



Impact measurement methodology

July 2023

Now reorganised to Vanguard Baillie Gifford Global Positive Impact Stock Fund

With effect from 18th July 2022, the Baillie Gifford Positive Change Equities Fund has been reorganised to a new fund: Vanguard Baillie Gifford Global Positive Impact Stock Fund.

This document details the methodology we use to analyse and report on the positive impact associated with the Positive Change Strategy. The sections that follow explain how we analyse the potential impact of a company, how we report on this impact in our annual Positive Change Impact Report and how we collect and calculate headline impact data.

We continue to evolve our approach and to engage with the companies in the portfolio to encourage them to do the same.

Analysing and reporting on impact

The Positive Change Team takes a positive and proactive approach to impact investing with our two equally important objectives: to deliver attractive investment returns and to contribute towards a more sustainable and inclusive world. We aim to support companies making decisions and taking actions that will be beneficial for their business, society and the environment in coming years and decades.

We believe that reporting on impact is fundamental to Positive Change. We aim to be as robust and transparent as possible in our approach to reporting on our second objective ‘To contribute towards a more sustainable and inclusive world’.

Analysing and reporting on positive impact is not easy: impact will not always be quantifiable (nor should it be); different companies have different impacts, and there is currently little in the way of standardisation for how companies should report on

how they impact people and the planet. To allow the reader to understand our approach to reporting on our second objective, we have explained below how we analyse the potential impact of a company.

Our approach to impact analysis is based on robust, bottom-up research that is independent from, but complementary to, the investment analysis. We only hold companies in the portfolio for the impact their core products and services can deliver, but we analyse all aspects of a business before making an investment. We have developed a qualitative framework to allow us to independently and consistently assess and compare how companies are driving change based around three components.

Products and services

All the companies in the portfolio are there because their products and/or services address a global environmental or social challenge and are improving the status quo. Our assessment of product impact considers the relationship between the product and the problem; the breadth and depth of the impact; and the materiality of the product or service, both in the context of the business and the challenge.

Intent

Understanding a company’s intent towards delivering positive change can help us to understand how likely it is that the company will deliver on the expected impact. Here we consider a company’s mission and how it is implemented; its strategy, actions, commitments and structures; and influence in the wider industry.

Business practices

Understanding a company’s business practices helps us to determine whether it can achieve sustainable growth. This is where we look at a company’s actions across the full value chain and its relationship with all stakeholders.

Our impact analysis supports a holistic assessment of companies. We learnt in the very early stages of developing Positive Change that there is no perfect company. There is also no easy way to sum and ‘net off’ those different positive and negative impacts – they often occur across multiple timeframes, with different stakeholders and, where they are possible to measure (and many aren’t), they are not always quantified consistently. Companies will make it into the portfolio where we believe that the overall impact is more positive than negative, based on thorough analysis and professional judgement.

Companies in the portfolio are organised into four themes which represent key global challenges. These themes are: Social Inclusion and Education; Environment and Resource Needs; Healthcare and Quality of Life; and Base of the Pyramid. Our impact analysis drives our inclusion of a company in the Positive Change Strategy, and the key outcomes and impacts are reported on an annual basis in the Positive Change Impact Report.

All investment strategies have the potential for profit and loss, your or your clients’ capital may be at risk.

Positive Change Impact Report

In the Positive Change Impact Report, the output of our impact analysis is summarised for each company in the portfolio individually (both positive and negative). Although we publish the Impact Report annually, we think impact can only truly be measured over the long term, which we define as five years and beyond.

Within the Impact Report we disclose impact at a company and portfolio level:

- The Positive Chains show how each company is delivering positive change through its products and services. We do not include positive or negative impacts from the business practices (how the companies operate) in the Impact Report as we report on this separately in our annual Environmental, Social, Governance (ESG) and engagement report *Positive Conversations*. Further detail is provided in the 'Business Practices Reporting' section of this document.
- For companies held in the portfolio five years and beyond, we have developed full company pages. We have included our Positive Change Hypothesis and commentary on progress and real world context.

- The Portfolio Snapshots: Headline Impact Data show aggregated data to illustrate how the portfolio holdings are contributing towards delivering positive change.
- The Portfolio Snapshots: Significant Sustainable Development Goal (SDG) Contributions show which companies contribute to the United Nations SDGs. Our explicit aim is to identify and hold companies for their positive contributions. Accordingly, the number of holdings we found to be making a significant negative contribution to the SDGs through their products and services is less than those holdings making positive contributions.

The methodology we use to report on the above is detailed below.

Demonstrating company level impact through the Positive Chain

We demonstrate how companies in the portfolio are addressing the themes through a Positive Chain. Our Positive Chains are based on the 'Theory of Change', a methodology where identified change is mapped out with outcomes shown in relation to each other chronologically. Our Positive Chains show how each company is delivering change through its product and services and have five components to help illustrate how the holdings are delivering positive change:



- Inputs (the resources used by the company, eg financial capital, human capital);
- Activities (the use of inputs or other actions to produce outputs);
- Outputs (the production or delivery of products or services to beneficiaries);

- Outcomes (short-term changes as a result of those activities and outputs); and
- Impacts (system-level changes expected to happen owing to the company's activities and outputs).

Further information on how we collect our company data contained within the Positive Chains can be found below in the 'Collecting company data' section.

Under the impact column we highlight the UN SDGs and targets that each company is contributing towards through its products and services. Further detail is provided in the 'Significant SDG Contributions' section of this document.

An example of a Positive Chain based on Coursera, which is owned in the portfolio:

Input	Activities	Outputs	Outcomes	Impact (SDG target)
R&D US\$165.1m Employees 1,401 (Y/E Dec 2022)	Coursera partners with leading universities and companies to offer a catalogue of educational content and credentials, including professional certificates, guided projects, and bachelor and master degrees.	In 2022, Coursera had 118 million learners registered, with 39 million course enrolments, 434 million lectures watched, and 70 million completed assessments. Over 18,000 students were enrolled in degree programmes by the end of 2022.	77 per cent of learners globally and 91 per cent of learners in emerging markets report seeing career benefits, such as a promotion or a pay increase, from taking courses on Coursera.	 QUALITY EDUCATION 4.4  DECENT WORK AND ECONOMIC GROWTH 8.5, 8.6

In addition to annual impact shown through the Positive Chain, for companies held since inception of the strategy, we have expanded our reporting to include progress over time:

- Positive Change hypothesis. For each company held since inception, the hypothesis outlines how we expect companies' products and services to deliver positive change, and why we believe this represents a good investment opportunity.
- Long-term progress. Commentary and supporting impact (since inception period) and investment metrics (over five-year periods) to ensure that we are accountable to the philosophy that investment returns and impact are complementary. See below for further methodology.
- Real-World context. Further commentary around the challenges each company is solving.

Impact objective metrics, such as Ørsted's avoided emissions from green generation, are selected and monitored by the impact analysts using publicly-available data. Where the full time series of data is not available we do not report.

Investment objective metrics, such as revenue growth and share price return are derived from third party sources including FactSet and Refinitiv.

Revenue growth is calculated using third-party source FactSet, which collects data from both annual and interim, preliminary and final documents (eg 8-K, 10-K, 10-Q). Data is sourced from both the face and the notes of the cash flow statement and balance sheet, and the face of the cash flow statement reported by the company. Sales data is therefore sourced from the income statement. The growth percentage calculation approach is $(\text{Sales}/\text{Sales}_{-5Y})^{(1/\text{No. of years})-1} * 100$. The most recently available sales figure (reported prior to the report date) is compared to the same figure five years prior, the difference is then annualised and converted into a percentage.

Additional notes:

1. Due to the timing of financial reports, Moderna's revenue growth for the FY 2022 Impact report is calculated between two revenue amounts that are six years apart, and therefore no. of years applied is 6.
2. When the currency used in the report differs from the securities 'as-reported' currency, FactSet sources exchange rates from WM/Reuters to convert the data items. An average exchange rate is used to convert data items from the income statement and cash flow statement, and an end-of-period exchange rate is used to convert data items from the balance sheet.

In order to calculate cumulative share price return in US dollars we download the total return index from Eikon Datastream into Excel and then calculate a cumulative return based on the calculation: $(\text{opening date from the closing date}) * 100$. This is the same calculation whether it is daily return or return since inception.

As we are pulling in daily data, to make it easier to find the correct value for each date when calculating longer time periods we use a VLOOKUP function to source the correct share value. We then use the formula above to calculate the time periods requested. In order to calculate the annualised return we first need to calculate the number of years for the since inception period. To do this we subtract the Opening Date from the Closing Date and divide this by 365. We then apply this to the cumulative formula, so this becomes $(\text{closing value}/\text{opening value} (1/\text{No. of years})-1) * 100$.

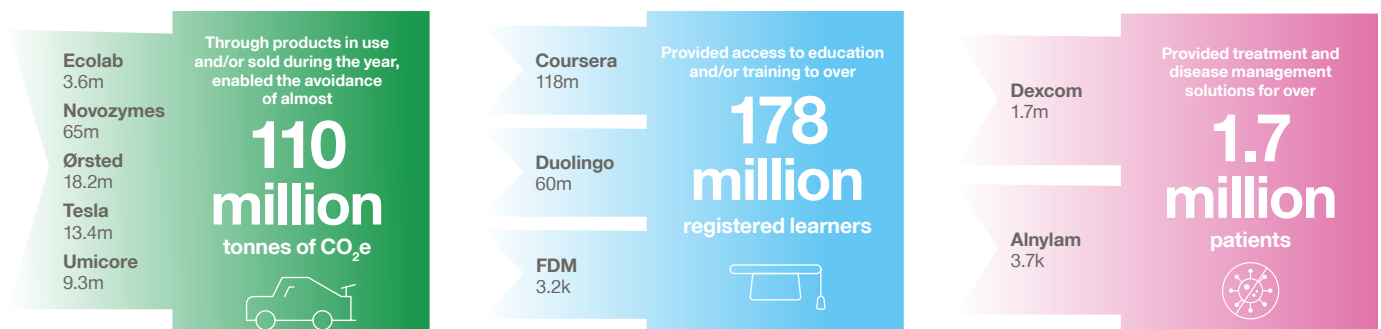
How we collect and calculate our headline impact data

Collecting company data

- We collect data from each of the companies held in the Positive Change Strategy on what their impact is at the end of their fiscal year¹. For those holdings that have been in the portfolio for less than the full year, no attempt has been made to pro-rate and therefore we include the full year of impact.
- We try to pick just one or two of the most relevant metrics for each company and this data varies. Metrics are guided by the four impact themes which represent key global challenges. For example, we would report on CO₂ emissions saved for a green energy provider in the Environment and Resource Needs theme, or patients treated for a healthcare company in the Healthcare and Quality of Life theme.
- We only include data that relates to positive impacts from the products and services of the companies held in the portfolio (so what they do or sell). We do this to be rigorous and conservative with our reporting. We do not include positive or negative impacts from the business practices (so how the companies operate) in the Impact Report as we report on this separately in the annual ESG and engagement report, *Positive Conversations*. Further detail is provided in the ‘Business Practices Reporting’ section of this document.
- The way in which companies measure and report is not always uniform, so as well as obtaining this data from company reports we also engage with companies to understand how they have compiled the data.
- Where information is not available to calculate impact, we do not estimate a company’s contribution and so we believe our impact figures are conservatively calculated. Through proactive engagement we hope the gaps in this data will diminish and consistency in reporting will increase over time.
- In some instances, we use the most recent company reported data to calculate outcomes.
- Data for CO₂ emissions saved is based on company reporting, which is either in CO₂ or carbon dioxide equivalent (CO₂e); the aggregate data is presented as CO₂e as this is the most conservative approach.
- Data in the report is based on companies’ publicly-reported data for the financial year 2022 (if reported before 30 June 2023 or through company engagement), unless indicated otherwise.
- Healthcare companies tend to report cumulative data, and therefore data related to healthcare is presented to date, covering multiple years.
- It is important to note that this data is for the overall companies. We are not trying to factor in the specific ownership stake in the companies held by Positive Change clients.

Calculating the headline impact data

- Where companies report on relevant data, we add this together to provide Headline Impact Data for Positive Change overall.
- As we note above, if a company does not report a figure that can be verified, we do not include any contribution in these headline statistics. We believe this provides a conservative estimate.



¹Our impact report collects data from the full, prior fiscal year. Note that companies will pick slightly different fiscal year end points eg some companies have a December Fiscal Year end, while for others it is March.

How our Impact Indicator works

- We take the overall impact data we have collected for the companies in the portfolio. The data for each company is divided by its market capitalisation (the total value of the listed shares of a company) in US dollars. This figure is then multiplied by the percentage weighting of that company in the representative portfolio (all as at end December 2022).
- We aim to factor in ownership stakes using our Positive Change Impact Indicator.
- To calculate individual investments in our Impact Indicator, the figure is pro-rated again for the value entered and converted into the relevant currency.
- To illustrate, Safaricom, a company in the portfolio, enabled 4.8 million people to send, save and spend money on healthcare services. Using the impact formula, we can establish the impact associated with a particular ownership stake in that company through investing in Positive Change:

$$\left(\frac{\text{Impact Reported}}{\text{Market capitalisation (US\$)}} \right) \times \left(\% \text{ of fund weighting} \right) \times \text{value entered} = \text{associated impact}$$

$$\left(\frac{4.8 \text{ million}}{7,847 \text{ million (US\$)}} \right) \times 0.57\% \times 1 \text{ million} = \text{enabled } \mathbf{3 \text{ people}} \text{ to send, save and spend on healthcare service}$$

A few important notes:

- The impact is generated by the companies rather than individual investments. As long-term providers of capital, the Positive Change Strategy aims to support these companies to improve their product(s) or service(s) as well as their business practices, to create a more sustainable world for future generations. However, while increasing an investment in the strategy increases your stake in the companies, it does not actually lead to an increase in the overall impact the company would have delivered last year. For more information on this, please see The Capital Chain section below.
- Our reporting year is dated from 1 January 2022 to 31 December 2022, and we report on all companies held as at 31 December 2022.
- For those holdings that have been in the portfolio for less than the full year, no attempt has been made to pro-rate the contribution and therefore we include the full year of impact. However, as we have a long-time horizon and aim to invest in our holdings for 5–10 years on average, portfolio turnover is low.
- Where we have divested a holding in the reporting year, we do not include the impact of that business.
- Headline Impact Data, while providing an indication of the impact of the portfolio, is vulnerable to inconsistencies. These can be caused by underlying assumptions. How companies measure and report is not always uniform and, in some cases, requires conversion to allow for aggregation across the portfolio. For example, converting Xylem's reduced water loss from cubic meters to litres.
- If a company does not report a figure that can be verified, we do not include any contribution within the Headline Impact Data snapshot; as such, we believe this provides a conservative estimate.

Significant SDG contributions

All companies in the Positive Change portfolio contribute to the UN SDGs. We take a rigorous approach to SDG mapping, identifying the SDGs that companies contribute to through the delivery of their products and services, at the target level (they have 169 underlying targets). This ensures that companies are genuinely addressing the changes needed to deliver the goals, rather than merely aligning with one of our four themes at a superficial level.

We do not consider alignment to the Goals through business practises as this is not the reason companies are held within the portfolio. For robustness and consistency we undertake the SDG mapping independently of company reporting. The link between each company’s impact and the SDGs is shown in the Positive Chains, and at aggregate level across the whole portfolio in the Portfolio Snapshots, as detailed earlier.

Our explicit aim is to identify and hold companies for their positive contributions. Accordingly, the number of holdings we found to be making a significant negative contribution to the SDGs through their products and services is less than those holdings making positive contributions.



Independent verification – Positive Change Impact Report

The Positive Change Team seek independent limited assurance over aspects of the Positive Change Impact Report. We engage an independent third-party annually to seek Limited Assurance over Selected Information contained within the Positive Change Impact Report under International Standards on Assurance Engagements (UK) 3000 - ‘Assurance Engagements other than Audits or Reviews of Historical Financial Information’ (‘ISAE (UK) 3000’). Please see the most recent Positive Change Impact Report for the full opinion on the most recent reporting year.

We hope that this impact measurement methodology provides clients and prospective clients with comfort that the way in which we report impact, and the underlying data we use, are robust.

Business practices reporting (covering ESG issues)

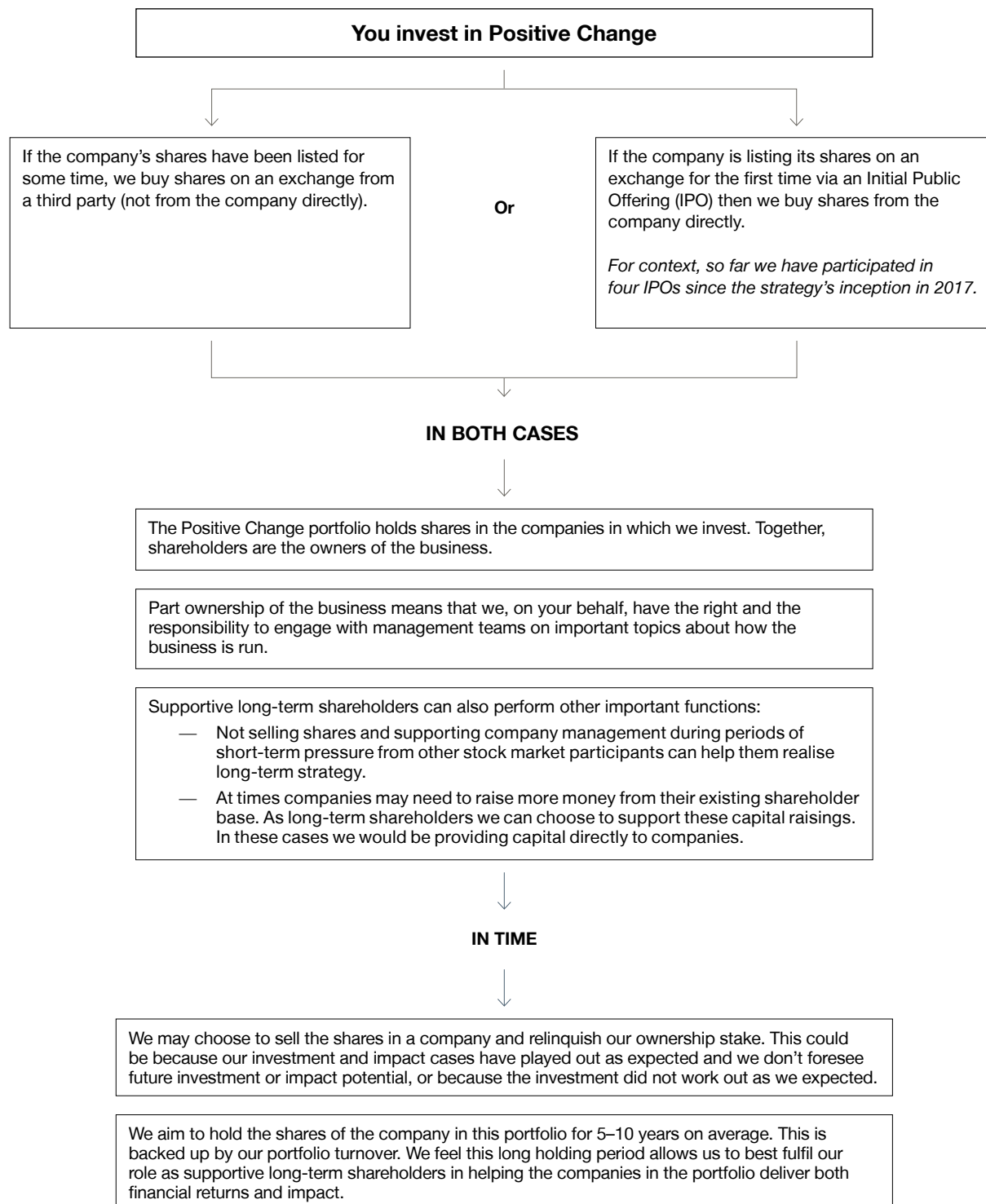
We publish *Positive Conversations*, which is an accompaniment to our annual Impact Report using a different, but equally important, lens to look at the contribution of the Positive Change portfolio to society. The Impact Report focuses on the impact of the products and services of the companies in the portfolio, whereas *Positive Conversations* looks at the business practices (ESG) of these companies, essentially how they operate and behave. It also details our engagement, or positive conversations, with management teams as we seek to support and influence companies over the long term.

Positive Conversations includes information on key ESG issues such as carbon footprint and net zero expectations, social issues such as financial inclusion and governance matters, as well as important information on company engagements and proxy voting.

We produce separate reports because it is important to distinguish between business strategy (products and services) and business practices (ESG). While companies make it into our portfolio based on the impact from products and services, we aim to own shares in exceptional companies that operate with honesty and integrity, that treat their stakeholders well, and are leaders within their respective areas. We believe our bespoke approach will lead to more interesting and effective conversations and actions over time.

The Capital Chain

We hold shares in companies who have publicly listed shares. What does this mean for where your money goes?



Risk factors

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