a causal relationship between investment in a fund and the portfolio's impact. Investing in a fund may lead the manager to buy more of a company's shares in the secondary market but the money they spend goes to other investors rather than to the company. Impact measurement is valuable in these cases, both to assess future risks and for investors keen to track impacts in specific areas.

This differs from traditional impact investment, which creates a direct link between portfolio investment and social and environmental impact. By putting money into a fund, investors provide capital to portfolio companies and have direct influence on establishing or expanding socially beneficial activities. In equity investing, this almost always requires direct investment in unlisted assets, so that money invested in a fund reaches portfolio companies.

Impact measurement is important in both cases, but there is a clear distinction between measuring the impact of a portfolio of companies and affecting their impact by directly influencing the capital they are able to spend.

Figure 14: Monitoring exposures of individual holdings



Source: Schroders. Based on a hypothetical portfolio. Portfolio chart has a x-axis minimum and maximum fixed at 10th and 90th.

Figure 15 shows the combination of net earnings and social and environmental costs or contributions in each sector, based on SustainEx modelling. The dark blue bars represent the profits of each sector and the green bars the offsetting externalities, most of which are negative. While all sectors are at least slightly profitable currently, close to half would become loss making if invoiced for their social and environmental impacts.

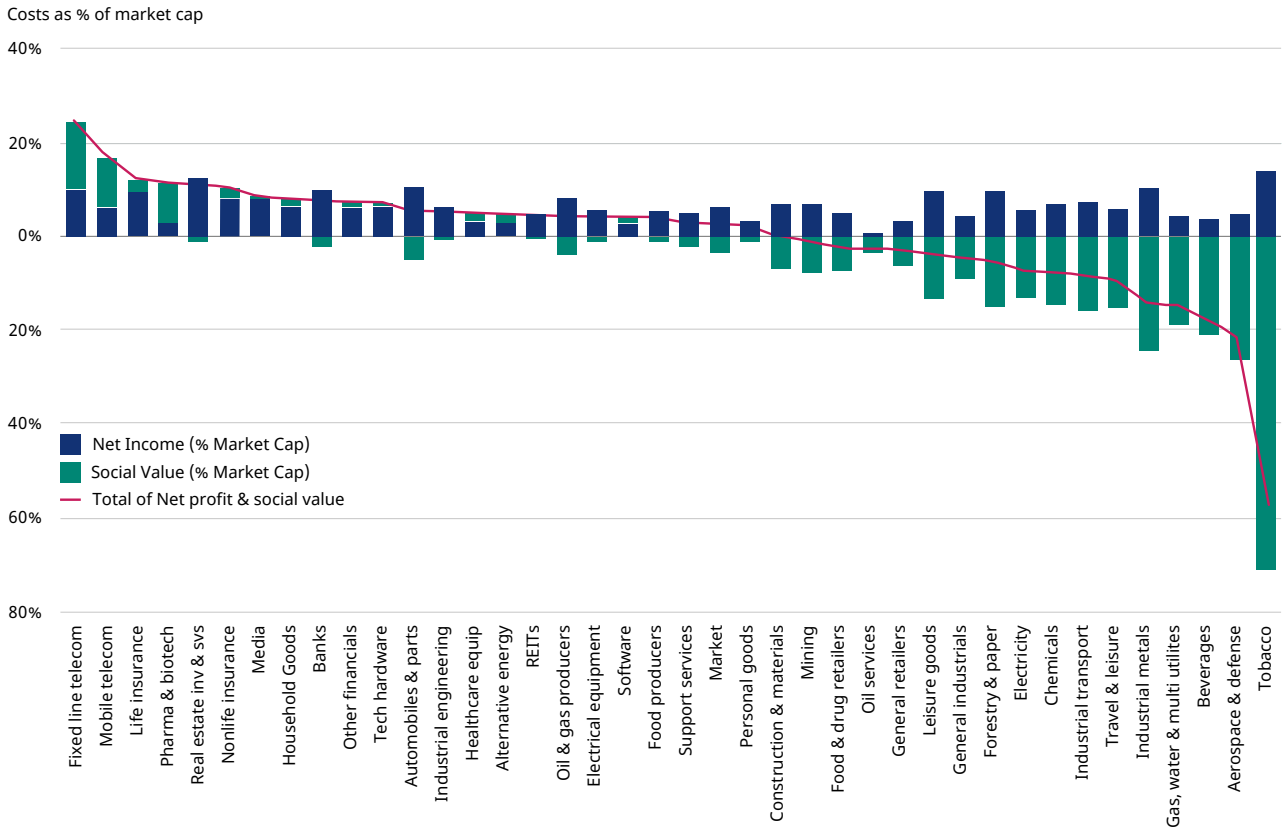
In total, the earnings listed companies generate for shareholders currently total US$4.1 trillion, which would fall by 55% to US$1.9 trillion if those social and environmental impacts crystallised as financial costs. One third of companies would become loss-making. The risk to profit pools and competitive positions is clear.

Assessing and managing investment risk

SustainEx helps investors to identify sources of risk to stocks, sectors or portfolios, on which they should focus analysis of companies' strategies to manage those risks.

Companies that have relied on pushing costs from their own financial statements to governments or societies will come under growing pressure as regulation intensifies. The scale of the externalities companies impose has grown so large that in many industries, those costs exceed their total earnings.

Figure 15: Social value and net profit, both as percentage of market value



Source: Schroders.

How companies manage those risks is a different question and requires different analysis. We have developed a number of tools to help our analysts and fund managers gauge companies' readiness to adapt to the changing pressures they face; detailed company conclusions cannot be reached through formulae alone and benefit from our global industry expertise and fundamental investment heritage. SustainEx provides a valuable guide to help inform the areas on which they should focus.

Portfolio construction

SustainEx is one tool among many we have developed for our analysts and fund managers. It can also provide a standalone measure to use in specific investment strategies. It provides a forward-looking measure of earnings risk, which can be used as a factor alongside more conventional measures, if applied to a large universe in a portfolio comprising a large number of companies which do not rely on stock-specific judgement.

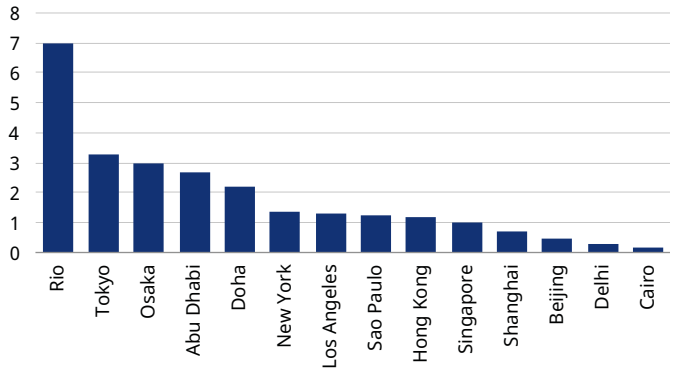
We have worked with our multi-factor investment team to develop the Sustainable Multi-Factor Equity strategy which integrates SustainEx analysis alongside more conventional factors. We noted above that some of the 47 measures described here are built on web data or other unconventional sources, which are likely to prove less stable than those based on data from conventional data providers. As a result, the measures used in that investment strategy and other client solutions will exclude measures that do not reach the level of robustness and stability we require for those uses.

Like any approach to sustainability analysis, SustainEx has most value alongside other investment drivers. Growth and valuation drive share prices; sustainability analysis provides insight into future profitability but is not an investment driver in isolation.

APPENDIX: Impact measurement example: Access to Water

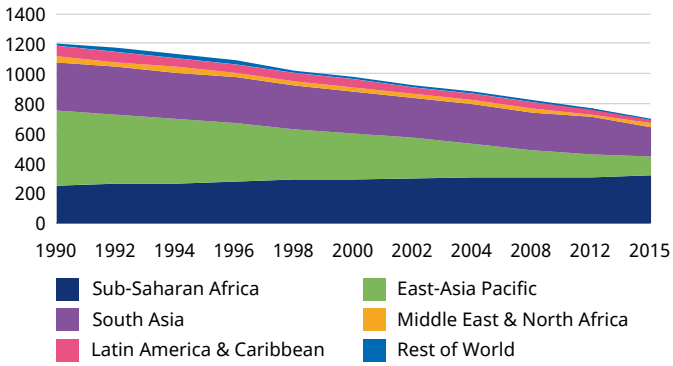
Access to clean drinking water is a cornerstone of human health. Infrastructure to provide clean water results in healthcare benefits, time savings and productivity gains to local populations. Water utilities generate an economic return, but are almost always legally required to charge prices far lower than the value water provides to their customers. According to the Statement of the Committee on the Right to Sanitation, every dollar invested in water yields a $9 economic benefit over the long term. 90% of the world's population now has access to improved water supplies but a significant proportion of emerging market populations remain unserved.

Figure 16: Price of water in selected cities across the world (USD per cubic metre) in 2015



Source: Municipal water utilities, Oxford Analytica, 2015, Schroders, 2018.

Figure 17: Number of people without access to an improved drinking source (millions)

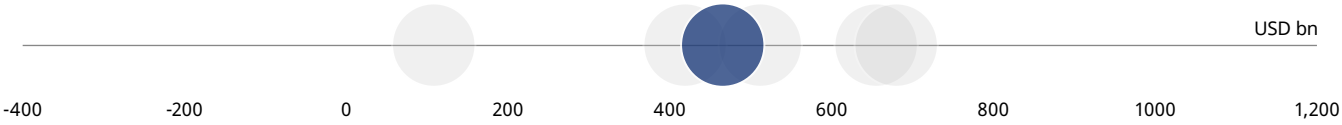


Source: Our World In Data, Schroders, 2018.

Calculating impacts

Whereas most studies focus on the costs to those without access to clean water, we take the opposite approach, estimating the benefits accruing to those who do have access. Extrapolating the costs imposed on people without water access to the rest of the world's population implies a global social value of water access of $418 billion. We assume one-eighth (13%) of this benefit is attributable to publically-listed companies and distribute this impact in proportion to each company's share of global water supply services.

Figure 18: Range of cost estimates: social benefits from Access to Water estimated by each study included in our analysis



Analysis based on the academic sources listed below. Source: Schroders, 2018.

Sources:

Companies' market shares are estimated using data from Bloomberg.
The estimated value of clean water provision is based on a range of estimates from academic and industry research: Benefits of investing in water and sanitation: An OECD perspective; Human Development Report 2006: Beyond Scarcity: Power, Poverty and the Global Water Crisis; Meeting the Challenge of Financing Water and Sanitation: Tools and Approaches; Sanitation Markets Using economics to improve the delivery of services along the sanitation value chain; The Economic and Social Benefits and the Barriers of Providing People with Disabilities Accessible Clean Water and Sanitation; United Nations Statement of the Committee on the Right to Sanitation.

EST. 1804

Schroder Investment Management Limited
1 London Wall Place, London, EC2Y 5AU
Registered number 1893220 England
Authorised and regulated by the Financial Conduct Authority

schroders.com

Important Information: The views and opinions contained herein are those of the authors as at the date of publication and are subject to change due to market and other conditions. Such views and opinions may not necessarily represent those expressed or reflected in other Schroders communications, strategies or funds. This document is intended to be for information purposes only. The material is not intended as an offer or solicitation for the purchase or sale of any financial instrument or security or to adopt any investment strategy. The information provided is not intended to constitute investment advice, an investment recommendation or investment research and does not take into account specific circumstances of any recipient. The material is not intended to provide, and should not be relied on for, accounting, legal or tax advice. Any references to securities, sectors, regions and/or countries are for illustrative purposes only. Information herein is believed to be reliable but Schroders does not represent or warrant its completeness or accuracy. No responsibility or liability is accepted by Schroders, its officers, employees or agents for errors of fact or opinion or for any loss arising from use of all or any part of the information in this document. No reliance should be placed on the views and information in the document when taking individual investment and/or strategic decisions. Schroders has no obligation to notify any recipient should any information contained herein changes or subsequently becomes inaccurate. Unless otherwise authorised by Schroders, any reproduction of all or part of the information in this document is prohibited. Any data contained in this document has been obtained from sources we consider to be reliable. Schroders has not independently verified or validated such data and it should be independently verified before further publication or use. Schroders does not represent or warrant the accuracy or completeness of any such data. All investing involves risk including the possible loss of principal. Third party data are owned or licensed by the data provider and may not be reproduced or extracted and used for any other purpose without the data provider's consent. Third party data are provided without any warranties of any kind. The data provider and issuer of the document shall have no liability in connection with the third party data. www. schroders. com contains additional disclaimers which apply to the third party data. Past performance is not a guide to future performance and may not be repeated. The value of investments and the income from them may go down as well as up and investors may not get back the amounts originally invested. Exchange rate changes may cause the value of any overseas investments to rise or fall. This document may contain "forward-looking" information, such as forecasts or projections. Please note that any such information is not a guarantee of any future performance and there is no assurance that any forecast or projection will be realised. For your security, communications may be taped or monitored.

European Union/European Economic Area: Schroders will be a data controller in respect of your personal data. For information on how Schroders might process your personal data, please view our Privacy Policy available at http://www.schroders.com/en/privacy-policy www.schroders.com/en/privacy-policy or on request should you not have access to this webpage. Issued by Schroder Investment Management Limited,1 London Wall Place, London, EC2Y 5AU. Registered Number 1893220 England. Authorised and regulated by the Financial Conduct Authority.

Note to readers in Argentina: Schroder Investment Management S.A., Ing. Enrique Butty 220, Piso 12, C1001AFB - Buenos Aires, Argentina. Registered/Company Number 15. Registered as Distributor of Investment Funds with the CNV (Comisión Nacional de Valores).

Note to viewers in Brazil: Schroder Investment Management Brasil Ltda., Rua Joaquim Floriano, 100 – cj. 142 Itaim Bibi, São Paulo, 04534-000 Brasil. Registered/Company Number 92.886.662/0001-29. Authorised as an asset manager by the Securities and Exchange Commission of Brazil/Comissão de Valores Mobiliários ("CVM") according to the Declaratory Act number 6816.

Note to Readers in Hong Kong: Schroder Investment Management (Hong Kong) Limited, Level 33, Two Pacific Place 88 Queensway, Hong Kong. Central Entity Number (CE No.) ACJ591. Regulated by the Securities and Futures Commission.

Note to Readers in Indonesia: PT Schroder Investment Management Indonesia, Indonesia Stock Exchange Building Tower 1, 30th Floor,Jalan Jend. Sudirman Kav 52-53 Jakarta 12190 Indonesia. Registered / Company Number by Bapepam Chairman's Decree No: KEP-04/ PM/MI/1997 dated April 25, 1997 on the investment management activities and Regulated by Otoritas Jasa Keuangan ("OJK"), formerly the Capital Market and Financial Institution Supervisory Agency ("Bapepam dan LK").

Note to Readers in Japan: Schroder Investment Management (Japan) Limited, 21st Floor, Marunouchi Trust Tower Main, 1-8-3 Marunouchi, Chiyoda-Ku, Tokyo 100- 0005, Japan. Registered as a Financial Instruments Business Operator regulated by the Financial Services Agency of Japan. Kanto Local Finance Bureau (FIBO) No. 90.

Note to Readers in People's Republic of China: Schroder Investment Management (Shanghai) Co., Ltd., RM1101 11/F Shanghai IFC Phase (HSBC Building) 8 Century Avenue, Pudong, Shanghai, China, AMAC registration NO. P1066560. Regulated by Asset Management Association of China.

Note to Readers in Singapore: Schroder Investment Management (Singapore) Ltd, 138 Market Street #23-01, CapitaGreen, Singapore 048946. Company Registration No. 199201080H. Regulated by the Monetary Authority of Singapore. Note to Readers in South Korea: Schroders Korea Limited, 26th Floor, 136, Sejong-daero, (Taepyeongno 1-ga, Seoul Finance Center), Jung-gu, Seoul 100-768, South Korea. Registered and regulated by Financial Supervisory Service of Korea.

Note to viewers in South Korea: Schroders Korea Limited, 26th Floor, 136, Sejong-daero, (Taepyeongno 1-ga, Seoul Finance Center), Jung-gu, Seoul 100-768, South Korea. Registered and regulated by Financial Supervisory Service of Korea.

Note to Readers in Switzerland: Schroder Investment Management (Switzerland) AG, Central 2, CH-8001 Zürich, Postfach 1820, CH-8021 Zürich, Switzerland. Enterprise identification number (UID) CHE101.447.114, reference number CH02039235704. Authorised and regulated by the Swiss Financial Market Supervisory Authority (FINMA).

Note to Readers in Taiwan: Schroder Investment Management (Taiwan) Limited, 9F, 108, Sec.5, Hsin-Yi Road, Hsin-YI District, Taipei 11047 Taiwan, R.O.C. Registered as a Securities Investment Trust Enterprise regulated by the Securities and Futures Bureau, Financial Supervisory Commission, R.O.C.

Note to Readers in the United Arab Emirates: Schroder Investment Management Limited, 1st Floor, Gate Village Six, Dubai International Financial Centre, PO Box 506612 Dubai, United Arab Emirates. Registered Number 1893220 England. Authorised and regulated by the Financial Conduct Authority.