For professional and/or qualified investors only

Private Equity
2023 Annual ESG Report

Contents

p3 Introduction

p4 2023 Market Overview – the Butterfly Effect

p6 Columbia Threadneedle Investments Private Equity's Approach to Responsible Investing

p8 2023 Survey Highlights

p9 ESG Ratings Methodology

p10 Survey Results

p32 Co-investment Key Performance Indicators

p35 Co-investment Case Studies

p38 Conclusion

Introduction

Private equity is uniquely positioned to drive and scale ESG best-practices given we typically hold material stakes in companies, have a closer relationship to management – many of which have been hand selected – and are fuelling the businesses of tomorrow. We can therefore achieve an outsized impact and, have a fiduciary responsibility to do so.

Environmental, social and governance ('ESG') factors have been shown in numerous studies to have a long-term positive correlation with equity returns, in spite of recent criticism surrounding ESG investment strategies. Companies with stronger ESG credentials demonstrate better financial performance[1] through topline growth (e.g., by offering new sustainable solutions or addressing changing consumption patterns) as well as lower costs and higher margins (e.g., by focussing on resource efficiency and circularity[2]). Return on investment and capex can be optimised by allocating capital sustainably for the long term which may include investment into energy efficient plant and equipment or avoiding heavy write-downs or stranded assets. Those who focus on ESG can have better access to lower-cost capital from a wider range of lenders[3] as strong corporate governance is known to reduce a firm's default risk. The right ESG proposition can also boost employee wellbeing, satisfaction, and labour productivity[4]. Strong diversity, equity & inclusion ('DE&I') initiatives help businesses attract and retain top quality talent and reduce churn. We firmly believe that companies who do not build dynamic teams that are representational of wider society will face challenges driving innovation, fostering decision making and generating sustainable, premium returns for investors. In today's market where the competition for talent is rife, it is imperative that companies establish infrastructure that supports inclusion and upholds values that resonate with the Gen-Z workforce of tomorrow. DE&I is also crucial from a private equity fundraising perspective, as investors seek partners who share the same values and can meet their expectations on inclusion. The World Economic Forum predicted that, just as the last decade saw a massive digital transformation across almost every sector, the next will see a massive sustainability transformation. With assets estimated to reach $50 trillion by 2050, there is an abundance of capital flowing into the space.

With over three decades of experience, Responsible Investment ('RI') sits firmly in the centre of our investment approach at Columbia Threadneedle Investments. We believe that ESG factors have a tangible and meaningful impact on economic value, and those who prioritise it are better placed to mitigate ESG risks and create value through ESG opportunities.

Improvement is the focus of our RI strategy; our objective is to leverage our position to engage, influence and drive development over our hold in a bilateral manner with our partners. ESG is a process, not an outcome. We track, monitor and report on our investments' ESG development through our ESG Survey and publish results in this, our 10th Annual Private Equity ESG Report. We saw continued progress from all of our General Partners ('GPs') and co-investments across various sizes, sectors and regions, albeit from different starting points. We were encouraged to achieve an 84% combined response rate, from a total of 138 GPs and co-investments. We believe this level of engagement underscores the strategic importance of ESG and strength of our relationships.

Over the last year, CT Private Equity ('CT PE') has continued to evolve its own ESG proposition. We believe in 'walking-the-walk' rather than just 'talking-the-talk' with regards to ESG, so hold ourselves accountable to the same high standards we do of our GPs. On governance, we updated our Private Equity Responsible Investment Procedures and formalised an Exclusions List; continued to include ESG as an agenda item at our Boards and LP Meetings; and completed an Internal ESG Audit process to ensure our processes are robust, effective and accurate. We continued to develop our own ESG due diligence process and standardised ESG findings within our Investment Committee Papers, in line with the in-depth reviews we conduct in our Annual ESG Survey. We again increased the breadth of ESG Key Performance Indicator ('KPI') monitoring and enhanced our ESG annual reporting. We now track 74 non-financial metrics across numerous ESG topics. We became a signatory to the ESG Data Convergence Initiative this year in a bid to streamline data collection, enhance data quality and increase transparency. We also committed to receive formal ESG training annually from our dedicated in-house Responsible Investment ('RI') team comprising over 40 subject-matter specialists.

Ashley-anne Hawthorn
Director, Private Equity,
Columbia Threadneedle Investments

[1] "Corporate Sustainability: First Evidence on Materiality", M. Khan, G. Serafeim and A. Yoon, Harvard University & Minnesota University, 2017
[2] "Sustainability & Resource Productivity", McKinsey & Company, 2014
[3] "ESG and the Cost of Capital", MSCI, 2020
[4] "The link between job satisfaction and firm value, with implications for corporate social responsibility," A. Edmans, Academy of Management Perspectives, November 2012, Volume 26, Number 4, pp. 1–19, journals.aom.org

2023 Market Overview
The Butterfly Effect

Ukraine celebrated 32 years of independence in August 2023, an anniversary that also marked 18 months since Russia launched a full-scale invasion into the country and so began the 'Butterfly Effect'. In this instance, the term 'butterfly' seems deeply inappropriate, but its connotations of transformation, rebirth and freedom are all aspirations that Ukraine is still fighting for. In one of the worst humanitarian crises since World War II, over 11 million Ukrainians – one quarter of the population – have fled as refugees or are 'internally displaced' and over 17 million – nearly half the population – are in need of emergency aid. The devastating social impact is highlighted by the sheer number of unlawful casualties, now standing at 26,717: 17,206 injured and 9,511 killed, of which 549 were children[5]. US officials estimated military casualties from both sides are in the region of 500,000. Various initiatives from China, Africa and Saudi Arabia aimed at ending the war have been underway for months, but peace sadly seems no closer.

Western sanctions on Russia led to soaring energy prices and inflation across almost every sector of the global economy. The inability to access Ukrainian exports, namely grains, added upwards pressure on global food prices and exacerbated world hunger. Consumer Price Inflation ('CPI') in the Eurozone and UK hit double-digit figures in Q3 2022 and remained stubbornly elevated throughout 2023, in spite of aggressive Central Bank rate hikes. The latest conflict in the Middle East, the Israel-Hamas war, is similar from both a social and economic impact as many fear this will create a renewed inflation shock as oil prices rise once again. With base rates now at their highest levels in 15 years, low and middle-income families are disproportionately impacted. The macroeconomic climate of 2023 highlighted stark socioeconomic disparities and gender inequality. The cost-of-living crisis reduced worker productivity because of mental-health issues and rising sick-leave, with these effects being greater in vulnerable or single-parent homes. Staff shortages, wage demands, and industrial strike action put further upwards pressure on prices and made labour relations a key focal point of the year.

Human Rights have moved up the agenda with the EU's Corporate Sustainability Due Diligence Directive ('CSDDD') proposal. The CSDDD is a major piece of legislation that will require EU and non-EU companies to conduct environmental and human rights due diligence across their operations, subsidiaries and value chains. It is expected that investors will become increasingly reliant on data vendors to provide corporate assessments on supply chain resilience, security and exposure to risks. Regulation overall is increasing with the continued implementation of the SFDR, the UK's Sustainable Disclosure Regulation ('SDR'), Task force on Climate-related Financial

Disclosures ('TCFD') and the introduction of the European Corporate Sustainability Reporting Directive ('CSRD'). Scrutiny over corporations' sustainability roadmaps is set to increase, and surveillance is expected to grow as asset managers and owners shift from Scope 3 reporting towards net zero implementation. As such, compliance risks and legal challenges will likely multiply as scrutiny over climate-related government policies, corporate ESG strategies and claims related to business practices, working conditions and net zero emissions arise. We continue to monitor developments closely.

Financial regulation, governance practices and rising rates also had a part to play in the collapse of Californian-based, venture tech-specialist lender, Silicon Valley Bank ('SVB') in March 2023. SVB invested large portions of its deposits into long-dated, low-yielding US Treasuries which were intended to be held-to-maturity. The bank was forced to sell these early – and, at a heavy loss given the Fed's rate hikes – to meet substantial deposit withdrawals as its customers burnt through cash reserves in the tough market conditions that followed the tech boom. SVB subsequently raised external funding which sparked uncertainty in its corporate client base and triggered a widespread bank run on deposits in just over 48 hours. Contagion set in and NYC-based Signature Bank – real-estate lending specialist with large crypto exposure – suffered a similar fate just days later. These events were compounded by the reduction in scope of the 'Dodd-Frank' Banking Act, 2010 by the Trump Administration in 2018 (now only applicable to banks with Assets under Management ('AuM') >$250bn, from $50bn previously) – including capital ratio requirements. SVB (c. $200bn AuM) and Signature (c.$100bn AuM) were no longer subject to the same capital and liquidity requirements as larger 'systemically important' banks and therefore less able to meet their obligations and absorb capital losses. The collapse of Credit Suisse came the following week in Europe, and despite there being no connection between the institutions, all were riddled with governance issues. After being weakened by a series of scandals over two decades – investigations, fines, imprisonment for money laundering, corruption, tax evasion and corporate espionage to name a few – Credit Suisse faced massive legal and reimbursement costs in 2021 over its exposure to the collapsed US hedge fund Archegos Capital and UK finance firm Greensill Capital. After its largest shareholder refused to inject further capital, a bank run ensued, and it was eventually acquired by Swiss competitor UBS at a fraction of its book value. 2023 has thus marked the largest banking crisis since 2008, and provided a stark reminder how inadequate risk management and poor governance processes can lead to demonstrable failures.

The high inflation and interest rate environment has also been detrimental to other long-dated asset classes, many of which are ESG focussed, such as sustainable infrastructure. In September, the UK Government's auction for new offshore wind contracts – an annual attempt to incentivise private sector investment into renewables – failed to bring forward any new projects. In this scheme, private developers are guaranteed a fixed price for the electricity generated over the first 15 years of the project's lifespan. The price is determined through a competitive auction where developers submit bids up to the price cap set by the government. The 2023 price cap was set too low and had not taken account of rising construction and financing costs. Consequently, the auction failed to attract a single bid and has threatened to derail the UK's 2030 offshore wind target, which is its main hope of a low-carbon future. The result is concerning for other transition or adaption investments in the context of achieving net zero targets. Elsewhere in the world, innovative solutions for decarbonisation and energy diversification have encouragingly gained traction. China is currently fulfilling one third of global demand for solar and aims to further increase capacity by 2050[6]; there has been promising developments in electric vehicle ('EV') batteries and recycling[7]; and global nuclear capacity is expected to double by 2050 as countries seek reliable and clean energy production[8].

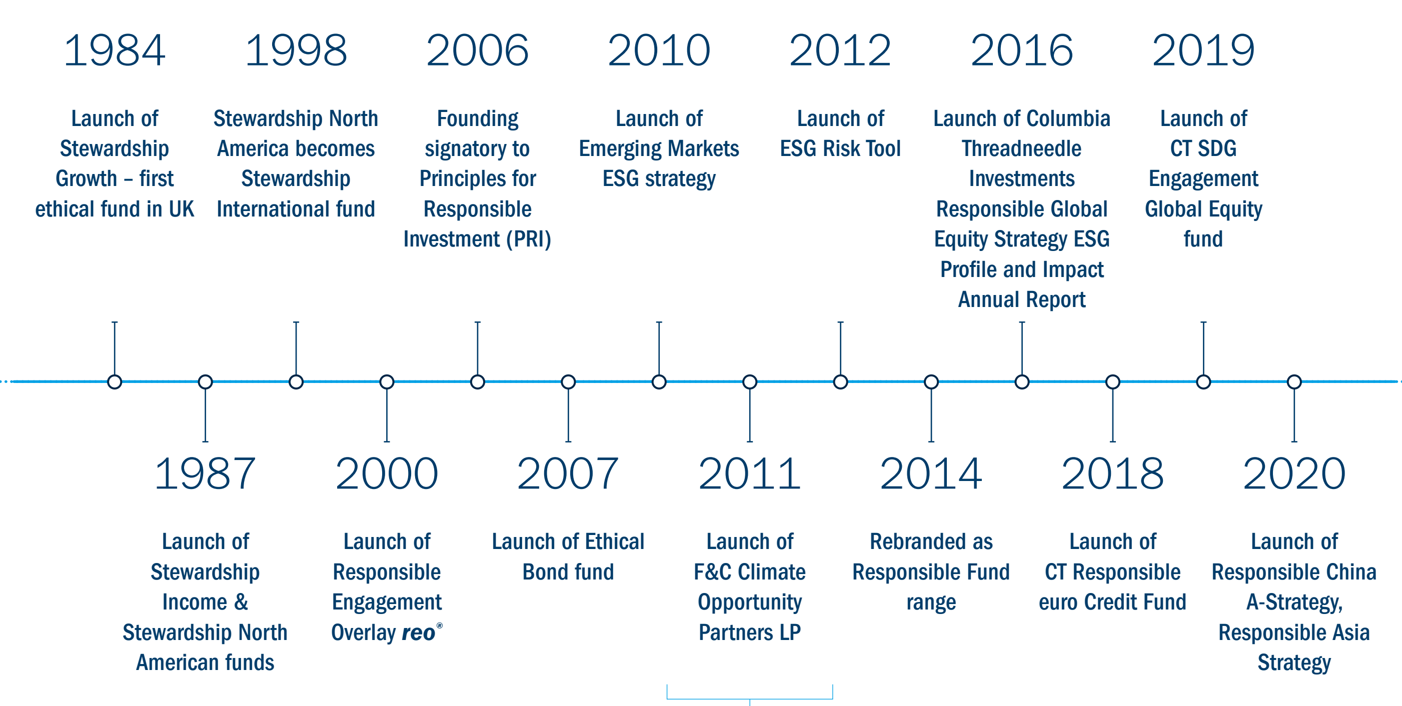
The 27th Conference of Parties ('COP27') Climate Summit was held at the end of 2022 and produced agreements on climate-related-funding, including the establishment of a loss and damage fund for vulnerable countries. Critics believed it fell short in reducing fossil fuel and mitigation commitments. Emissions cuts and phasing out of fossil fuels and coal were 'stonewalled' by a number of large emitters and oil producers. Ahead of COP28 in December 2023, countries are divided between those demanding a deal to phase out fossil fuels, and nations that say coal, oil and natural gas have a continued role if combined with carbon capture. President of COP28, Sultan Al Jaber laid out the four pillars of his plan for the upcoming conference: fast-tracking the transition to a low-CO2 world; solving climate finance; focusing on people, lives and livelihoods; and delivering full inclusivity. However, oil nations including the hosts UAE argue that calls to stop investments into new oil projects are misguided and could lead to energy and economic chaos, particularly in the face of high capital costs of renewable investments. These divergent views and the attendant debate could present challenges to COP28, but the momentum for substantial new outcomes remains.

We look to the future with optimism but also caution. In such times, what happens to prior commitments to net zero, the United Nations Sustainable Development Goals ('UN SDGs') and other local initiatives when the focus turns to survival? We believe that only the most compelling investment strategies will persist with the current economic backdrop. We are optimistic that global regulators will step in and alter policies to accommodate impactful investment in the current inflationary and high-rate environment in order to increase resilience for all. It is imperative the macroeconomic climate does not derail our progress towards a low-carbon future.

[5] Office of United Nations High Commissioner of Human Rights ('OHCHR'), 27 August, 2023
[6] "Solar Market Overview for 2023", InfoLink Group, September 2023
[7] "How Old Batteries Will Help Power Tomorrow's EVs", MIT Technology Review, January 2023
[8] "Energy, Electricity and Nuclear Power Estimates for the Period up to 2050", International Atomic Energy Agency ('IAEA'), September 2023

Columbia Threadneedle Investments Private Equity's Approach to Responsible Investing

Columbia Threadneedle has been at the forefront of responsible investing for over three decades having launched Europe's first socially and environmentally screened fund in 1984, a milestone we are very proud of. Responsible investment has long been a part of our history and we believe – and have demonstrated – that incorporating ESG considerations underpins long-term, sustainable returns.



COLUMBIA THREADNEEDLE PRIVATE EQUITY MANAGED FUND

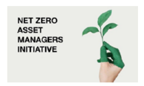
CT PE's ESG strategy is underpinned by our commitment to the UN Principles of Responsible Investment ('UN PRI'). As a founding signatory, Columbia Threadneedle and by extension CT PE is committed to integrating its principles throughout our investment lifecycle, from screening, due diligence, and monitoring to exit. As a signatory, we commit to the following:

1. We will incorporate ESG issues into investment analysis and decision-making processes.
2. We will be active owners and incorporate ESG issues into our ownership policies and practices.
3. We will seek appropriate disclosure on ESG issues by the entities we invest in.
4. We will promote acceptance and implementation of the Principles within the investment industry.
5. We will work together to enhance our effectiveness in implementing the Principles.
6. We will each report on our activities and progress towards implementing the Principles.

We also make use of the UN SDG framework to guide our diligence, drive positive change and contribute to the objectives of the 2030 Agenda. Our ambition is to deliver strong risk-adjusted returns to our investors whilst being a responsible steward of capital and demonstrating positive progress against the 169 UN SDG targets.

As a member of the Net Zero Asset Managers initiative ('NZAM'), Columbia Threadneedle committed to a net-zero ambition across all our asset classes by 2050, working in partnership with our clients. We are also an active member of numerous investor collaborations and networks including Climate Action 100+, the newly launched Nature Action 100 (which we co-founded), and the 30% Club (in the UK, France, Germany and US) – see our Stewardship Report[9] for full details. We also participate in the public policy process, primarily through our industry membership groups such as the Institutional Investors Group on Climate Change, and the UK's Investment Association, where we chair the Climate Change Working Group. CT PE became members of the ESG Data Convergence Initiative in 2023, which is driving industry-wide convergence on ESG metric collection and supports greater transparency across the sector. We are participants in Initiative Climate International ('iCI') and Institutional Investors Group on Climate Change ('IIGCC') working groups where we play an integral role in driving and scaling ESG best practices.

Columbia Threadneedle Investments reports to the UN PRI through its annual assessment. Columbia Threadneedle Private Equity achieved a 5-star rating in 2023.



2023 ESG & Responsible Investment Awards

Excellence in ESG – LP Category (shortlist)
Private Equity, Columbia Threadneedle Investments

Fifty Most Influential in Sustainable Finance
Claudia Wearmouth, Global Head of Responsible Investments, Columbia Threadneedle Investments

Rising Star of the Year, Large Firm (shortlist)
Ashley-anne Hawthorn, Director, Private Equity, Columbia Threadneedle Investments

Sustainable & ESG Investment Woman of the Year, Large Firm (finalist)
Claudia Wearmouth, Global Head of Responsible Investments, Columbia Threadneedle Investments

[9] Columbia Threadneedle Investments - Stewardship Report https://docs.columbiathreadneedle.com/documents/Columbia%20Threadneedle%20Investments%20-%20Stewardship%20Report.pdf

2023 Survey Highlights

94% of managers have ESG policies & procedures in place

99% of managers consider ESG factors within due diligence process

62% of GPs track green house gas emissions

40% of GPs adhere to the UN SDGs

26% of GPs track and report Net Zero alignment

80% of managers track ESG KPIs

92% of managers rated 'Good', 'Excellent' or 'Best-in-class' for ESG

92% of managers would DECLINE an opportunity based on ESG ALONE

40% of current/next fundraises from our GPs will be Article 8 or 9 per SFDR

57% of GPs produce an Annual ESG Report

22% of GPs track biodiversity metrics

72% of GPs have Diversity & Inclusion policies

91% of GPs have improved ESG standards

ESG Ratings Methodology

We assess our managers annually through our ESG survey which encompasses key ESG topics, metrics and trends. The survey is based around four core elements which are outlined below, and respondents are rated 1-5 from 'Leader' to 'Laggard'. Managers who score below average will be encouraged to develop over time and our comments are fed back over the life of our investment in a collaborative and bilateral process.

Our analysis provided us with valuable insight on where companies, management teams and GPs are focussing their ESG efforts and key trends emerging across our portfolio. Our annual survey affords us the ability to both assess and monitor our GPs and also facilitates engagement on areas for improvement.

- **ESG Culture and Commitment** – We believe the integration of ESG factors starts with the correct mindset and permeates throughout an organisation from the top down. The strategic importance and commitment to ESG was assessed through a number of metrics such as the sophistication of policies and procedures, adherence to broader industry standards (e.g., UN PRI, UN Global Compact, iCI etc), existence of ESG resource and training.
- **Investment Process** – The extent to which ESG factors are formally embedded throughout the investment workflow from pre-acquisition to exit. We looked at how institutionalised processes were, the significance of ESG factors to investment decisions, the integration of formal frameworks (e.g., UN SDG's) and how ESG matters were formally analysed and debated within investment papers and committees.
- **Active Ownership** – Active ownership goes beyond the obvious mitigation of ESG risks – which we believe should be a standard due diligence item in today's world – and focus on the embedding of ESG opportunities within the value creation plan. We evaluated our GPs on the extent to which they were driving positive ESG change, not just across their portfolio companies but also within their own firm. We believe our GPs should not just "talk-the-talk" but "walk-the-walk" - a notion implicitly linked to culture & commitment.
- **Oversight and Reporting** – Oversight and transparency is vital for sufficient levels of governance, and to enact change, one must know their starting point. We believe that outcome-oriented approaches are imperative to implement, monitor and drive positive ESG development. We evaluated our GPs' oversight and reporting capabilities through the breadth and sophistication of ESG-metrics monitored, tracked and reported. We also assessed the sophistication of our managers' ESG case studies and Annual ESG Reports.

Rating	Assessment
1	**Best-in-class** Market-leading commitment to ESG with robust, institutional policies and processes in place. GP has firmly integrated ESG throughout the investment process, is an active owner in promoting ESG development and reports on ESG metrics.
2	**Excellent** Strong commitment to ESG with institutionalised policies and processes in place. GP has integrated ESG throughout its investment process and has shown itself to be active in promoting some aspects of ESG. Tracks, monitors and reports on some ESG metrics or developing to do so over the short term.
3	**Good** Commitment to ESG demonstrated with some taken steps to integrate ESG, albeit not across the entire workflow (e.g. reporting). Processes institutionalised and GP motivated to improve with development underway.
4	**Developing** GP demonstrated some commitment to ESG or has begun development on some ESG initiatives but lacks institutionalised processes.
5	**Laggard** GP demonstrates little or no commitment to ESG and no willingness to develop or trending negatively.

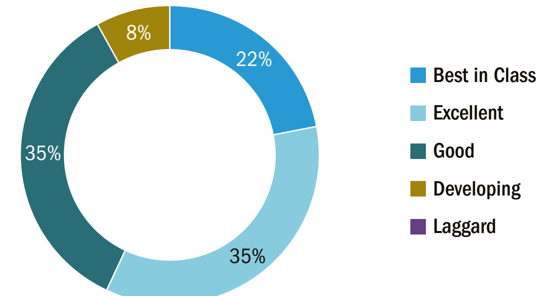
Survey Results
Global ESG Ratings

We achieved an excellent response rate of 89% from a total of 73 GPs in our 2023 ESG Survey. Of these, 92% were rated 'Good' (Rating 3), 'Excellent' (2) or 'Best-in-class' (1), up from 89% last year, 84% in 2021 and 80% in 2020. Leading managers within the 1-2 rating bucket remained at 57%, which is a testament to strategic importance of ESG, in spite of the current macro climate. In a similar fashion to 2022, none of our GPs were rated as 'Laggard' (5), which we would expect given our investment criteria relating to minimum ESG practices. We were encouraged that our 'emerging managers'[10] – typically characterised by a '4' rating – achieved the greatest level of development as many progressed into the 3-rated category over the course of the year.

GPs that focussed on earlier-stage companies typically achieved lower ratings, particularly in ESG reporting given the high level of resource and sophistication required to score strongly in this area. Mid-market buyouts continued to dominate the 'Best-in-class' (1) and 'Excellent' (2) categories. Our objective at CT PE is to drive ESG development over our hold period and measure our success annually through this, our 10th Annual ESG Report. We believe that we are well positioned to drive positive impact in ESG given we operate in the lower mid-market and have a strong focus on emerging managers. This notion is well supported by the shift from 4 to 3-rated managers over the last 12 months – the segment that saw the biggest improvement.

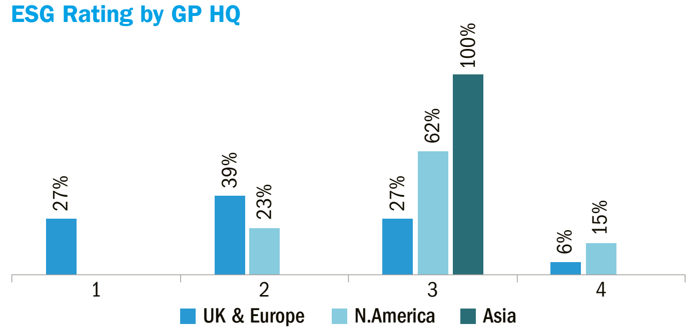
In line with last year, only European and UK GPs achieved a 1 ('Best-in-class') rating, whilst North American GPs were dominant in lesser developed buckets. This is to be expected given the more advanced regulatory environment in Europe and the UK which is supporting ESG development. We are invested in a limited number of Asian managers which are large and sophisticated. This region therefore scored strongly but we expect this result is probably not reflective of ESG performance across the wider emerging market. In the US, the regulatory environment and approach to ESG is more fragmented and polarised, and this perhaps explains an overall weaker performance by US firms responding to our survey.

PE Managers ESG Ratings Globally



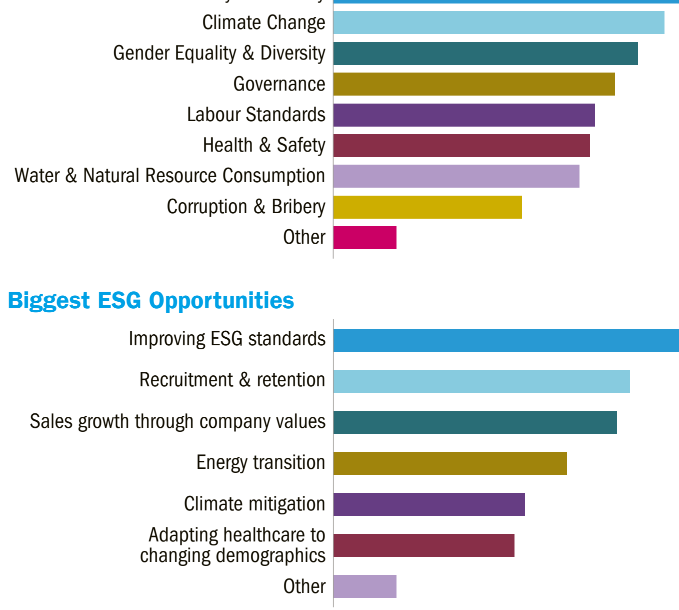
During our 2023 ESG Survey process, we were positively surprised to receive a growing number of inbound requests from our GPs on how to improve their CT PE ESG Rating over the coming year. This year, we look to provide our partners with their ESG scoring quartile and will feedback suggested developments to continue to drive progress in 2024.

ESG Rating by GP HQ



As part of our survey, we ask our managers to rank the greatest ESG risks and opportunities across their portfolios and track how these trends change annually. Cyber security remained the number one concern whilst climate change continued to be the biggest climber at number two, up from sixth two years ago. Gender equality overtook as the third greatest risk and health & safety dropped down to sixth as COVID-19 woes dissipated.

Biggest ESG Risks



Source: Columbia Threadneedle Investments Private Equity, 2023

[10] Defined as managing Fund I, II or III

Other ESG risks that were highlighted as immediate concerns included energy security, competition for labour, biodiversity, regulatory compliance, and economic growth. ESG risks are often overlapping. For example, as critical energy infrastructure becomes increasingly digitised and interconnected the risk of cyber security breaches grows. Addressing such issues through investment can minimise risks, unanticipated costs and reputational damage as well as provide growth opportunities. Investment into circular or loop-based systems was highlighted as a growing opportunity, which allow for cost reductions and reduced reliance on third parties.

Improving ESG standards such as corporate governance, D&I and sustainability of supply chains remained the greatest opportunities within our portfolio. The recruitment and retention of staff – closely related to D&I – also remained a top priority this year as competition for talent remained rife. Given Gen-Z's[11] currently account for 38% of the global workforce, and expected to rise to 58% by 2030[12], it is imperative that corporate benefits are designed to meet the expectations of this generation. Job applicants are increasingly seeking value and purpose at work and those businesses most able to deliver this should attract and retain the best talent. Examples of initiatives include 'green pensions', physical health schemes (e.g., cycle-to-work), flexible/agile working, coaching/mentoring, staff wellbeing and mental health assistance programmes, carbon-offsetting schemes, recycled/refurnished technology options and charitable giving. Achieving topline growth through company purpose was highlighted within the top three areas for opportunities. In a similar vein to attracting talent, businesses can expand their client base through an ESG proposition that resonates with new customers e.g., achieving B-Corp[13] status. To futureproof cashflows, expand addressable markets and strengthen moats, businesses need to position themselves to capture changing consumption patterns. Examples of which include the increasing demand for circularity, environmental sustainability, animal welfare, organic farming, plant-based ingredients and social responsibility. Companies can drive substantial growth by providing innovative products or solutions that address unmet planetary or humanitarian needs.

CASE STUDY

Our GPs and Cyber security

Cybercrime spiked in the aftermath of the Russian-Ukraine war last year. Hostile cyber warfare is typically the primary tool used by the modern military when geopolitical tensions escalate. Attacks were aimed at financial institutions, utility networks, critical infrastructure and hospitals. It is expected that cyberattacks are going to get more aggressive and more expensive, putting further cost pressure on nations and companies to put robust defence mechanisms in place. Corporate resilience and business continuity plans are of paramount importance because a cyber security incident can cause major damage to portfolio companies. Attacks can negatively affect companies' reputations, consumer trust and the bottom line. The impact of a breach can be broadly divided into three categories: financial, reputational and legal. In the last year, CT PE invested into two European and North American SaaS focussed funds. Cyber security is therefore one of the most significant risks to these portfolio companies.

This particular GP has a sophisticated in-house cyber security team that are focussed on the avoidance and neutralisation of cyber security threats. The manager has conducted over 200 cyber security risk assessments to date for both new and existing investments. Portfolio companies are assigned a Cyber security Maturity Score at entry which is monitored throughout ownership. The cyber security assessment begins during the early stages of due diligence for prospective investments and continues at least annually for the entire ownership lifecycle. The GP's cyber security framework leverages "industry standards" such as NIST94 V1.1 and assesses each portfolio company against five key focus areas: Identify, Protect, Detect, Respond and Recover.

The GP has won numerous cyber security awards with its most recent accolade recognising one of its portfolio companies' market-leading cloud application security.

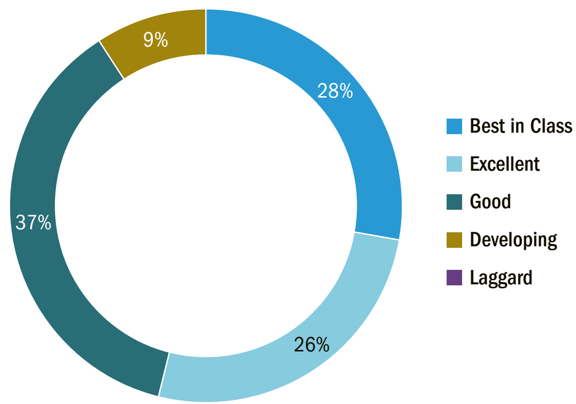
[11] Defined as the population born from the late-1990's to early 2010's
[12] "How prepared are employers for Generation-Z", PWC, 2022
[13] B Corp Certification is a designation that a business is meeting high standards of verified performance, accountability, and transparency on factors from employee benefits and charitable giving tosupply chain practices and input materials

ESG Culture & Commitment

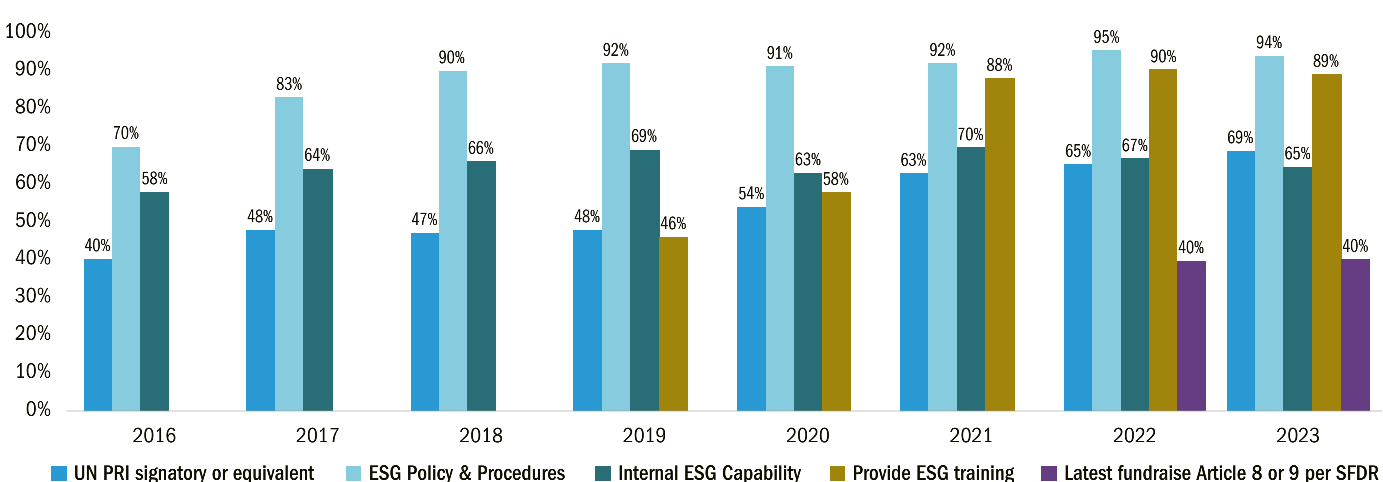
We believe that management teams who demonstrate strong ESG credentials are more likely to be strategic thinkers, demonstrate operational excellence, attract top tier talent, and build more resilient businesses. A strong culture is essential for the success of ESG transformation, and we believe leadership behaviour drives this. There has been a marked rise in demand for ESG-focussed executive roles such as Chief Diversity Officer, Chief Impact Officer and Chief Purpose Officer but these roles alone do not suffice; implementing and embedding an ESG culture requires buy-in from the C-Suite down to the shop floor. Companies must collaborate in their entirety for change, and this can only be measured through action rather than words. We assess culture by looking to the tangible: what GPs have formally implemented or invested in rather than marketing messages.

In 2023, 91% of our GPs achieved a rating of 3 or above for Culture & Commitment to ESG, up 10 percentage points ('ppts') from 2022. We measure the level of ESG commitment through a number of datapoints which are presented in the chart below. Results remained very robust and broadly in line with 2022. A couple of datapoints dipped slightly (e.g., number of GPs with an internal ESG resource) which was driven by the addition of new emerging managers who are at the start of their journey. We hope to see an increase in ratings as we work with these GPs in developing their ESG activities over the coming year. We sit on the LP Advisory Committee for many of these more immature GPs so we can drive cultural improvements and maximise impact.

PE Managers Culture & Commitment Ratings



ESG Culture & Commitment



This year, 65% of our GPs had a dedicated, internal ESG capability. This datapoint has fluctuated around mid-to-high 60% over the last five years as it is correlated with the size of the GP given it is an ongoing cost burden. As our older, more established funds move through their lifecycle and out of our portfolio, some are replaced with younger emerging managers who do not yet have the means to absorb this cost. Notably, we have seen an overall increase in managers appointing external advisors to meet their obligations and improve ESG credentials. Given the rapidly evolving regulatory landscape, our GPs appointed legal firms, consultants and service providers to assist in ESG compliance; data gathering; establishing and implementing value creation plans; and producing reports that satisfy disclosure requirements. Research firm, **Verdantix**[14] forecast a 17% annual growth rate in ESG and sustainability consulting to $16bn in 2027. Growth is expected to differ by service line and region: 21% Compound Annual Growth Rate ('CAGR') on ESG & sustainability reporting and disclosures spend and 14% growth on the operational transformation service line. On a regional basis, **Verdantix** estimate five-year growth CAGR for ESG & sustainability consulting services is 18% in EMEA and 14% in LATAM, which is in line with our survey results. With the continuing introduction of new legislation, the growth of this market is expected to continue.

Investment into ESG training has rapidly expanded from 46% in 2019 to 89% in 2023. As with last year, we saw our managers take a targeted approach by using subject matter experts on specific topics such as climate change, diversity & inclusion, B-Corp status, net zero, SFDR and compliance. Specialist sessions would often be used to supplement periodic training from internal sources or third-party ESG advisors, management consultants, or law firms.

The entire investment team at one of our French, healthcare specialists is responsible for the delivery of its responsible investment strategy, and they receive formalised training on sustainability and impact topics as well as ad-hoc training. The GP has recently introduced Impact Breakfast training sessions and launched an internal newsletter to raise awareness of pertinent health challenges and how best to improve health impact (UN SDG #3).

Similarly, one of our UK mid-market generalists' investment team uses a mix of internal and external training providers including the ESG Director, legal counsel and ESG consultants. Sessions covered in the last year included Net Zero, B-Corp Status, and the UN SDGs. The firm also hosts regular portfolio exchange events with its investment team and portfolio companies to encourage best-practice exchange and leverage knowledge across the entire portfolio. Over the last year these sessions included net zero pathways, apprenticeships and the UN SDGs.

88% of our GPs believe the focus on ESG will increase over the coming year (82% in 2022), but only 51% currently use it as a source of differentiation, down from 90% just two years ago. This is an interesting datapoint as it evidences a considerable shift in mindset. ESG is no longer viewed as a point of differentiation in the sector because it is so deeply entrenched, widespread and *expected*. ESG considerations are now integral to the vast majority of our managers' strategy, investment process and returns. Those managers that still used ESG as a source of differentiation were typically first movers in SFDR Article 9 or Impact Funds.

One of our Swedish managers is a purpose-driven private equity investor who targets businesses that address global challenges. The GP focuses on industries driven by secular megatrends across three themes: resource efficiency, changing demographics, and tech-enabled transformation. Its target portfolio companies have the potential for long-term sustainable outperformance as they help address material impact & ESG challenges.

Last year we added a new datapoint on the implementation of the EU SFDR and found 40% of our GPs had classified or intended to classify their latest fund as Article 8 or 9, which is in line with 2022. Given the stringent process and reporting requirements associated with SFDR, not to mention the fact that many of our GPs are not subject to the European directive, this datapoint is highly encouraging. We believe it provides a very strong indication of commitment to ESG at the GP level, which in turn should accelerate ESG initiatives and KPI reporting across their portfolios.

[14] ESG And Sustainability Consulting: Market Size and Forecast 2021-2027", Kim Knickle, Elisa Molero and Sam Renshaw, Verdantix, February 2022

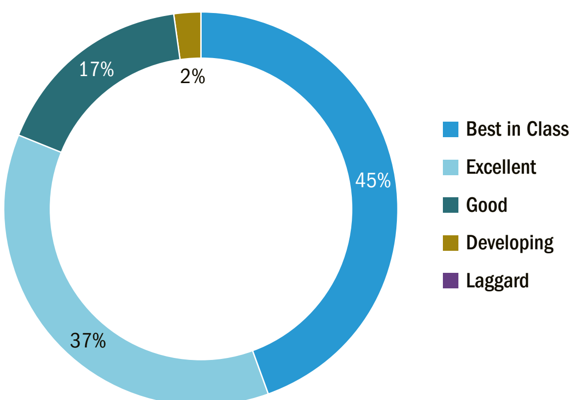
Investment Process

Under the UN Guiding Principles on Business and Human Rights, all corporate actors – including investors – have a responsibility to respect human rights, which includes the need to conduct human rights due diligence before making investment decisions. Private Equity and VC funds that choose not to conduct human rights due diligence are violating this responsibility.

Michael Kleinman
Director, Silicon Valley Initiative,
Amnesty International / AIUSA

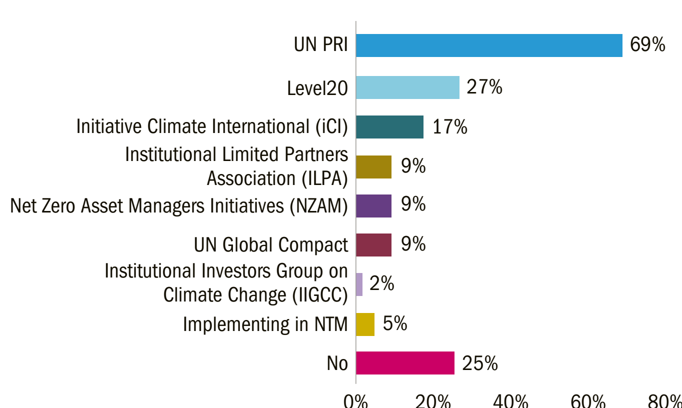
Last year, the World Economic Forum called for SMEs to take account of ESG considerations within decision-making processes stating venture capital investors "must implement robust ESG due diligence to help create long-term, multi-stakeholder value". Within our own portfolio, we similarly believe ESG considerations should be entrenched throughout the entire investment workflow, from pre-screening to exit. We consider ESG due diligence a standard item on every investment opportunity, in the same light as financial or market due diligence, because we believe ESG factors have a tangible and meaningful impact on economic value. We are convinced that those who prioritise ESG, are better placed to mitigate risks and create value through opportunities. A clear, formalised investment process can uphold an investment philosophy, guide decision making and ensure ESG objectives can be met in a systematic manner. We assess how deeply integrated ESG factors are within our GPs' strategies, due diligence processes and investment selection.

PE Managers Investment Process Ratings

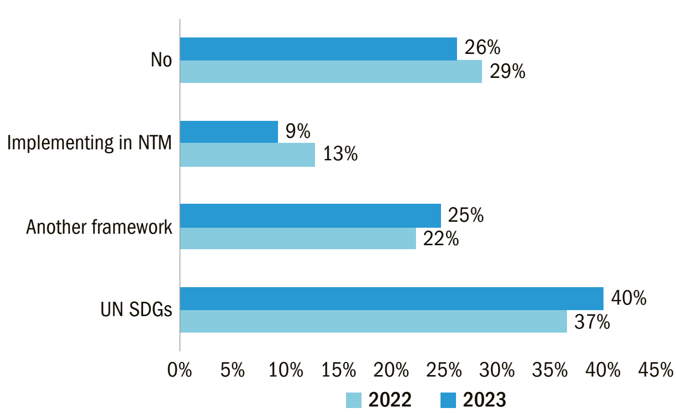


Within the Investment Process category, 98% of our partners were rated 'Good' (3) or above, up from 95% last year. Of which, 45% were 'Best-in-class' (1) and 37% were 'Excellent (2), a 5 ppts and 2ppts increase from 2022, respectively. We believe the higher increase in top rated managers was driven by ESG regulation and the adoption of ESG frameworks that strengthen investment selection.

Signatories to Best-Practice Initiatives



Incorporation of UN SDGs or Other Formal Framework



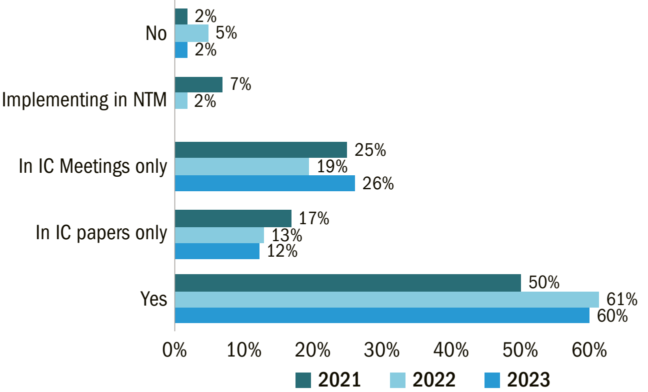
This year we added a new datapoint that assessed the proportion of managers who were signatories to an industry-leading body or ESG initiative that promotes best practices. We found that UN PRI led the way with over two-thirds of respondents adhering to its principles and Level20, an initiative focussed on driving diversity in private equity, came in second at 27%.

65% of our survey respondents make use of a formal ESG framework to inform their investment decisions, up from 59% in 2022 and 42% in 2021. The UN SDG emerged as the most common framework with 40% of our GPs adopting it, up from 37% in 2022. One of our French mid-market GPs' sustainability strategy for 2022–2025 focuses on four key pillars which are based on the UN SDGs (#3, 5, 13 and 16): climate, D&I, impact, and information security. One UK, early stage investor evaluates the alignment of potential opportunities with the UN SDGs. It has adopted the Impact Management Project scoring framework as a means of measuring positive impact. Our European healthcare manager targets companies that positively contribute to SDG #3 "Good Health and Well-Being", which is also the sustainable investment objective of its latest fund.

We noticed an increasing number of GPs created their own bespoke ESG frameworks which better fitted niche or sector specialist strategies. One European mid-market technology investor developed its Sustainable Business Framework which is centred around ESG areas specific to software and service businesses. The framework forms the basis of its ESG diagnostic tool which is used when onboarding and monitoring portfolio investments. The manager reviews its Sustainable Business Framework on an annual basis to reflect key ESG trends, regulations, opportunities and risks as they evolve. The GP's latest assessment was its most comprehensive so far, covering 188 questions across three areas: Essentials (governance, legals & compliance, data & cyber security), Employees (culture, growth, engagement and diversity) and Society (environmental impact, positive relations, community engagement and transparency).

98% of our GPs assess ESG as part of their due diligence process. In 2023, 60% included formalised ESG due diligence within both their Investment Committee ('IC') papers and IC meetings, up from 50% in 2021. Many of our private equity managers now commission third-party ESG assessments on prospective investments as part of their standard due diligence, alongside financial, commercial, legal and tax due diligence. This is more common when a GP does not have an internal, dedicated ESG capability or is investing into a company that is predisposed to a particular ESG risk such as environmental hazards or cyber security.

ESG Factors Assessed Within DD Process



In 2023, 92% of our GPs would decline an investment opportunity based on ESG factors alone. A growing number of our managers apply an ESG Exclusions List which prescribes automatic declines based on unacceptable or high risk ESG sectors or regions. Outside of this, our GPs declined opportunities for a variety of reasons across the entire environmental, societal and governance spectrum:

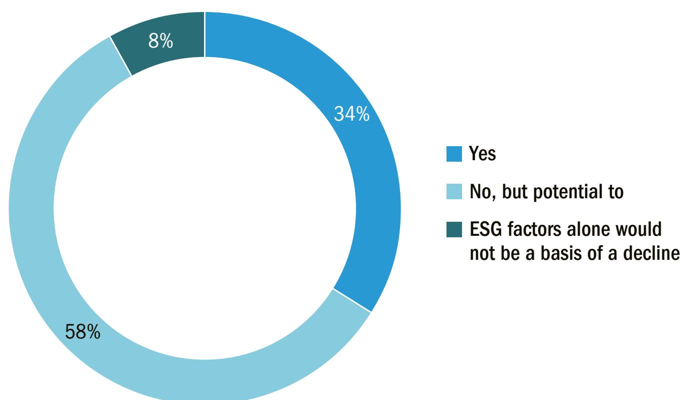
- Over the last year, one UK and European healthcare group declined deals that focussed on cosmetic healthcare, high-end care and undifferentiated projects because these did not fulfil the GP's health impact objectives.

- A lower-mid-market, Italian investor declined a business that was operating within the plastics sector without a transition strategy.

- One of our European mid-market generalists declined an investment involved in mining and ore extraction due its negative environmental and social impact. The GP also declined an opportunity in a business that manufactured connectors for the defence, aerospace, general industry or energy and transportation sectors. After carrying out commercial due diligence with an external third party, the GP's Risk and ESG teams flagged a potential breach. An in-depth analysis was subsequently conducted, and the results showed that the company's products were manufactured for military applications. These findings had a negative impact on the deal team's proposed valuation and the IC's ultimate decision to not pursue the opportunity.

- One of our UK mid-market GPs declined six opportunities over the last year based on ESG concerns. Many more were rejected at an earlier stage of investigation because they did not have an alignment between fundamental purpose and shareholder value which is a core element of the GP's investment strategy.

Opportunity Declined Based on ESG Alone



Active Ownership

Corporates need to adapt and establish new means of driving growth with fewer resources. The global economy must rapidly transition from a 'take-make-waste' model to a circular one and account for the impacts of consumption and waste. We believe that those first movers in this new paradigm have the potential to be the new market leaders.

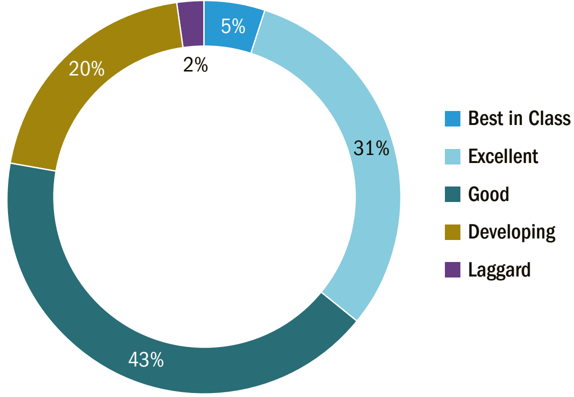
We believe the active management of ESG risks, and exploitation of ESG opportunities can protect and drive shareholder value over the long term. Given the typical ownership structure of private equity, the industry is well positioned to drive ESG initiatives and enact change. ESG considerations can be embedded into company strategy, value creation plans and management incentive schemes. A strong ESG offering can create tangible value by increasing revenue; reducing costs; improving human capital; strengthening supply chains; minimising regulatory risks; providing access to cheaper capital; and enhancing reputation. Repositioning companies for the future ensures their long-term competitive advantage and broadens the buyer pool at exit.

78% of our managers scored 3 or above for 'Active Ownership' in 2023, up from 77% in 2022 and 74% in 2021. The 2% rated as a 'Laggard' (5) in the chart relates to one tech focussed, DACH emerging manager who is very early into its lifespan and yet to enact any initiatives. We hold a seat on the LP Advisory Committee for this fund and intend to leverage our position to drive performance in this field. Encouragingly, this particular manager scored a '2' across Culture & Commitment and Investment Process categories so we are confident these attributes will translate to actions over our hold.

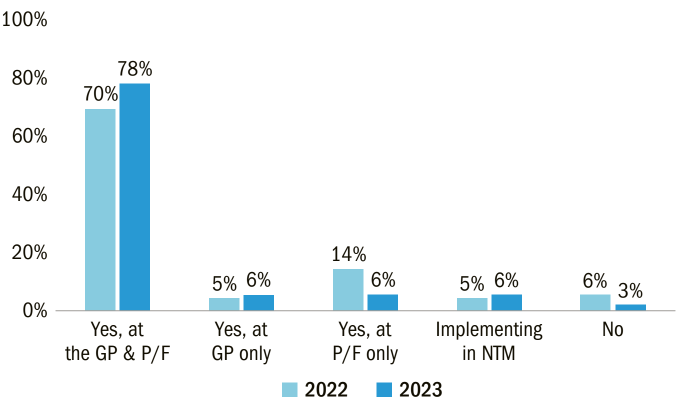
54% of GPs incorporate ESG opportunities into 100-day plans and longer-term value creation strategies. Some managers appoint external consultants when evaluating transactions to produce detailed appraisals of the ESG-specific risks and opportunities. Where ESG risks are identified the manager seeks to address these through contractual protection or implements a mitigation plan post-close. The GP is also prepared to take major remedial action if material or serious ESG issues are identified. Investment professionals at one of our North American GP complete an 'ESG Checklist' and 'Human Capital Scorecard' to ensure all material concerns are addressed in a systematic manner. Within its 100-day plans, the GP engages with portfolio companies to set and prioritise ESG targets from the outset.

The traditional focus on ESG risk mitigation is now firmly balanced with driving positive ESG development at our GPs. In 2023, 91% of our GPs implemented initiatives to strengthen ESG standards either at the portfolio company or at the GP, up from 89% last year and 80% in 2021, whilst a further 6% are implementing measures over the coming year.

PE Managers Active Ownership Ratings



Have Initiatives Been Implemented to Improve ESG Standards?



Some ESG initiatives implemented by our GPs in 2023:

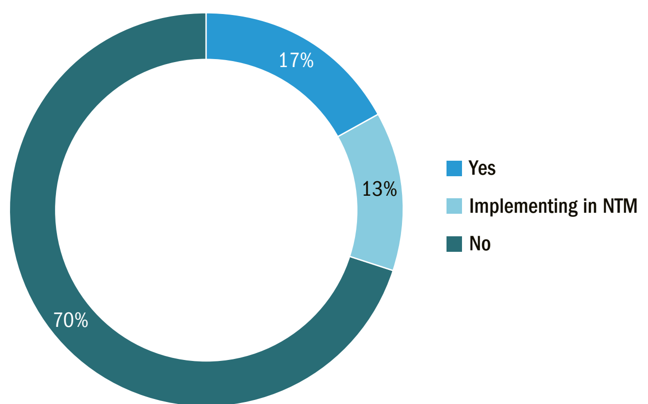
- One of our UK and European managers became a signatory to NZAM in its support of net zero. Examples of initiatives across its portfolio include: one company progressed towards its Science Based Targets for carbon reduction; another enhanced its support for workforce diversity in the UK by entering into a partnership with an organisation that places ex-offenders into employment with innovative companies; a third portfolio company launched a Female Leadership Strategy to provide a discussion forum, supported by a four-month development programme.
- One of our UK SME investors hired an ESG and Sustainability Lead who is responsible for initiatives across the firm and portfolio. In 2012, the firm published its first formal ESG policy. As of 31 March 2023, the GP was carbon neutral. The firm recently engaged with its portfolio companies to begin collecting emissions and energy consumption data.
- Our UK energy transition specialist is in the process of raising a sustainability-linked bond for one of its portfolio companies, which CT PE is a co-investor in. The lender requires rigorous ESG reporting and monitoring of the company to qualify for the bond. By virtue of the KPIs linked to the bond, the company will remain incentivised to comply with ESG regulations.
- One French private equity house linked 15% of its carried interest to ESG achievements across its portfolios. This year, the sponsor's top three priorities are to drive diversity & inclusion; reduce the carbon footprint of the portfolio: and to increase employee shareholding. Similarly, a CEE investor will allocate a portion of its new fund's carried interest to the achievement of GHG-emission reduction.
- Our Swedish purpose-driven investor continued to improve its ESG performance, including Board level diversity (towards 40%), implementing Science Based Targets ('SBTi'); and the monetisation of impact across the portfolio.

Active Management – Environment and Climate Change

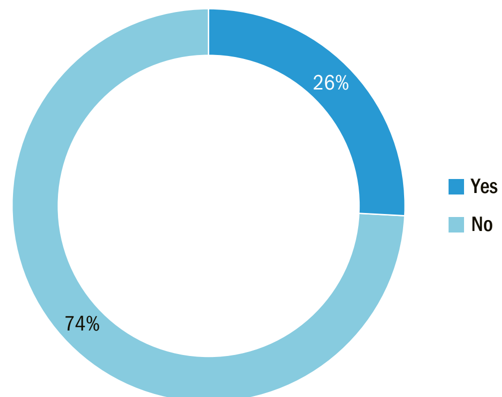
The energy crisis has inadvertently accelerated the focus on alternative energy sources and renewables, even for those investors who were not traditionally ESG driven. In the last year, 83% took action to either reduce negative or promote positive impacts on the environment at the GP and/or across its portfolio. Our GPs really ramped up environmentally friendly initiatives this year such as becoming net zero; implementing GHG emission tracking; moving to 'smart offices'; reducing energy consumption or travel; and increasing circularity.

One of our UK mid-market generalists became the first UK corporate to sign a direct agreement with Sustainable Aviation Fuel provider, NESTE for all business air travel which will reduce its carbon emissions by up to 80% with the remaining 20% offset. The GP also moved its head-office electricity supplier to ensure that 100% was supplied from renewable sources. The GP's London headquarters is a **BREEAM**[15] 'Excellent' rated building. **BREEAM** is the world's longest established method of assessing, rating, and certifying the sustainability of buildings. The manager also planted a wildflower roof terrace to help the important work of its resident pollinators. It uses sustainable office cleaning supplies, including InnuScience cleaning products; Climate Pledge Friendly office supplies; carbon neutral and carbon balanced paper for printing; and recycles its waste with First Mile.

GPs with a Net Zero Target in Place



GPs that Report Net Zero Alignment by AuM



[15] Building Research Establishment Environmental Assessment Method

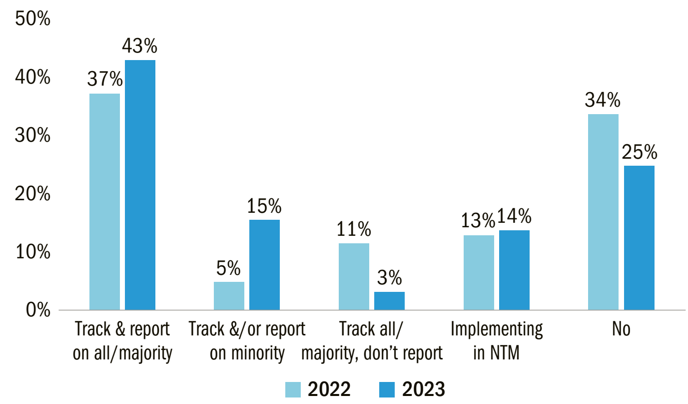
GPs that Tracked Net Zero Alignment	Proportion of AuM		Areas of Focus		
	Aligned (%)	Aligning (%)	Geography	Sector	Size[16]
GP 1	100%	0%	UK + Europe	Energy	LMM
GP 2	100%	0%	UK + Europe	Generalist	LMM
GP 3	100%	0%	UK + Europe	Healthcare	Seed
GP 4	100%	0%	UK + Europe	Healthcare	LMM
GP 5	41%	0%	UK + Europe	Consumer Staples	LMM
GP 6	27%	73%	UK + Europe	Generalist	LMM
GP 7	20%	80%	UK + Europe	Generalist	MM
GP 8	12%	39%	UK + Europe	Generalist	LMM
GP 9	6%	22%	UK + Europe	Generalist	MM
GP 10	5%	48%	UK + Europe	Consumer Discretionary	Late Stage
GP 11	0%	85%	UK + Europe	Information Technology	MM
GP 12	0%	100%	UK + Europe	Generalist	LMM
GP 13	0%	100%	UK + Europe	Generalist	Early Stage
GP 14	0%	100%	UK + Europe	Information Technology	Late Stage
GP 15	0%	100%	UK + Europe	Generalist	LMM
GP 16	0%	100%	UK + Europe	Generalist	LMM
GP 17	0%	100%	UK + Europe	Information Technology	LMM

This is the first year we began tracking our private equity managers' commitment to net zero: 17% have a target in place with a further 13% implementing one in the next twelve months. Many sponsors also have interim targets in place in order to ensure they achieve their 2050 goal, such as one of our managers which hit Scope 1 and 2 neutrality in 2022, and 65% of Scope 3 is expected to be achieved by 2030. Another GP plans to hit net zero by 2024. Of the 65 GPs who responded to our 2023 Survey, 26% are tracking the proportion of their assets that are aligned or aligning to net zero, which is presented in the table above. It is interesting to note the sector and size spread, whilst 100% were focussed on the UK and European regions. The vast majority of our GPs adhere to Science Based Targets Initiative (SBTi), NZAM or TCFD in order to assess net zero.

This is the second year we have collected data on GHG emissions and are pleased to report that this is an area that has seen strong development, particularly in the UK and Europe. 58% of our GPs track this datapoint across some or all of their portfolios, up from 53% last year and 42% in 2021. 46% report on the majority of their holdings, up from 37% last year and over double that of 2021 (20%). This year, we also collected our sponsors' aggregate portfolio GHG emissions across Scope 1, 2 and 3 which is presented in the table below. 42% of our managers tracked and reported this metric across Scope 1-2 and 26% for Scope 1, 2 and 3 which is a marked improvement from only a few years back. This is an increasingly important data point for us as we prepare for our own disclosures under the FCA's TCFD regulations.

Many use carbon offsetting to hit their targets such as one GP which offset its Scope 1, 2 and business travel emissions through a reforestation programme. Another GP worked in partnership with a footprint scheme which runs a unique tree buddying programme used in offsetting. Through the scheme, the firm has funded the planting of trees in schools in the North of England and supported projects reducing deforestation in the Amazon and Africa.

PE Managers GHG-emission Measurement & Reporting



GPs Aggregate Portfolio FY22 GHG Emissions

Reporting Provided	(tCO2e)	% of GPs reporting
Scope 1+2	2,364,986	42%
Scope 1, 2+3	124,777,791	26%

*Based on 100% ownership

[16] LMM: Lower mid-market; MM: mid-market

CASE STUDY

Portfolio Company: Greentech

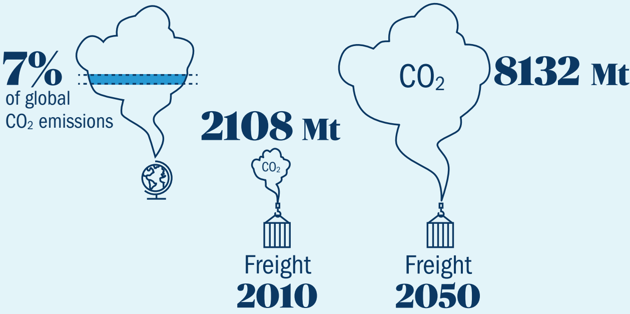
One of our portfolio companies is a global digitalised freight marketplace. It provides an end-to-end, vendor neutral Software as a Service ('SaaS') booking platform which increases utilisation, reduces GHG emissions and supports efficient and agile supply chains. The marketplace helps importers and exporters reduce logistics spend and saves time with instant comparison, booking and management of air, ocean and land shipments across logistics providers. The platform also provides real-time market intelligence which improves freight decision making, negotiations, enables spend control and drives operational efficiencies.

The business was founded in 2012 and we were among the first investors.

The Problem

The global freight market is vast and estimated to grow to $1.6bn by 2026 . In spite of its scale, freight is one of the last remaining offline industries with multiple layers of stakeholders communicating manually. This process results in additional delays, cost, and GHG emissions for every import/export. The International Transport Forum estimate that international trade-related freight accounts for c.30% of all transport-related emissions, and over 7% of global emissions.

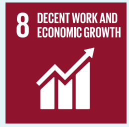
GHG emissions are expected to increase fourfold to 2050 as supply chains become more complex and consumers shift to smaller, more frequent freight shipments. Demand for rapid, energy-intensive transport, such as air freight has therefore increased which leads to underutilised shipment containers and empty runs. All of which undermines global climate goals.



The Solution

The portfolio company's marketplace improves supply chain efficiencies and offers global freight emissions visibility with GHG emissions calculator for all modes of freight. This service helps its customers optimise route and mode selection with live international CO2 footprint calculations.

The group's dynamic capacity optimisation software increases utilisation and reduces empty runs. The business also offers its customers the opportunity to offset their carbon footprint with numerous global projects.



Climate Change and Biodiversity: There's no Planet B

Humanity is overspending its biological budget and our footprint has exceeded the Earth's regeneration for over five decades: human demand for goods and services goes beyond the extent of nature's ability to supply them.

Climate change, habitat degradation, pollution, invasive species, over-exploitation, and epidemics are some of the most significant and widespread causes of biodiversity loss. Biodiversity and climate change are inextricably interlinked: healthy ecosystems such as forests and oceans are more capable of storing carbon and reducing global warming, which reduces the risk of species extinction. Nature regulates the climate, provides pollination and pest control, and reduces natural hazards. Extreme weather is expected to increase significantly because of climate change, which destroys biodiversity as natural hazards kill species or depletes their habitat.

Over the last four decades extreme weather has been responsible for an estimated 85,000-145,000[17] human fatalities, and half a trillion Euros of economic losses. Heatwaves alone caused tens of thousands of premature deaths in Europe over the last two decades. Their duration, intensity and frequency are expected to increase leading to a higher rate of mortality – especially to those most vulnerable – unless adaption measures occur. These high temperatures cause an equally devastating impact on all living species and also force animals and plants to move to higher elevations or latitudes, with far reaching consequences for ecosystems. The summer of 2023 was the hottest on record globally, which led to over 460,000[24] hectares of forest being destroyed by wildfires across Europe. Other parts of Northern Europe and the UK experienced intense downpours and floods which damaged infrastructure, assets, agriculture and communities. Flooding has a negative effect on wildlife, causing drowning, disease proliferation and ecosystem destruction. Wind speeds increased to record levels, causing serious damage to property, natural habitats, and life, whilst other regions experienced severe cold spells. According to the National Oceanic and Atmospheric Administration ('NOAA'), the US has sustained 372 weather and climate disasters since 1980 where overall damages exceeded $1 billion (including Consumer Price Index ('CPI') adjustment to 2023) – the total exceeds $2.6 trillion. 2023 has already been the worst year on record for climate-related disasters in the US with 23 separate incidents to date[18] at this scale. This includes two floods, 19 severe weather events, one wildfire and one tropical cyclone, causing 253 deaths.

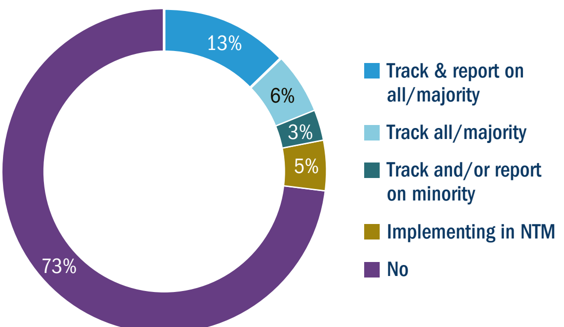
Manmade pressures on biodiversity are driven by the overconsumption of natural capital. Our natural ecosystem cannot replenish its resources at the rate we are consuming them. Many assume that biodiversity risks are confined to mining, forestry and agriculture but over half of global Gross Domestic Product ('GDP') is highly or moderately dependent on ecosystem resources[19]. The United Nations Environment Programme Finance Initiative ('UNEP-FI') reported that 13 out of the 18 sectors within the FTSE100 – which accounted for $1.6 trillion market cap in 2022 – are associated with production processes that have a high dependence on nature. The cost to businesses can be extensive with higher raw material costs, disruption to supply chains, operational risks and compliance costs. It is imperative that businesses understand their biodiversity risks and opportunities, in the same way they do climate, to improve productivity and resilience, build internal accountability and disclose their actions.

Investors are also seeking to identify and evaluate biodiversity risks as part of their due diligence and channel capital into sustainable and resilient opportunities. The Taskforce for Nature-Related Financial Disclosures ('TNFD') was launched in 2021 to help businesses and investors identify, measure and act on nature-related risks and opportunities. It is hoped that TNFD will eventually catalyse active ownership in the same way TCFD did however it is not mandatory at this stage. The SFDR's Principal Adverse Indicators ('PAIs') include biodiversity as one of its 18 mandatory metrics which investors first reported on in June 2023. The 15th United Nations Biodiversity Conference ('COP15') took place in December 2022 and established the Kunming-Montreal Global Biodiversity Framework ('GBF'). COP15 was attended by nearly 200 government officials, alongside delegates from business, finance, science, academia, indigenous people, and local communities. The GBF was hailed a landmark deal which aims to address the decline in biodiversity, restore ecosystems and protect indigenous rights. It established concrete measures to halt and reverse nature loss: the framework will place 30% of the planet and 30% of degraded ecosystems under protection by 2030. It also contained proposals to increase finance to developing countries. The GBF has however been criticised because it is not legally binding and does not include country-specific targets. In spite of this, we believe that rising levels of institutional recognition and regulatory support for biodiversity will lead to the development of this ESG subsector in the same way it did for climate, but it requires the same levels of regulatory support.

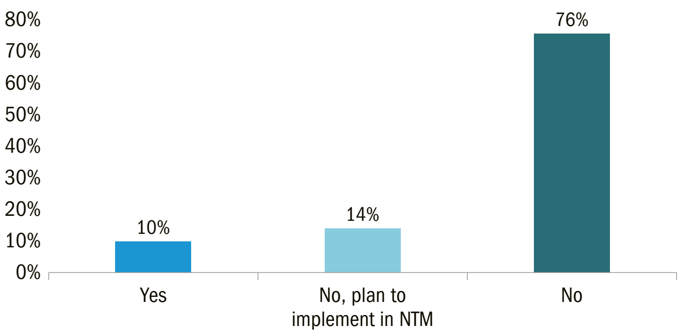
[17] "Extreme weather: Floods, Droughts and Heatwaves", European Environment Agency, September 2023
[18] To September 2023
[19] "The Business and Economic Case for Safeguarding Nature", World Economic Forum, 2020

Tracking and reporting a business' biodiversity impact is challenging because of the lack of consensus around measurement methodology of impact, risks and opportunities. 22% of our GPs tracked and reported on biodiversity metrics across some or all of their portfolios, which was broadly in line with last year. This is encouraging given the measurement of biodiversity impact is much less developed than GHG emissions. Unlike Science Based Targets ('SBTs') for climate, which measures standard units of carbon, there is no single unit of measurement for SBTs for nature, given the breadth of biodiversity and local complexities. New frameworks and methodologies of data measurement have emerged that try to capture the complex relationship between corporate behaviours and biodiversity, but many are still in their infancy. Some sponsors grouped their portfolios into high, medium and low exposure to biodiversity risk. Others tracked business activities that lead to the disturbance or loss of natural habitats or species, the number of sites operating near bio sensitive areas[20], or number of biodiversity incidents per annum.

Track and Report Biodiversity Metrics



Implemented Biodiversity Initiatives



In 2023, 10% of our private equity managers implemented initiatives to protect biodiversity, in line with 2022, whilst a further 14% intend on doing so within the next 12 months. One manager appointed a third party consultant to conduct an analysis of its portfolio's biodiversity-related dependencies, footprint, and risks, in order to assess overall exposure to biodiversity and ecosystem services. One of this GP's core objective for 2023 is to publish a Biodiversity Policy aligned with TNFD, carry out more detailed analyses of resource dependencies and define a biodiversity footprint indicator.

In an assessment undertaken by the TNFD in 2022, over 3,000 different nature-related metrics were found to be in use. In September 2023, TNFD published its final recommended framework and set of metrics, which were implemented by one of our Pan-European managers. The standardised, global framework allows organisations to identify, assess and disclose dependencies and impacts on nature, including the use of natural resources, greenhouse gas emissions and biodiversity. Another framework gaining momentum is the SBTs for nature following successful traction of the SBTs for climate. This framework was developed by the Science Based Targets Network ('SBTN'), which is backed the same group of institutions that supported the Science Based Targets Initiative ('SBTi') for climate change. It covers additional objectives of protecting fresh water, oceans, land and biodiversity. The SBTs for nature are aligned with the Convention on Biological Diversity post-2020 Framework and designed to support the UN SDGs.

The increasing emergence of biodiversity frameworks should promote transparency and accountability; contribute to sustainable natural resource management; and shift financial flows from nature-negative to nature-positive outcomes. Where businesses do have exposure to biodiversity-related risks, we expect higher levels of disclosures will have implications for ESG flows, cost of capital and brand reputation over the short to medium term.

[20] Biodiversity sensitive areas include Natura 2000 network of protected areas, UNESCO World Heritage sites and Key Biodiversity Areas ('KBAs'), as well as other protected areas, as referred to in the Annex of Commission Delegated Regulation, supplementing Regulation (EU) 2020/852

CASE STUDY

Portfolio Company: Pollution Control

Background & Overview

- One of our private equity managers targets companies focussed on environmental sustainability, resource efficiency and pollution control.
- One of its portfolio companies is a leading European value-add distributor of mobile and industrial filters for after-market applications. Its own brand and third-party range include filters for oil, air, fuel, gas, hydraulics, pneumatics, liquids, dust removal and air-conditioning systems. Its client base extends from original equipment manufacturers ('OEMs'), to resellers, right through to end-users in many countries.
- The group has established a local presence in Germany, Austria, France and Poland, in addition to serving more than 60 export countries through its dedicated sales team and e-commerce platform. The group also offers technical support through its after-sales service.

ESG Impact

- **Pollution Control:** The businesses products reduce the emission of pollutants into the environment through air, wastewater and lubricant oil filtration.

  Filters sold by the company for air or water filtration purposes are used in a variety of applications, including air de-dusting (e.g., of industrial or residential buildings or of driver cabins in agricultural and construction vehicles) or contaminated air or water purification (e.g., industrial lacquering). Natural resources such as air or water that are used and contaminated in industrial processes are cleaned and purified by filters before being released back into the environment.
- **Resource Efficiency:** The optimal choice and design of filters can significantly decrease the energy consumption required for the pressure build-up of a fluid in any flow moving system. Excess energy consumption can be significant but, crucially it depends on the specific application and even on the single installation.

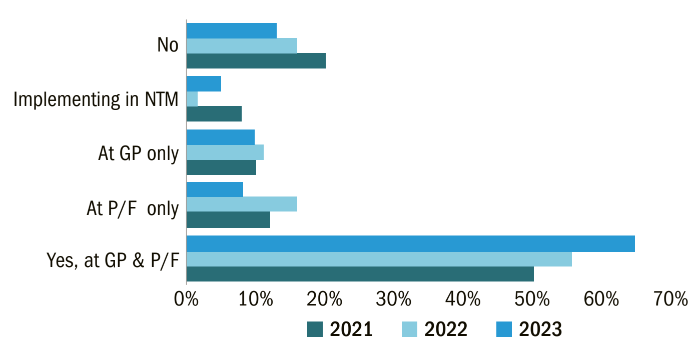
  As an example, the saved energy in an airport air conditioning system due to proper filter selection can determine potential savings equivalent to thousands of European households' annual energy consumption. Filters installed in the lubrication system of a machine enable smoother and frictionless running and drive lower energy consumption. In this way, filters also help in extending the life span of machinery.

Diversity, Equality & Inclusion ('DE&I', 'D&I')

GPs who are slow to adopt D&I measures will likely face challenges building dynamic teams, driving innovation, fostering decision making and generating top returns. Investors are increasingly seeking to partner with sponsors who share the same values and meet expectations on social inclusions.

Ashley-anne Hawthorn
Director, Private Equity,
Columbia Threadneedle Investments

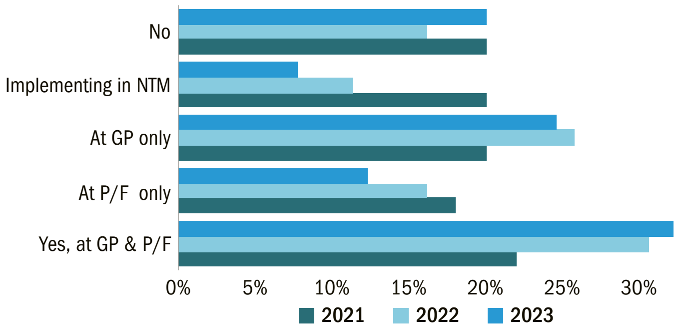
Actively Promoted D&I



BlackRock published a report in November 2023 that found companies in the MSCI World Index with more gender-balanced workforces outperformed their less diverse counterparts by as much as 2% per annum[21] over the period 2013-2022. The study also found that companies that demonstrated similar levels of gender diversity at mid-to-senior management as the broader workforce faced lower churn and achieved higher returns. Another report published by **McKinsey & Company** also linked gender diversity to higher profitability across over 1,000 companies in 15 countries[22]. Similarly, **Bank of America** found that US listed companies that displayed higher levels of diversity at Board level exhibited lower earnings volatility and achieved higher return on equity than less diverse peers.

One decade after the "Women on Boards" Directive was proposed, the European Commission adopted it in November 2022 for large, listed companies[23]. It aims to improve the gender balance on the listed companies' Boards and requires a minimum of 40% of Non-Executive Director positions or 33% of all Director positions to be held by females by 30 June 2026.

Formal D&I Policy in Place



Large corporates must also set targets to improve the gender balance of its Executive Directors and member states are now responsible for setting penalties for companies that fail to meet such targets. Although this regulation does not extend to small and medium enterprises, the importance of diversity and inclusion in private equity is following suit. There is growing recognition that a strong D&I proposition is a strategic necessity that drives innovation; attracts top talent; enhances employee engagement, satisfaction and lowers churn; expands market reach, and ultimately contributes to the long-term success of private enterprises. At the GP level, we commit to 'blind pool' private equity funds on the basis of talent. It is absolutely crucial that private equity houses retain and motivate teams through the life of a fund (typically 10+ years) in an equitable and inclusive manner. Having a broad base of experience, gender and ethnicity encourages diversity of thought, enhances due diligence, and enriches Investment Committee debates. D&I is also a key element for a successful fundraise as investors are increasingly seeking partners whose values align with their own.

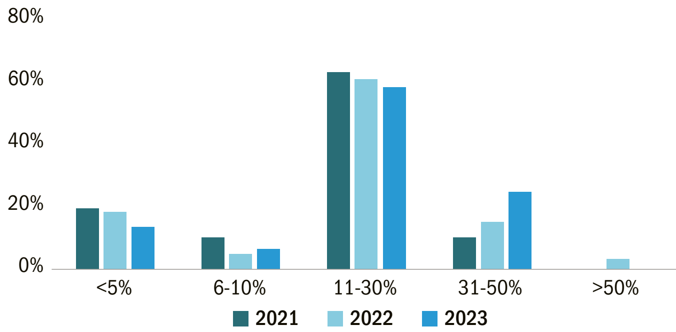
Having a formal policy in place positions D&I as a strategic priority and drives the culture throughout a firm. In 2023, 72% of our sponsors had a formal D&I policy in place at the GP and/or portfolio companies, which is in line with 2022 and up from 60% in 2021. One of our US-based buyout managers adopted a new D&I policy in the last year, conducted its first D&I survey and administered D&I training to all staff.

This year, 24% of our GPs had investment teams comprising over 30% females, up from 18% in 2022 and 10% in 2021 which marks a significant rise. Ethnic minority groups accounted for 11% of investment teams in 2023, up from 9% last year and 7% in 2021, however it should be highlighted that in some regions it is not permitted to collect this type of data, so this

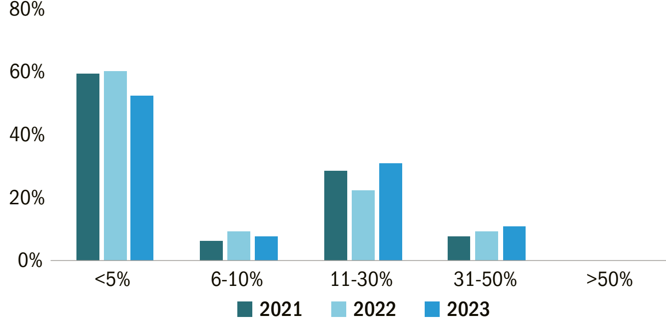
[21] "Listing Financial Performance by Investing in Women", BlackRock, November 2023
[22] "Diversity Wins", McKinsey & Company, May 2020
[23] Defined as over 250 employees.

may not show the full picture. In 2023, our GPs partnered with external initiatives that encouraged underrepresented groups into finance such as **Girls Are Investors ('GAIN'), 10,000 Black Interns, 10,000 Able Interns, Women's Career Society, Investing in Women Code ('IIWC'), France Invest Parity Charter** and the **Women in Finance Charter**. Others create dedicated entry level channels such as one Canadian mid-market investor which established its own intern and mentoring programme targeting candidates from diverse backgrounds.

Females on Investment Team (%)



Ethnic Minorities on Investment Team (%)



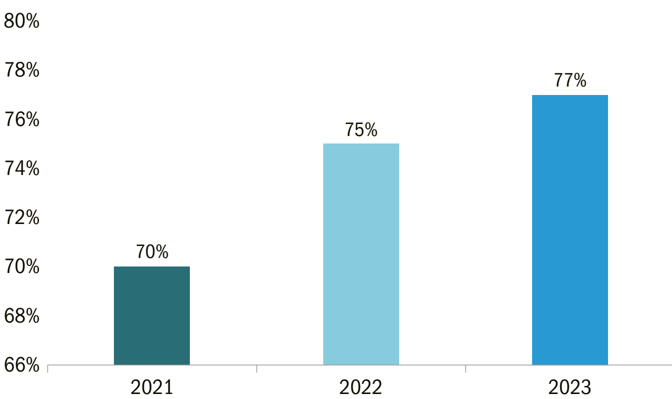
82% of our managers have influenced the promotion of D&I at the GP or portfolio companies in 2023, which is in line with last year and a 10 ppts increase on 2021.

Through one of our UK GP'sDiversity and Inclusion Committee several initiatives were implemented including unconscious bias training; becoming a **Level20** member; providing a social mobility internship with the **Sutton Trust**; enhancing parental leave; and improving the recruitment process (e.g., blinding of CVs and female-only talent events).

One UK consumer specialist holds an annual D&I team training and runs initiatives to improve diversity of prospective investment opportunities. The GP is a signatory of the Investing in **Woman Code** and supports **Hatch Enterprise**, a charity that supports underrepresented founders. At the portfolio level the GP implements inclusive practices, training and is actively involved in senior hiring.

One of our Swedish private equity firms also supports the **Investing in Women Code** and in 2023, continued its successful series of Women in Tech Leadership Network events, which brings together accomplished female business leaders and women from across its portfolio to share insights and experience. The GP also renewed its commitment to the W**omen in Finance Charter**, which focuses on improving gender diversity in financial services.

D&I Metrics Tracked at GP and/or Portfolio



The proportion of our private equity managers that track D&I metrics continued its steady upward trend to 77% in our 2023 survey, from 75% last year and 70% in 2021. The suite of metrics collected is much broader than it was some years ago when it was focussed on female presence, and we noticed that a growing number of GPs now link D&I metrics to manager compensation.

One French GP will begin tracking critical gender equality KPIs this year which are based on the French Professional Equality Index. Breaking tradition, the French healthcare investor has 40% female representation on its Management Committee and has an objective to improve at Partner level. The GP signed the **France Invest Parity Charter** which is composed of 30 commitments that promote gender parity. The GP actively supports the **Level20** initiative which aims for women to hold at least 20% of senior positions in private equity.

CASE STUDY

"Femgineers" of Technology

The Problem

Technology has always been a male dominated industry with a distinct significant lack of senior females. Sadly, in a **PwC** survey, 78% of students could not name one famous female working in technology[24]. Women only hold 22% of all tech roles across European companies according to a **McKinsey** report[25]. There is a significant drop in the number of women in STEM[26] subjects from secondary education to university, which translates into the imbalance at employment level. 52% of males are studying within a STEM discipline at university in comparison to only 30% of females[27]. The gap is widening as female graduation rates in STEM subjects are declining. If the current trend continues it is estimated that women will only represent 21% of tech roles by 2027[28].

The Solution

One of our UK growth tech specialists invested into a language learning app based in Berlin, Germany in 2015. It has grown to be one of the largest language learning businesses globally, with over 30 million downloads of its application. In honour of International Women's Day, the portfolio company interviewed three female software engineers to inspire women to pursue careers in technology. They coined the phrase "Femgineers" to describe the females working within the technology department. The company also sponsored and took part in the European Women in Tech Congress hosted in the Netherlands in July 2023.

Women's share across fastest-rising tech roles, as % of tech employees (n = >1 million profiles)

Source: McKinsey and Eightfold AI research on state of European tech, which draws on proprietary Eightfold AI data on more than 1 million European tech workforce profiles, 2022

[24] https://www.pwc.co.uk/women-in-technology/women-in-tech-report.pdf
[25] https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/women-in-tech-the-best-bet-to-solve-europes-talent-shortage
[26] STEM: Science, Technology, Engineering, Mathematics
[27] https://www.pwc.co.uk/women-in-technology/women-in-tech-report.pdf
[28] https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/women-in-tech-the-best-bet-to-solve-europes-talent-shortage

Oversight & Reporting

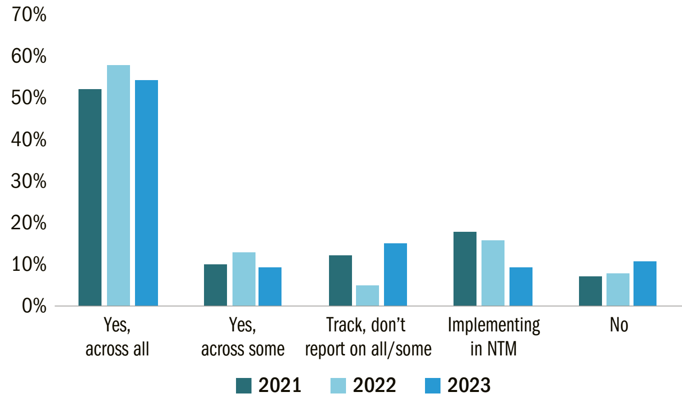
To enact an effective ESG strategy, robust oversight and transparent reporting mechanisms are essential. Numerous factors have been driving ESG reporting standards over the last decade including new regulatory mandates (e.g., SFDR, SDR) and non-financial reporting directives (TCFD, TNFD, SBTi) alongside the ever-rising stakeholder demand for ESG information. Investors demand ESG reporting because it provides critical insights into a company's risk management, long term viability, ethical alignment, performance and access to capital. Many investors use ESG metrics alongside financial indicators to assess operational efficiency, innovation and the ability to adapt to evolving market dynamics. Companies that provide better ESG oversight and reporting often have stronger relationships with stakeholders, which can positively impact the bottom line. Investors today recognise the importance of engaging with customers, employees, supply chain and local communities. In today's challenging fundraising environment, GPs are also seeking to differentiate themselves and those managers that can present a strong ESG track record can attract a broader pool of potential investors. Clear and transparent reporting should align investment strategies to broader societal and environmental concerns whilst addressing regulatory and stakeholder expectations. We evaluated our GPs adherence to best practice ESG reporting standards and the breadth and complexity of ESG KPIs tracked and/or reported on. We also assessed the sophistication of our managers' ESG case studies and Annual ESG Reports shared with us.

In 2023, 80% of our GPs tracked ESG metrics, an increase from 76% in 2022 and 75% in 2021. For context, in 2014, only 40% of our managers provided any form of ESG reporting, and what was provided was fairly unsophisticated compared to what we receive today. Both the quantity and quality of ESG reporting has increased as a greater number of more technical KPIs are appearing such as biodiversity metrics or Scope 1-3 GHG emissions. The set of metrics and frequency of collection depend highly on a manager's size and strategy. Some follow the streamlined **ESG Data Convergence Initiative** with fewer but more impactful metrics, whilst others collate over 100 KPIs.

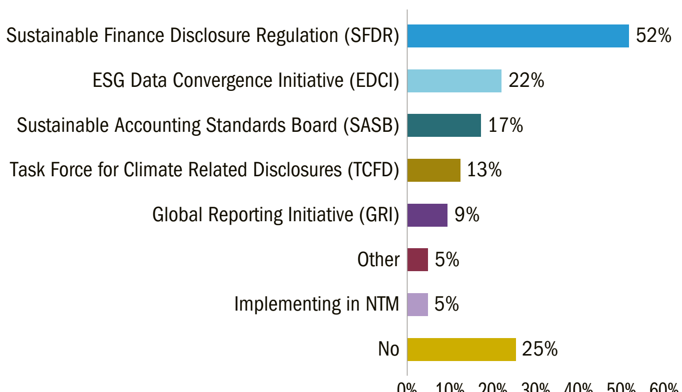
The vast majority of our managers now adhere to SFDR (52%) whilst 22% follow the relatively new reporting framework, **ESG Data Convergence Initiative ('EDCI')** which was only established in September 2021 but gained significant traction. Emerging or smaller managers follow the principles of SFDR or TCFD but do not formally adhere to them given the resource constraints. One Swedish buyout played used uses SASB[29] and GRI[30] as guidance within their own frameworks when conducting materiality analysis or in developing its own sustainability report. Another uses its own proprietary 'Sustainable Growth Framework' to collect 155 ESG KPIs including ECDI indicators. The GP's framework is informed by several sources including SASB, GRI, EDCI and **InvestEurope's** ESG questionnaire.

In 2023 one of our global managers rolled out a new portfolio wide ESG data collection process with an enhanced scope that incorporates elements of the **EDCI** and elements of other widely accepted frameworks. The GP doubled the ESG metrics it collects to 60 this year including numerous datapoints on climate and TCFD. The manager also conducts targeted sessions with portfolio companies to provide general guidance on materiality and collection of the requested metrics, particularly as it relates to Scope 1, 2, and 3 emission calculations. The GP has partnered with one of its own portfolio companies to offer a carbon emissions calculator as part of its toolkit.

Track & Report ESG KPIs Across the Portfolio



Do you Adhere to ESG Reporting Standards?



[29] Sustainability Accounting Standards Board
[30] Global Reporting Initiative

ESG Data Convergence Initiative ('EDCI')

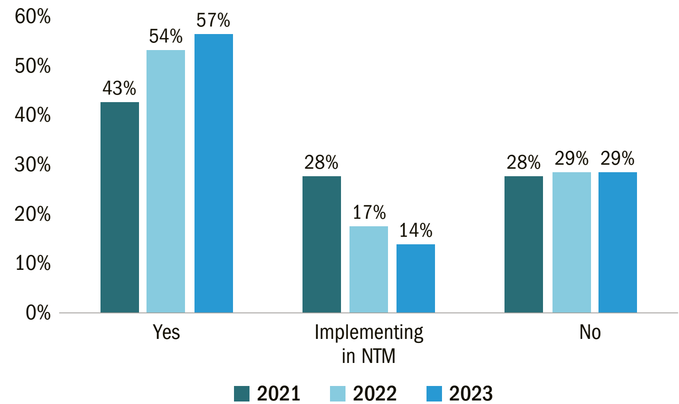
Despite the proliferation in frameworks used to assess ESG factors alongside the increase in the number of ratings providers, there remains a lack of critical mass in any one standardised, meaningful ESG data set for private companies. This leads to low disclosure rates, poor data quality and major challenges for the sector as a whole. We have noticed in recent years that our fund GPs have become inundated with different ESG data requests, referencing different time periods across the year. This is clearly unsustainable for the sector as a whole and makes data collection a serious challenge from a resource perspective.

The stark increase in ESG data consumption is encouraging but the current collection process is unsustainable from a resource perspective. Market participants are also spread across too many ESG frameworks; until a widely recognised 'best in class' framework is accepted there is no critical mass and meaningful data in any one of these. Investors need to converge to a standardised set of performance based ESG datapoints across portfolio companies in order to increase availability, quality and comparability of metrics as well as create benchmarks. This is the objective of the ESG Data Convergence Initiative which CT Private Equity became a signatory of this year. The EDCI was established in 2021 and now has c. 350 GP and LP members representing $28tn AuM and over 4,300 underlying portfolio companies. A growing number of our portfolio GPs are now also signatories. Data collected from the EDCI members is aggregated annually by **Boston Consulting Group ('BCG')** into an anonymised benchmark. The goal is to encourage better ESG performance through improved ESG data quality, availability, and comparability in the private markets. The group meets every year to analyse the data from the prior year and add to the existing metrics.

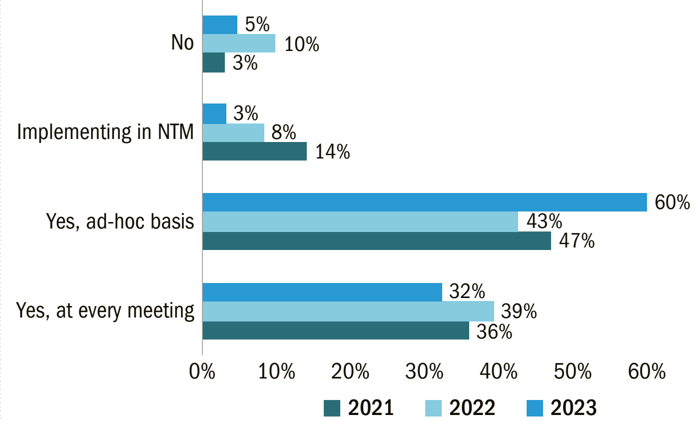
57% of our private equity managers produce an Annual ESG Report, a 14-ppts increase from just two years ago with an additional 17% looking to do so in the next year. This is an under estimate given some of our managers provide their ESG reporting within Annual Meeting materials, AGMs or investor reporting, which is not captured in the analysis below.

92% of our GPs include ESG matters as an agenda item at Board meetings – up from 82% last year – with around one third including this at every meeting. An additional 3% are developing this in the coming year which should take us up to nearly all of our GPs adhering to this level of governance.

Produce an Annual ESG Report



Include ESG at Portfolio Company Boards



2023 ESG Metrics | Data Convergence Initiative

GHG Emissions	Net Zero	Renewable energy	Diversity of board members	Work-related injuries	Net new hires	Employment engagement
Scope 1 Scope 2 Scope 3 (optional)	Strategy (optional) Target (optional) Ambition (optional)	% Renewable energy use	% women on Board % women in C-suite % under-represented groups1 (optional) % LGBTQ (optional)	Injuries Fatalities Days lost due to injury	New hires (organic and total) Turnover	Employee survey (Y/N) Employee survey response (optional)

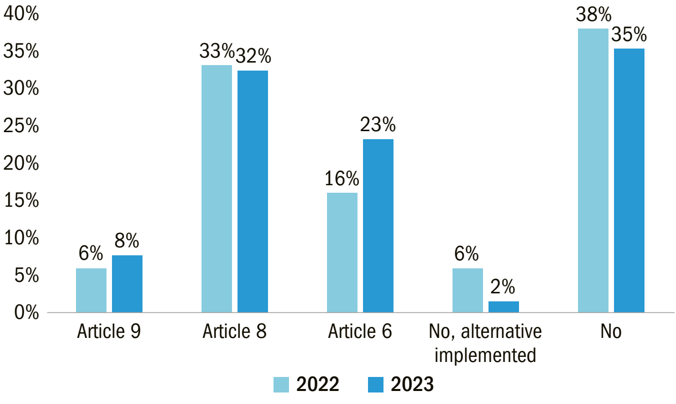
Source: ESG Data Convergence Initiative, 2023

ESG Regulatory Developments in 2023

As outlined in our 2022 ESG Report, a wide range of ESG rules and regulations have been implemented across the globe over the last few years. We performed a deep dive on SFDR, EU Taxonomy and the UK's SDR and assessed how our GPs were implementing these regimes across our portfolio. We saw our in-scope managers comply with the launch of the Regulatory Technical Requirements ('RTS') in January 2023 which prescribed disclosures on ESG approach, sustainability risks and impact. The requirement for larger firms to report 14 mandatory and two additional Principal Adverse Indicators ('PAIs') was one of the most significant implications. PAIs include negative or potentially material adverse effects on sustainability factors that result from, worsen or are directly related to investment choices. Examples include GHG emissions, carbon footprint or Board gender diversity. Smaller firms below the 500-Full Time Employees ('FTEs') threshold could decide not to disclose but had to explain why they did not consider the adverse impacts of their investment activity on sustainability factors. The first PAI statement was due by 30 June 2023 which included quantitative data covering the reporting period 1 January to 31 December 2022.

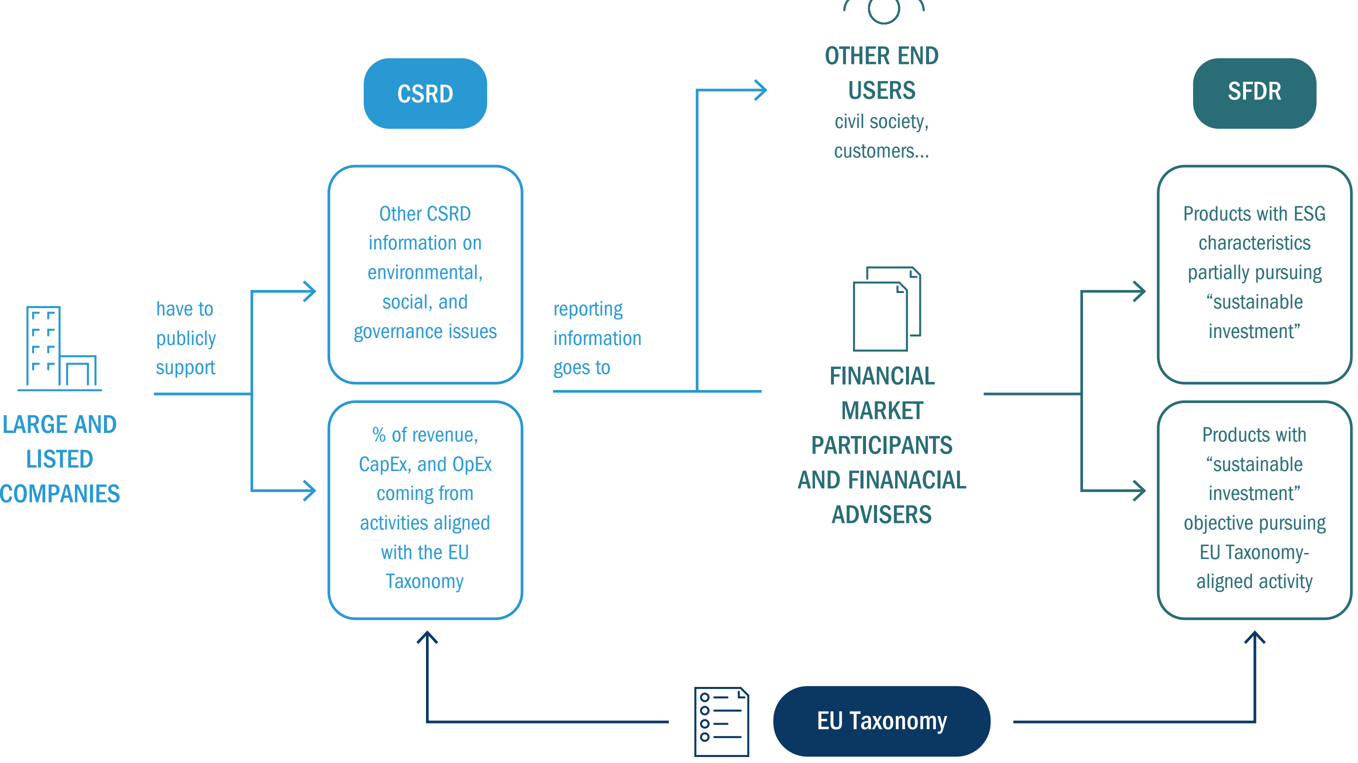
We are closely monitoring regulatory developments and tracking how our private equity managers respond to the growing requirements of new legislation. For the second year running, we asked our GPs if they had implemented EU SFDR measures and if so, what the classification of their latest fund or expected fundraise was. This year, we found that 40% of our GPs had classified or were seeking to classify their latest fund or upcoming fundraise as Article 8 or Article 9, roughly in line with last year. Of that, 8% were seeking to adhere to stringent Article 9 standards, up from 6% in 2022. Most existing funds that were closed before SFDR regulation came into existence chose to remain at Article 6 due to the reporting challenges associated with implementing Article 8 or 9 on a retrospective basis, but many of these GPs had high ambitions for their later fundraises. Given SFDR is only applicable to those managers fundraising in the European Union, and we are still early in its implementation, we were surprised by this datapoint. The ambitions set out in the Paris Agreement, UN 2030 Agenda for Sustainable Developments, European Green Deal and commitments agreed at COP27 should continue to drive the demand for transparency and measurability.

SFDR Implementation on Latest Fundraise



2023 also marked the launch of the European Corporate Sustainability Reporting Directive ('CSRD'), which is interlinked with SFDR and the EU Taxonomy Regulation as outlined in the below graphic. CSRD established a unified framework for large and listed European companies to report non-financial data and will gradually replace the Non-Financial Reporting Directive ('NFRD'). The CSRD was adopted in January 2023 and aims to assist investors, consumers, policymakers and other stakeholders to take account of consistent sustainability metrics. One of the key provisions of the CSRD is compliance with the European Sustainability Reporting Standards ('ESRS') and in-scope businesses will be subject to external audits. The legislation also introduced the 'double materiality' rule whereby companies must assess their impact on people and the environment in addition to sustainability matters that have a financial impact.

The link between EU Taxonomy, SFDR and CSRD[31]



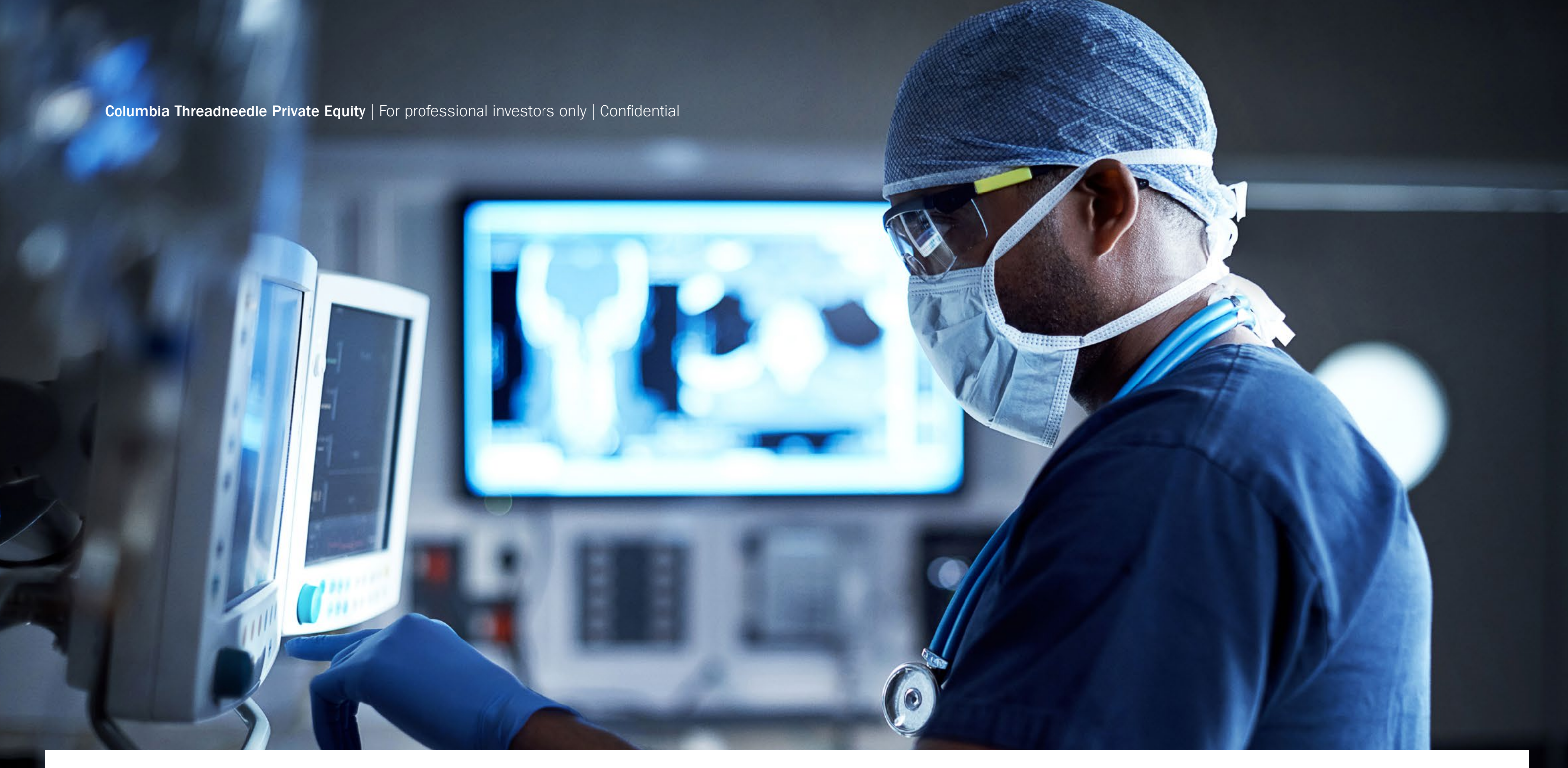
CSRD expanded the threshold for in-scope companies which are subject to mandatory reporting, including listed or large European corporates, and non-EU businesses with substantial activity within Europe. 'Large' companies meet two of the following criteria: i. over 250 employees and/or ii. net sales greater than €40m and/or iii. balance sheet greater than €20m. This regime is therefore impacting some of our mid-market or large-cap GPs who hold large European corporates who fall in-scope with CSRD mandatory reporting requirements.

One of our mid-market DACH managers has 30 companies in-scope for CSRD, which represents the majority of its currently managed portfolio companies. The GP is being supported by a Big Four consultant to initiate the below project to ensure all in-scope portfolio companies are compliant by 2025:

- In-scope portfolio companies have been attributed to four cluster categories according to the business model: Production (Complex, Heavy & Light) & Pure service. Each cluster will have a pilot company for CSRD reporting prior to roll out.

- The project itself is structured in 3 modules: i) Readiness Assessment ii) Concept and iii) Implementation. The GP's portfolio companies will leverage experience and material from each other, particularly within the respective clusters:
  - **Readiness Assessment:** Structured approach that reviews and assesses key criteria for sustainability reporting. The assessment will result in a categorisation of outcomes and a gap analysis
  - **Concept:** Based on the gap analysis and the materiality assessment, the CSRD concept is developed and structured in work packages to allow for an efficient implementation
  - **Implementation:** Implement defined roadmap while making sure to transfer knowledge and function, with advisor as a sparring partner

[31] Source: EU Commission



ESG Spotlight: Artificial Intelligence and ESG

The impact of Artificial Intelligence ('AI') on ESG issues is highly complex, multi-dimensional and fraught with challenges, but the technology also presents significant opportunities. Its rapidly evolving capabilities have led to a growing concern about its social, economic and political implications. Policymakers around the world are working hard to keep up with its development to understand how to regulate and control AI risks, whilst not stifling innovation and investment.

There are multiple AI applications that promote the environment and help reduce climate change. AI can reduce emissions by optimising energy use in buildings, plants or vehicles, by identifying consumption patterns and recommending energy-saving behaviours. The technology can also improve the predictability of demand and supply for renewables; enhance energy storage; efficiency and load management; assist in the integration and reliability of renewables; and enable dynamic pricing and trading. Pollution reduction can be achieved through smart sensors, AI-powered drones or data collection from satellites to assist scientists build climate models. AI-guided autonomous vehicles (AVs) that use route and traffic optimisation, eco-driving algorithms, mobility on-demand ('MoD') and ride-sharing services can also reduce air pollution. One of our co-investments drives efficiencies in smart manufacturing by finding optimal usage of raw materials. The group provides real-time data on energy consumption, emissions and waste production. It can be used to identify areas of improvement, optimise resource usage, and reduce the environmental impact of manufacturing. The business claims to have saved over two million tonnes of CO2. For example, a leading paper manufacturer reduced carbon dioxide emissions by 230,000 tonnes through the use of its software.

AI is being used to transform weather forecasting and understand climate change effects through the new field of 'Climate Informatics'. In the past, high-performance energy-intensive computing was required to derive this type of information but deep-learning networks enable faster calculations using real-time data. These tools can be used to identify extreme weather events, vulnerabilities or natural disasters and provide early warnings. Deep learning may also be incorporated into natural disaster simulations in the future to coordinate effective emergency responses through prioritisation.

AI-augmented agriculture helps reduce natural resource consumption (e.g., water), lowers pesticide use, increases resilience to weather extremes and protects biodiversity. Automated data collection and analysis improves decision making by guiding crop management through droughts, floods or diseases, which supports agriculture yields and ensures food security. Livestock nutrients can also be monitored and optimised. Control of our ecosystems can be achieved at scale with real-time geospatial data that aids the policing of illegal deforestation, fishing, poaching, pollution or water extraction. One of our new co-investments uses AI-powered analytics to generate real-time, 360-degree street-level visualisations to help build smart cities, reduce GHG-emissions and improve health & safety.

Whilst the environmental benefits are broad it is important to recognise the costs. AI-driven tasks are increasingly complex, intricate and data-intensive. A recent paper published by **MIT** researchers analysed the carbon footprint for training AI models and found the process can emit 626,000 lbs of CO2 – nearly five times the lifetime emission of the average vehicle, including its

initial manufacturing[32]. Critics question the carbon offset and if the marginal improvement on predictive accuracy is really worth it relative to cheaper, manual methods. In 2018, Information and Communications Technology ('ICT') accounted for 1-2% of global electricity supply and increased two-to-threefold to 4-6% in 2020[33] with future projections compounding to 2030. Some estimates suggest that ICT constitutes 2-3% of GHG emissions globally but this depends strongly on the electricity mix. On the hardware front, Silicon Valley-based **Semiconductor Research Corporation** projected that at the current pace of data scaling, we will outstrip the global production capacity of silicon in the near future[34]. This chronic supply shortage will not allow us to keep up with the growing volume of data being generated. According to the **Global-E-waste Monitor** there was an estimated 57.4 million tonnes of electronic and electrical equipment waste in 2022, up 29% in six years. Advances in AI are expected to exacerbate the problem as it replaces old, redundant technology and this poses a serious environmental challenge. E-waste contains hazardous chemicals, including lead, mercury, and cadmium, that can contaminate soil and water supplies and endanger human health and the environment.

AI has the potential to bring about numerous positive societal benefits including enhanced productivity, greater access to education, increased health & safety and better healthcare outcomes. Generative AI can create customised training programs, conduct employee reviews, and formulate plans that contribute to workforce upskilling and increased productivity. As businesses focus on aligning their practices with social objectives, AI-driven training initiatives can foster a more adept and well-prepared workforce and enhance performance. A higher quality training and development offering can help attract and retain top talent. The technology has also made significant strides in hiring and promotion processes by saving time screening CVs and ensuring consistent decision-making. AI can solve for unconscious bias by eliminating decisions based on race, sexual orientation, or disabilities which should create a more diverse workforce that is more representational of broader society. AVs, drones and robotics powered by AI algorithms can improve health & safety measures within a workplace and overall wellbeing of employees. These technologies can mitigate the risk of accidents by analysing real-time data, responding to dynamic conditions, and allowing for the automation of hazardous tasks, thereby alleviating potential stress and danger.

As discussed earlier, AI can address world hunger challenges through agricultural yield optimisation and enhance food distribution by directing resources to the regions most in need. It can also offer better access to quality healthcare, accelerate drug discovery, reduce waiting times, and improve patient outcomes. The UK **NHS** has integrated this technology with impressive results across multiple disciplines. The Brainomix e-Stroke system allows for earlier stage diagnoses and expedited treatment plans, which has driven a threefold[35] increase in the likelihood of patients maintaining post-stroke independence. AI-powered medical imaging can identify and interpret radiographic traits from x-rays, ultrasounds, mammograms, or CT scans to improve detection, assist in decision making and provide targeted treatment recommendations.

On balance, there are a number of social challenges that require careful navigation such as job displacement, privacy concerns, misinformation, labour exploitation and unearthing inequities such as gender or income. The potential for large scale workforce reductions raises concerns about the livelihoods of affected employees and the broader implications for communities. Disproportionate impacts on vulnerable populations and certain demographic groups could exacerbate societal inequalities. The risk of creating a "digital divide" looms large, as those with limited access to education and technology might face increased challenges retraining or entering the job market. Furthermore, the lack of bias is only present when AI has been trained using fair data with unbiased representation. In 2022, the US Department of Commerce study found that facial recognition AI often misidentifies certain races. Therefore, applications such as police surveillance technology could actually increase social inequalities and undermine efforts to improve social justice. It is therefore important to use a representational dataset when training AI models. AI assisted management tools can also lead to a lack of emotional intelligence due to the focus on efficiency; the workforce is dehumanised and viewed as any other resource input. There have been publicised cases of **Amazon** workers who were dismissed via automated emails without human intervention when its algorithm determined they were not fulfilling productivity targets. This can lead to a high stress environment and negatively impact employee mental health and wellbeing as well as resulting in negative press for the company concerned.

AI can also be used to strengthen corporate governance, audit, risk management and compliance efforts, particularly in fraud detection and prevention. By using its data analytics capabilities, businesses can implement measures to screen decisions, monitor breaches or detect suspicious activities. Its solutions can help protect corporations from fines, penalties, or reputational damage. The technology also has the potential to improve key performance indicators. By processing information without emotional biases, Boards and managers can ensure that decisions are made objectively and that they are aligned with the company's objectives. The current lack of regulation surrounding AI implementation and use has created uncertainty regarding ethical issues. The potential risks of malicious activities and data security breaches may hinder its adoption. Consumer protection is imperative as data privacy threats and misinformation is abundant, especially in AI models trained with poor quality data. There are also significant challenges surrounding Intellectual Property ('IP'), copyright and infringement given AI models make use of others' content, sometimes without their prior authorisation or knowledge.

Finding a balance between AI-driven efficiency and its impact on ESG is crucial as businesses navigate this rapidly evolving landscape into the fourth industrial revolution. By doing so, companies can enhance their sustainability and business operations while ensuring ethical and responsible decision-making. Ultimately, a thoughtful and regulated approach to AI adoption will determine whether it becomes an asset or a liability for environmental, social and governance outcomes.

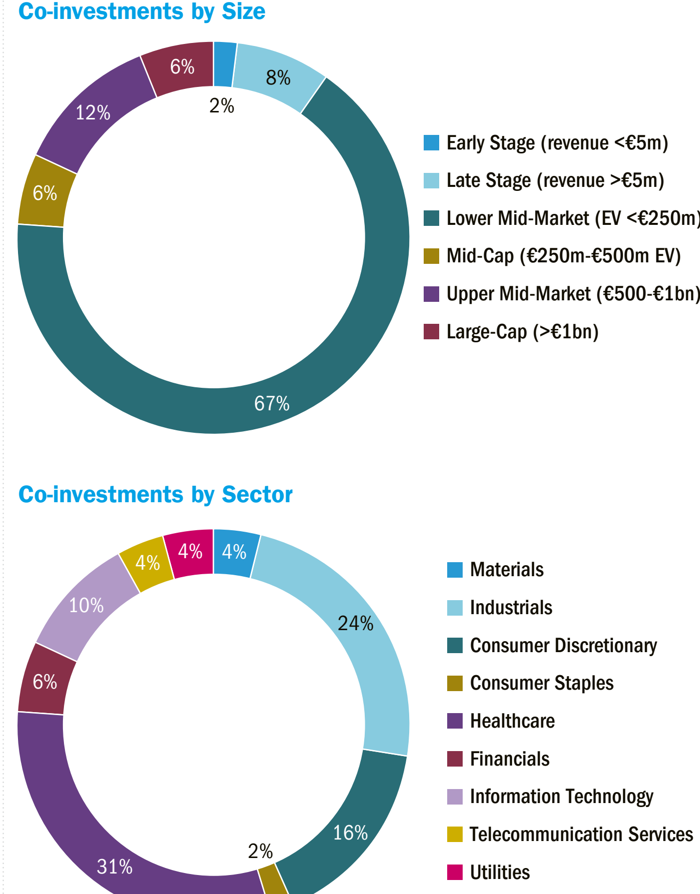
[32] "Energy and Policy Considerations for Deep Learning in NLP", MIT, 2019
[33] "Energy Consumption of ICT", UK Parliament Research Briefing, 2022
[34] "The Hidden Costs of AI: Impending Energy and Resource Strain", Deep Jariwala and Benjamin C. Lee, University of Pennsylvania, March 2023
[35] "Artificial Intelligence Revolutionising NHS Stroke Care", Department of Health & Social Care, UK Government, December 2022

Co-investment KPIs

We have seen our co-investment management teams take positive steps to future-proof businesses by investing in transition or adaptation, reduce ESG risks and better position themselves to benefit from sustainable opportunities.

In our 2023 Annual Co-investment Survey, we are proud to report that we attained a 79% response rate from a total of 65 companies, up from 74% in 2022. This is a significant achievement given this survey is only in its third year and our focus is on lower mid-market companies, which typically have less resource dedicated to ESG.

Our co-investment strategy targets lower mid-market European and North American buyouts alongside high quality, regional or sector specialist sponsors. We typically invest alongside our core private equity managers with whom we have a primary commitment or with 'fundless sponsors' which are yet to establish a fund. We also source highly attractive 'deal-by-deal' opportunities from emerging managers looking to build new institutional LP relationships: the dynamics of these types of transactions provide us the ability to gain deep and valuable insight into the GP's due diligence process and allows us to have an outsized impact, even with a relatively small ticket size. In 2023, over two-thirds of our co-investment portfolio was invested in lower mid-market companies with enterprise values below €250m, and 82% below €500m. We are also invested across a wide range of sectors, including those which would typically be regarded as higher risk from an ESG perspective such as Industrials (24%), Materials (4%) and Utilities (4%). In spite of this diversification, we have achieved strong ESG ratings in 2023 with over 80% being rated as 'Good', 'Excellent', or 'Best-in-class'.

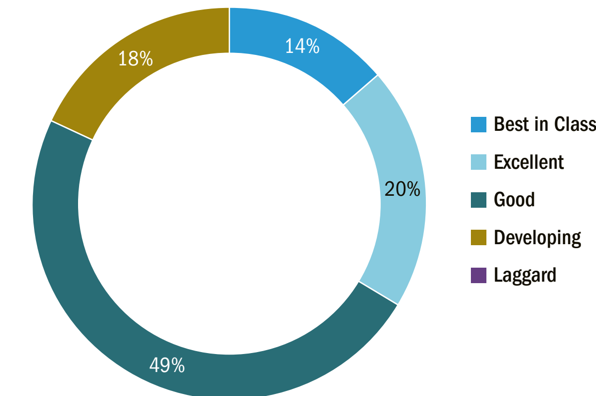


In line with our private equity funds ESG survey, we rated each of our co-investments from 1-5 ('Leader' to 'Laggard') across multiple ESG metrics, topics and trends to assess our companies' commitment and integration of ESG. This year we have nearly doubled the co-investment KPIs to 42, in line with growing regulatory reporting and disclosure requirements (e.g., SFDR, TCFD) which gives us a much more granular and holistic overview.

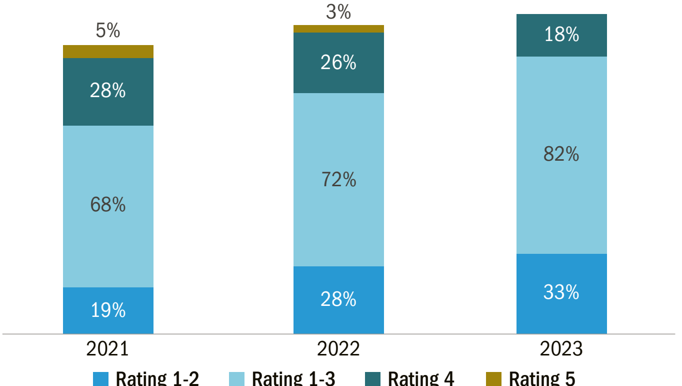
From a total of 51 companies that responded, 82% scored 1-3 ('Best-in-class', 'Excellent', or 'Good') in 2023, up from 74% in 2022 and 67% in 2021, which is a marked improvement. Our top tier companies in the 1-2 buckets, increased five percentage points over the year to 33% which demonstrates the speed of maturity in ESG, even in our earlier stage companies.

Supporting and driving improvement lies at the heart of our responsible approach. Our investment decisions for both fund and co-investments are forward looking, based on ESG improvements over our hold; we therefore would not automatically decline a co-investment where a business is operating as an ESG laggard at inception if we can see a tangible development path. Instead, we seek to leverage our position to influence, develop and drive ESG improvements in our co-investments. Our focus is therefore on the potential impact we can achieve and we measure our progress year-on-year through our ESG Survey. We believe our co-investment portfolio is particularly well-positioned to drive positive change given we typically hold larger stakes in investee companies, have a closer relationship to management – some of which we have appointed – and are funding the businesses of tomorrow. As such, we expect to see a faster acceleration in ESG ratings throughout our co-investment book relative to our funds programme.

Co-investments ESG Ratings Globally, 2023



Co-investments ESG Rating Trend, 2021 – 2023



	Assessment	Rating
E	**Environmental Management**	78% have taken action to reduce negative and promote positive environmental and social impacts, up from 77% in 2022.
	TCFD	Only one of our co-investments is in scope for TCFD and 8% have a Climate Transition Plan in place. This is a new metric added this year.
	Climate change	45% track and monitor Scope 1, 2 and/or 3 GHG-emissions and 16% have net zero targets, up from 19% and 14% in 2022, respectively.
	Energy	31% track energy consumption, 29% track renewable energy consumption, and a further 8% are developing this capability over the next twelve months ('NTM').
	Biodiversity	50% of relevant companies track and monitor activities that negatively affect biodiversity, up from 30% in 2022. A further 10% are developing this capability over the NTM.
	Waste	27% track and monitor waste management KPIs, up from 23% in 2022, with an additional 14% developing this in the NTM.
	Water	50% of relevant businesses monitor activities that contribute to water pollution, down from 66% in 2022. An additional 13% are developing this capability in the NTM. This metric is only relevant for 16% of co-investments.
	Sustainable supply chains	47% of our companies consider sustainability issues in their selection of suppliers and/or contractors, down from 61% last year. We believe looser controls related to increases in logistics costs, rising energy costs, and significant supply chain restrictions following COVID-19, global sanctions on Russia, the spike in inflation and economic downturn. All of which may lead smaller businesses to overlook potential sustainability controversies they overwise would not.
S	**D&I - Policies & Initiatives**	63% have a D&I policy in place (56% in 2022) and 53% have actively promoted diversity & inclusion, which is in line with prior year.
	D&I - Reporting	96% track the number of females or ethnic minorities on the Board and 39% track other D&I KPIs (e.g., LGBTQ+, disability metrics, parental status, flexible working etc). Note: the collection of this type of data is not permitted in some regions, such as France, which skews statistics.
	D&I - Board Composition	Females and ethnic minorities comprise 13% and 5% of our companies' Boards. Whilst we expect this datapoint to fluctuate somewhat due to churn, this is still disappointingly slightly down on the prior year (15% and 7%, respectively).
	D&I - Equality of earnings	25% of our companies track the gender pay gap, which was 14% on average.
	Living Wage Employer	Nearly half of businesses pay wages in line with accredited recommendations, up from one third in 2022.
	Staff training	96% have staff training and development programmes in place. This was an impressive improvement on the prior year, which was 81%.
	Employee well-bring	47% of companies carried out an employee engagement survey, of which the average response rate was 65%. This is in line with 2022. An employee engagement survey can include, but is not limited to, questions related to company culture, company values, employee job satisfaction, employee engagement, and training.
	Job creation & staff churn	Of the 76% respondents for this datapoint, there was an aggregate 4,068 organic net new FTE hires across our co-investments. 69% also tracked organic attrition, which was 20%.
	Health & safety	9 work related injuries on average; 0 work-related fatalities and 1,376 days lost due to injury in aggregate, reported by 90% of our companies.
G	**Policies & procedures**	82% of our companies have procedures and policies in place with a further 18% developing this over the next year, which is in line with 2022. The composition of policies has fluctuated over the year: 84% adhere to a Code of Conduct or Ethics (90% in 2022); 78% Health & Safety (88%); 73% Whistleblowing (65%); 57% Environmental (58%); 47% Modern Slavery (48%); 39% Corporate Social Responsibility ('CSR') (48%); and, 29% Sustainable Supply (25%).
	Board strength & effectiveness	57% have an independent Chairperson and 71% have an independent Non-Executive Director sitting on the Board. This is an increase from 52% and 60% in 2022, respectively. 55% also have a separate Audit Committee or Remuneration Committee (45% in 2022).
	Active Ownership	78% include ESG matters as an agenda item at company Board meetings, up from 72% last year. A further four are implementing this in the NTM.
	Culture & commitment	29% of managers' performance is formally evaluated with regards to social or environmental metrics, down slightly from 31% in 2022.
	Oversight & reporting	53% track and monitor ESG KPIs specific to the business or sector, slightly up from 40% last year. A further 12% are developing this capability over the NTM.
	Cyber security	76% of our companies have a cyber security policy in place, which is consistent with last year. Across all of our companies, there were 5 cyber security breaches in the last 12 months, an increase from 1 in 2022.
	Principal Adverse Indicators ('PAIs')*, per SFDR	35% of our companies track and report principal adverse impacts ('PAI')* on sustainability factors per SFDR. 2% intend to over the NTM. This is a new metric added this year.
	UN Global Compact / OECD violations	None of our co-investments have violated any of the principals of UN Global Compact principles or OECD guidelines for Multinational Enterprise. 71% track and report on this, which is a new datapoint for 2023.

* PAI's: most significant impact of business decisions on sustainability factors relating to environmental, social, employee matters, respect for human rights, anti-corruption and bribery matters

CO-INVESTMENT CASE STUDY

Life Science Tools

Background

Founded as a university spin-off, the business is a global provider of transfection reagents and upstream bioprocess consumables. Its solutions comprise mission-critical components that are used within the research, development and biomanufacturing of gene and cell therapies. The group has a diversified client base comprising research labs, CDMOs[36], CROs[37] and Big Pharma across the globe. Its patented product offering delivers safer, more flexible, and faster solutions which saves its clients time and money.

Strong Performance

- Completed two strategic acquisitions which added complementary capabilities and a new regional distribution hub.
- Increased production capacity with a new lab facility allowing for higher value-add formulation and margin expansion.
- Strengthened management and built out Direct Sales team.
- New product development which address adjacent verticals.
- Since our acquisition the group has grown revenue and EBITDA by over 20% CAGR.

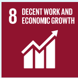
Strong Exit

- The business was sold in Summer 2023 to a strategic player which generated gross returns of over 4.5x and 70% IRR.

Strong Impact

Ensure healthy lives and promote well-being for all at all ages.

Treatment of genetic diseases with a significant unmet need, blood cancers, immune-mediated disorders, melanoma, neurological disorders, multiple sclerosis, Crohn's disease, and vaccinations.



Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

The company promotes UN SDG #8 through its extensive contribution to scientific innovation and market leading Research and Development ('R&D') team. A core business focus is scientific technological development, and it invests heavily in its workforce through learning and development programmes. The business operates in a highly regulated sector and conforms to best practice manufacturing guidelines outlined by regulatory bodies that govern the pharmaceutical sector (e.g., FDA[38], EMA[39]) thereby promoting safe and secure working environments.

Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation.

Commitment to a significant annual R&D spend thereby promoting scientific research & technological development. A large proportion of the workforce are R&D professionals and the business also operates a Scientific After-sales Support to train clients to use their products in the most optimal fashion.

Strengthen the means of implementation and revitalise the Global Partnership for Sustainable Development.

The company promotes the development of scientific technologies and contribution to cutting edge gene and cell therapy treatments. The group has a number of strategic partnerships with other niche providers and has expanded into adjacent technologies over the last three years.

[36] Contract Development and Manufacturing Organisations
[37] Contract Research Organisations
[38] US Food and Drug Administration
[39] European Medicine Agency

CO-INVESTMENT CASE STUDY

Driving Decarbonisation in UK Social Housing

Background

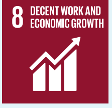
We co-invested into a UK social housing Repair & Maintenance ('R&M') business in 2023, alongside one of our UK private equity managers. At entry, the business employed over 300 staff which operate from a network of regional hubs across the country.

The business supports the regeneration of disadvantaged communities and improves living standards by providing repairs, refurbishment, compliance services, energy efficient upgrades and complex projects such as retrofits focussed on decarbonisation. Local authorities, housing associations and central government departments appoint the business to deliver this non-discretionary work under long term, multi-year frame agreements and maintenance contracts.

ESG Impact

The business has strong ESG credentials and operates in a segment with considerable social and environmental drivers. This includes maintaining affordable homes for thousands of low-income UK households and upholding the Decent Homes Standards, health & safety standards and net zero goals. The business has several ESG initiatives, policies and metrics, including:

- **Health & Safety:** Excellent safety record as the group continues to focus on making all its workplaces ‘zero harm’ environments (i.e., free from accidents or near misses). This focus on safety and the business’ excellent track record is a significant differentiator. To date, the business has had no investigations, fatalities or HSE notices.
- **Long term sustainability:** Strong expertise in “fabric first” carbon reduction services to retrofit social housing units in line with sustainable standards. This business has significant expertise in decarbonising properties and energy efficient retrofits.
- **Recruitment:** In the process of establishing an experienced energy solutions/retrofit team that has strong relationships with customers and a significant pipeline of prospective work. Furthermore, there are plans to establish an Energy Solutions team with expertise in energy efficient retrofits.



The company's new ESG Reporting will reflect the UN Global Compact Communication on Progress. This will help management and the Board to think about growth, productivity and risk reduction through application of ESG in operations and business planning. Measurement of ESG performance also reflects this approach, in both qualitative and quantitative terms. At this early stage of the investment, the lead GP and management are establishing the below ESG metrics:

- Reduction of carbon emissions by scope/project.
- Short–term CO2 reduction pathways per property maintained/upgraded.
- Number of insulation measures installed per year.
- Energy performance certificate improvements.

Investment Performance

In its first year of our investment, the business achieved double-digital topline and EBITDA growth driven by social housing health & safety policies and the UK Government’s net-zero commitments. This includes all social housing attaining its minimum EPC Rating targets by 2035. The business aims to scale further through geographic expansion, M&A and increasing its product offering to focus on the higher value energy transaction segment.

CO-INVESTMENT CASE STUDY

Emission Prevention Technology

Background

In 2023, we co-invested into a business that provides patented vehicle-mounted, camera systems alongside one of our technology specialists. Its solutions collect geospatial data used for urban planning, city management, property assessment, maintenance and claims handling. Street-level data is visualised through the company's proprietary software and integrates seamlessly with its customers. The group sells its data to a large and fragmented customer base comprising local authorities, utilities, transportation and telecommunications.

ESG Impact

- **Health and Safety:** Street level imagery is used to assess conditions for public events and emergency service responses. Applications are used for assessing road and cycle lane safety as well as road quality to prioritise maintenance.

- **Project Planning:** Project preparation can be conducted completely remotely based on the company's data, thereby avoiding site visits and associated carbon emissions. Public spending is also saved by reduced travel and quicker decision making.

- **Improving Infrastructure:** Local governments use the company's solutions to categorise public assets and create inventories. Its applications are also used in network planning and mapping utility line paths. The technology increases the efficiency of infrastructure and improves the environment within cities. The software allows users to digitally measure buildings and plots to the nearest inch, integrating the output into their existing software.

Investment Performance

- **Strong trading:** The business increased FY23 revenues and EBITDA at c.30% over the year whilst maintaining EBITDA margins at 32-33%. Continued expansion into Europe and the US through M&A should fuel further growth.

- **Professionalised Management:** A new CEO and COO have been appointed.

- **New product development:** The business launched a new, data capture hardware and software solution which adds new functionality.

Conclusion

The turbulent economic landscape did not distract our GPs' attention from their long-term sustainability goals, and we achieved another strong set of ESG results in 2023. The adversity of the times actually accelerated some core ESG themes including energy optimisation, circularity, diversity, equality & inclusion, and regulatory compliance. The broad range of impactful ESG initiatives we saw this year have been truly innovative and value accretive for our companies, as well as addressing some of the world's greatest problems. As we reflect on our progress, we do so amidst a rapidly evolving regulatory landscape alongside the growing scepticism of ESG from notable voices in the media and politics. We recognise these challenges and praise our GPs' efforts for advancing at such pace, particularly around ESG reporting and disclosures. Data quality and consistency remains difficult, which is due to both the lack of common reporting standards and non-financial reporting obligations for SMEs. In navigating disclosure and reporting complexities, the guidance of specialist consultants has proven invaluable for managers; we saw an increasing number of our managers turn to third-party subject matter experts to overcome these challenges and the sophistication of ESG reporting accelerated markedly. As ESG reporting frameworks evolve we expect to see the sector converge to a set of 'best-practice' metrics, which should uphold transparency, prove out the ESG thesis and better channel capital into effective sustainable strategies. Afterall, ESG is a process, not an outcome.

Columbia Threadneedle Investments Private Equity
November 2023

Contact us

Columbia Threadneedle Private Equity
6th Flr, Quartermile 4
7 Nightingale Way
Edinburgh EH3 9EG

+44 (0) 20 7628 8000

privateequityfunds@columbiathreadneedle.com
Telephone calls may be recorded.

The value of investments and income derived from them can go down as well as up as a result of market or currency movements and investors may not get back the original amount invested. Investments are speculative and require a long-term commitment, with no certainty of return. There is no public market for the commitments, and none is expected to develop. Investors may not be able to liquidate their investments prior to the end of the term.

The content of this report constitutes confidential information of a proprietary nature that is strictly for the attention of the recipient

as a limited partner of a CT Private Equity-managed fund (the term limited partner shall be deemed to encompass both an actual limited partner of the LP and a prospective limited partner). Accordingly, such content should be utilised solely for internal purposes (such purposes to include the provision of the report to any third party professional adviser or auditor appointed by the recipient and who requires the same solely for the purpose of servicing the recipient in relation to the operation of the recipient's normal business activities) save that a recipient shall be permitted to use the information contained within the report pack for the purpose of meeting any compulsory reporting obligations owed to any governmental or regulatory authority. Neither this report nor any extract thereof (with the exception of any provided by CT Private Equity specifically for such purpose) shall otherwise be distributed, published, copied or reproduced to any third party.

To find out more visit **columbiathreadneedle.com**

© 2024 Columbia Threadneedle Investments. Columbia Threadneedle Investments is the global brand name of the Columbia and Threadneedle group of companies. Financial promotions are issued for marketing and information purposes by Columbia Threadneedle Management Limited, authorised and regulated in the UK by the Financial Conduct Authority. 1901786 (02/24)