

Responsible Investments in Life Science

Evaluating Sustainability in the
Pharmaceutical and Biotechnology Sector



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Arctic Aurora LifeScience is a specialized global healthcare equity UCITS fund investing primarily in European and U.S. public life science companies. The investment strategy focuses on achieving excess return from investments in the biotechnology and pharmaceutical sector by investing in the most innovative companies developing new treatments that significantly change the life of patients to the benefit of society. Arctic Aurora LifeScience was launched the 25th of May 2016 and has returned a strong investment performance. The fund is managed by Ulrica Bjerke and Dr. Torbjørn Bjerke, both with over 30 years of experience from investments in the sector. Analyst Daniel Bolanowski has been part of the team since start. Arctic Aurora LifeScience has an extensive global network of executives in the life science industry as well as a profound relation to academia.

About the Authors

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Contents

Executive Summary	5
Investment Statement	6
Introduction	7
Arctic Aurora and the SDG “Health and Well-being”	7
Sustainability Is Strategic	7
SDG Scope	9
ESG and Pharmaceutical Companies.....	9
Access to Medicines	10
Climate Impact	10
ESG and Small and Mid Cap Biotechnology Companies.....	12
The Sustainable Biotechnology Model.....	13
Screening.....	14
Exclusion Criteria.....	14
Sustainability Analysis	15
Scorecard	16
Innovation Capability	16
Safe and Ethical Product Development.....	17
Corporate Governance.....	17
Access to Health	17
Investment Selection.....	18
Monitoring & Engagement.....	19
Reflections and Discussion.....	20
Afterword.....	21
References	22

Executive Summary

From the very start of Arctic Aurora LifeScience, our ambition has been to fully integrate sustainability in our investment process. We are convinced that taking material ESG factors into account lowers the risks and improves our investment decisions and hence improves the result for our investors. We do not work with ESG analysis as a separate stream, but see this as a natural step in our investment process, just as we evaluate all other relevant factors. In addition, we believe that the only viable way for a company to create long-term financial success is to manage its business in a sustainable way. We use the UN Sustainable Development Goals (SDGs) as a guideline for what to prioritize. In our industry, Goal 3 – “Good Health and Well-being” is most in focus, however, all the goals are interlinked.

We invest both in large pharmaceutical companies with large production facilities and more than 100,000 employees as well as small biotechnology companies that are not much more than a lab and a few researchers. These companies face very different challenges, and analyzing them from an ESG perspective requires different approaches. In the case of the large companies, we rely to a large extent on data provided by the companies themselves or external providers, like the Carbon Disclosure Project (CDP). In general, the reporting is transparent and forms good basis for scoring models. The downside is that there is limited room for impact from engagement.

In the case of small and medium sized companies, it is more difficult to access relevant ESG data from standard company reports or external sources. Instead, we rely on our own research and use internally constructed surveys. Furthermore, for research companies with no production, climate and environmental impact is less important. Instead, innovation focus and capability, ethics, and governance are our main focus when defining a sustainable biotech company. Moreover, we have a greater opportunity for impact from engagement in the small- and mid-cap segments.

Our work has resulted in a proprietary check-list suggesting a model for how investors can evaluate biotechnology companies with regards to sustainability. The model focuses on four areas; Innovation Capability, Safe and Ethical Product Development, Corporate Governance and Access to Health, where Innovation Capability is a necessity for a sustainable business and for long-term return on investment.

The world is ageing which drives demand for healthcare and in addition our lifestyle choices lead to an increase in diseases like cancer and diabetes, both linked to obesity. For governments to meet this rising demand despite limited resources, it is important to invest in innovation. Innovation is key to achieve the UN Health SDG. Investing in the healthcare sector is a way to contribute to the achievement of this goal and a sustainable future.

Investment Statement

Aligning the financial system with sustainable development is imperative to a sustainable planet. The UN SDGs underline this, calling upon the private sector to mobilize significant funding capacity towards solving our world's sustainability challenges and eradicating poverty, from affordable and clean energy generation to reaching total gender equality.ⁱ While much attention has been given to climate action (and rightfully so), investing in healthcare is another key issue of our time. In fact, the demand for growth in healthcare innovation has never been greater; the accelerating increase in age-related diseases of an ageing population and the rising health inequalities between the less developed and the developing world, present major threats to sustainable development globally.ⁱⁱ

Population ageing stems from health progress across all nations. However, this demographic shift increasingly strains our healthcare system and economy as the greatest burden on global health is diseases related to age.ⁱⁱ

“the demand for growth in healthcare innovation has never been greater”

And as of now, there is no relief in sight: The number of people aged 60 years or over is projected to more than double, from 962 million to 2.1 billion, between 2017 to 2050. By 2030, the global population of older persons is expected to outnumber the younger one, which is unprecedented in human history.ⁱⁱⁱ Lifestyle induced diseases are adding significantly to the need. The challenge is that not only will demand for therapies outweigh supply: While there do exist available treatments on the market, we need much more efficacious and cost-efficient treatments to treat the major diseases.

“Investing in healthcare is investing in sustainability”

If we are to achieve, within the next decade, SDG 3: ‘ensure healthy lives and promote well-being for all at all ages,’^{iv} we ought to develop new, innovative targeted therapies that enable more cost-efficient regimens. Fortunately, a growing number of empirical research suggests, at a macro level, health outcomes are highly responsive to healthcare investments.^v As a healthy population is a key indicator of sustainable development, the message is clear: Investing in healthcare is investing in sustainability.

Introduction

Arctic Aurora and the SDG “Health and Well-being”

Investing in companies that target the health SDG is at the heart of Arctic Aurora LifeScience. A specialized global healthcare equity UCITS fund engaged in active portfolio management, Arctic Aurora LifeScience goes beyond just achieving excess financial returns. The fund selects highly innovative biotechnology and pharmaceutical European and U.S. companies whose assets have the potential to transform the future of both primary and secondary prevention of disease. By investing in companies that tackle unmet medical needs, we aim to achieve alpha and contribute to positive, social impact.

Our investments target some of the most widespread and deadliest diseases worldwide for which there are no or poor available treatment options. In our current portfolio, the largest clinical domains include oncology, inflammatory diseases, rare and genetic diseases, central nervous system diseases, and cardiovascular diseases. Via our investments, we contribute explicitly and implicitly to Sustainable Development target 3.4, which is to reduce, by one-third, premature mortality from non-infectious diseases through prevention and treatment and promote mental health and well-being. Our track record thus far demonstrates that investing in companies that contribute to the SDGs is valuable—for investors, companies and society at large—and realistic.

Sustainability Is Strategic

Investing in public life science requires a deep understanding of biology and the drug development process, allowing for rigorous due diligence within selected medical areas. Top-down, we select therapeutic areas of medical and commercial interest; bottom-up, our due diligence combines financial analysis alongside analysis of the science and sustainability of the companies. By sustainable, we mean companies that properly manage their material environmental, social and corporate governance (ESG) risks and opportunities, non-financial factors that, if not managed well, affect long-term financial performance.

Our approach is strategic. We believe that if a company operates sustainably, it is more viable to generate long-term, risk-adjusted returns. Companies whose policies and practices meet environmental, social and governance criteria build more sustainable business models, thereby advancing their adaptability to externally imposed business risks. Considering a company’s larger sustainability context means gaining a more comprehensive view of the long-term risks and opportunities faced by the company, and its potential for sustainable success.

Thus, taking account of ESG factors gives us greater insight into the value, risk and return potential of investees.

While ESG issues have received a lot more attention in recent years, integrating material non-financial issues has been essential to our investment risk-analysis and decision-making since the inception of the fund. Moreover, as a Signatory of the UN Principles for Responsible Investing (PRI), we aim to align our investment activities with the broader interests of society and contribute to a global sustainable financial system. We are committed to our duty to act in the best long-term interest of our beneficiaries. But considering a company’s sustainability is not only our responsibility and the good thing to do. ESG integration helps us to mitigate long-term risks and capture opportunities in the multifaceted life science industry.

ESG integration in the investment process (schematic illustration)



We approach sustainability through our holistic five-step [Responsible Investments Strategy](#). In essence, we take account of ESG factors in every step of our portfolio construction. First, we perform a [Screening](#) to exclude companies based on ethical views and or major ESG risks. We then undertake a [Sustainability Analysis](#) of the companies in which we analyze ESG management alongside financial characteristics. The two aforementioned steps pave the way for an [Investment Selection](#) of companies with good or improving ESG performance, which, if the other parts of the investment analysis are positive, progress to an investment. On a continued basis, our team monitors the ESG standing of the portfolio companies to make sure they meet our standards. Finally, we engage in an ongoing dialogue with the companies on ESG matters to better inform our judgments, and to positively influence ESG policies and reporting.

SDG Scope

In regards to the SDGs, we make an effort to directly contribute to SDG 3, Good Health and Well-being, by investing in, and thereby stimulating, innovation and groundbreaking scientific research in the public life science industry. Emphasis is then put on SDG 9, Industry, Innovation and Infrastructure, as well as on other social and environmental SDGs, particularly Clean Water and Sanitation (SDG 7); Climate Action (SDG 13); Gender Equality (SDG 5) and Responsible Consumption and Production (SDG 12). Companies that are counterproductive to any of the Goals score negatively on our Screening. Conversely, companies that contribute to other SDGs in addition to “Good Health and Well-being” will perform better on our Sustainability Analysis.

“Promoting sustainable industries, and investing in scientific research and innovation, are all important ways to facilitate sustainable development.”

SDG 9 “Industry, Innovation and Infrastructure”

Our SDG orientation helps us align our Responsible Investments Strategy with the UN PRI and the two imperatives of sustainable finance, as outlined by the EU High-Level Group on Sustainable Finance.¹ The first imperative is to improve the contribution of finance to sustainable and inclusive growth. The second is to strengthen financial stability by incorporating ESG factors into investment decision-making.

ESG and Pharmaceutical Companies

Our overall approach to evaluating companies on ESG matters is generally the same, but we emphasize slightly different factors depending on the sub-sector. Arctic Aurora LifeScience invests in global large pharmaceutical companies (“big pharma”), large-cap biotech and small- and mid-cap biotech companies. As for pharma companies, controlling often the entire supply chain of their drugs, some of the most material ESG risks we consider are safe and ethical product development, business ethics, access-to-medicine orientation, and environmental management in the entire product life cycle. Pharma companies cover a wider range of operations—from research and development, to production and marketing—and are consequently subject to a variety of laws and regulations, giving the aforementioned ESG factors major financial materiality.

¹ The EU High-Level Group on Sustainable Finance (HLEG) was established by the EU Commission in late 2016 to help develop an overarching and comprehensive EU roadmap on sustainable finance.

Access to Medicines

As developers and distributors of life-saving products, pharma companies are equipped to target mass markets. Thus, they possess stronger resources to secure access to medicines to relevant patient groups worldwide, which includes improving access in the least developed countries. In our evaluation of access orientation, Arctic Aurora LifeScience consults the Access to Medicines Index, founded by the Bill & Melinda Gates Foundation and the UK and Dutch governments. The Index assesses and compares the top 20 research-based pharma companies on the range of business activities that relevant stakeholder group representatives deem most relevant to improve access to medicines in low- and middle-income countries.^{vi}

Climate Impact

Arctic Aurora LifeScience seeks to invest in companies committed to mitigating their climate and environmental impact, as climate change and environmental damage present major operational risks to drug development business and a sustainable planet. We consider the companies' concrete programs and goals to improve their environmental management, as well as their progress on KPIs over time. For deeper insight into the companies' climate change and water management, we consult the CDP, formerly the Carbon Disclosure Project. As the most comprehensive collection of self-reported environmental management information, the CDP scores companies' level of disclosure, awareness, management and leadership in given environmental areas.^{vii}

The pharma companies in which we are shareholders have made significant efforts over the past decade to increase resource efficiency, through systemic prevention and successful management. Among several highlights, all current pharma investees—representing about 32% of the market capitalization of the MSCI World Pharmaceuticals, Biotechnology and Life Sciences Index—achieved a letter grade B or higher on the 2017 CDP Climate and Water Lists. Six of these companies managed to reduce their total greenhouses gas (GHG) emissions (in CO₂e), ranging from 8.3% (Pfizer) and 27.3% (Bristol-Myers Squibb), from the first year of public reporting and by the last. Clear goals have been set by each company to further reduce their environmental impact in the coming decades.

Environmental Performance among Pharmaceutical Investees²

	GHG emission reduction	Waste reduction	Water use reduction	Share of sustainable energy	CDP Climate List	CDP Water List
Roche Holding AG				19%	A-	A
Merck & Co., Inc.				1%	A-	B
Pfizer Inc.				N/A	B	B
Novo Nordisk A/S				79%	A	F ³
Novartis International AG				N/A	A-	A
Bristol-Myers Squibb				N/A	A-	B
Eli Lilly and Company				N/A	B	A-

Score B on climate change on the CDP signifies ‘management’ and A ‘leadership’ in i) the level of detail and the comprehensiveness of the company’s responses, and ii) the company’s awareness of climate issues, management methods and its progress on acting on climate change. Leadership status in water management is awarded to companies pursuing best practices in water stewardship. These include regularly measuring, monitoring and disclosing more than 75% of all water withdrawals by source, discharges by destination and consumption; requiring suppliers to report water use, risks and management; identifying and capitalizing on water-related opportunities; placing responsibility for disclosure and management at the highest decision-making level in the company; and implementing a country-wide, publicly available water policy.^{viii,ix}

Furthermore, pharma companies ought to properly manage bio-waste and emissions of environmental persistent pharmaceutical pollutants (EPPP) in the entire product life cycle. Awareness and regulatory scrutiny is evolving to address the leakage of such pollutants into water and on land. Arctic Aurora LifeScience works to select companies that adhere to established safety protocols and that exhibit management and leadership through clear phase-out policies on substances of concern and development of viable alternatives.

² Based on CDP or most recent public company-reported data. Green = positive trend, yellow = stable, red = negative

³ Companies that are asked to participate but do not submit a response automatically receive an F.

ESG and Small and Mid Cap Biotechnology Companies

Material ESG factors in the pharma sector are just as relevant to large-cap biotech companies due to their similar scope and operations. ESG reporting by both big pharma and big biotech has advanced sustainability analysis in these sub-sectors. However, when it comes to smaller, often non-revenue-generating biotech companies that predominantly focus on the R&D stage of drug development business, our task is a little different. Sure, core long-term success factors are just as relevant to smaller biotech, such as safety during preclinical and clinical development and research focus. However, the perceived irrelevance of standard ESG factors, partly due to the minimal environmental impact of the R&D activities, in this sub-sector thus far means traditional sustainability scores seldom capture their true performance.

In response to this scenario, Arctic Aurora LifeScience has developed a holistic approach to assessing the ESG performance of small- and mid-cap biotech companies. This version of our Responsible Investments Strategy details the way Arctic Aurora LifeScience defines a sustainable biotech company; determines material ESG criteria and indicators of ESG management in this sub-sector; and takes active ownership of our holdings by engaging with the companies on ESG policies and reporting. The purpose of this report is to provide a framework and recommendations for evaluating sustainability in the biotech sector, thus encouraging a greater awareness of sustainability issues in the drug development industry.

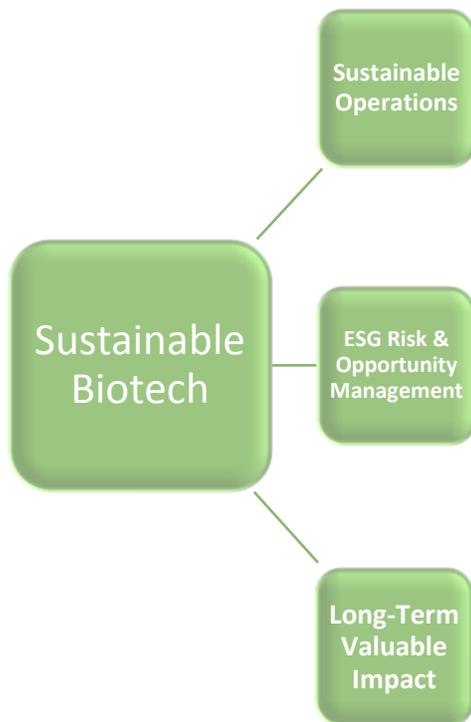
Arctic Aurora LifeScience believes the answers to key societal issues regarding healthcare are being addressed by biotech companies. The industry is currently seeing profound new knowledge, resulting in novel therapeutics for previously unmet medical needs. We hope our report provides insight into the value potential of investing responsibly in biotech—for investors, companies, patients and global sustainable development.

The Sustainable Biotechnology Model

Our approach to investing in the biotech sector revolves around our sustainable biotech model. Arctic Aurora LifeScience believes the sustainability of a biotech depends on three aspects: i) sustainability of operations, ii) management of material ESG risks and opportunities, and iii) viability to drive long-term valuable impact as measured by the SDGs. With these three aspects, the model highlights the significance of a company’s current sustainability, its strategy to achieve sustainability, and its contribution to the Global Goals.

Considering a company’s larger sustainability context provides an additional window of information on the long-term risks faced by the companies, and their potential for sustainable success. We believe that a company striving for sustainability is more likely to generate stronger financial returns as well as positive social impact.

The three aspects are intertwined. For example, the potential to provide long-term positive impact to human health depends on the company’s current and future strategy for managing ESG factors (in addition to financial factors.)



The biotech currently manages its resources in a sustainable manner from an environmental, social and corporate governance perspective.

The biotech exhibits a strong adaptability and competitiveness among peers, by building and maintaining strategic resources for the future through risk management and innovation.

The biotech is viable to provide clear health benefits to society by preventing or treating diseases, preventing death, or providing socioeconomic benefits through treatment, as measured by the SDGs.

Screening

The first step of our Responsible investments Strategy is a Screening of potential investees. The Screening assists our exclusion of unsustainable companies, and is based on general ethical concerns and ESG issues pertinent to the sector. Such issues present major risks to the company and their future financial returns.

Arctic Aurora LifeScience does not invest in companies that are responsible for, contribute to, or have inadequately responded to previous incidents of, unethical conduct, such as serious or systematic violations of human rights, severe environmental damage, acts or omissions that lead to unacceptable levels of GHG emissions, gross corruption, or other serious ethical issues.

Safety and ethical conduct in all steps of the drug development process is of utmost importance. We screen out biotech companies that do not adhere to preclinical and clinical protocols. This also includes companies that poorly manage bio-waste and emissions of environmental persistent pharmaceutical pollutants (EPPP) leading to severe ecotoxicity.

Furthermore, we exclude companies that practice dishonest communication of testing results, or if there are major ethical concerns regarding their current pricing policies. While we recognize the potential health value of germline treatment of diseases, we do not invest in companies involved in gene manipulation of fetal diseases.

Exclusion Criteria

STANDARD EXCLUSION CRITERIA	EXCLUSION CRITERIA SPECIFIC TO BIOTECH
VIOLETION OF HUMAN RIGHTS (S)	VIOLETION OF PRECLINICAL OR CLINICAL PRACTICES (E, S, G)
SEVERE ENVIRONMENTAL DAMAGE (E)	DISHONEST COMMUNICATION OF RESULTS (G)
UNACCEPTABLE GHG EMISSIONS (E)	UNETHICAL PRICING POLICIES (S, G)
GROSS CORRUPTION (G)	GENE MANIPULATION OF FETAL DISEASES (E, S)
OTHER SERIOUS ETHICAL BEHAVIOR	

To identify any major risks, our team also examines the company's media history. We may decide to invest in companies that have adequately responded to past incidents of unethical conduct. Adequate responses entail new or reformed policies and processes that have provably removed or even reversed the stakeholder damage, and clear steps to prevent such breaches in the future. If an ethical crisis should arise, Arctic Aurora LifeScience will either divest of holdings or, when possible and appropriate, engage with the company until they sufficiently improve.

Arctic Aurora LifeScience seeks to invest in companies with high ethical standards and transparent and sound governance with a strong awareness of their global impact. As of now, we have invested in European and U.S. markets only. Based on historical short falls, we have decided not to invest in pharma and biotech in emerging markets until we can evaluate fully and accurately the ESG performance of these companies.

Sustainability Analysis

Once we have screened out companies that face one or several major ESG risks, we perform an extended Sustainability Analysis to evaluate the companies' ESG management. In essence, we identify material ESG risks, the degree to which companies are exposed to this risk, and how they manage the risk. We consider the company's publicly disclosed evidence of programs, progress and targets to capture ESG opportunities and mitigate risks where relevant, and may request data from companies directly.

We choose material factors based on industry trends and success factors in the industry. Factors specific to the small- and mid-cap biotech sector encompass four areas we deem highly relevant to their long-term financial performance and sustainability. These include Innovation Capability, Safe and Ethical Product Development, Corporate Governance, and Access to Health. Criteria and indicators used to measure them are summarized in our scorecard below.

Scorecard

Innovation Capability	Indicators	Score
Research focus	Orphan Drug Designation; Breakthrough Therapy Designation; approval	
Innovative pipeline	Percentage of internally innovated product candidates	
Experimental drugs showing promise in clinical testing for severe diseases	Positive phase II data	
Investments in R&D	Percentage of R&D expenses of total budgets; percentage of R&D employees	
Highly skilled and educated employees	Percentage of PhDs	
Talent retention	Annual employee turnover rate	
Safe and Ethical Product Development	Indicators	Score
Transparency of study protocols and procedures	Informative press releases; clinical trials in countries of high safety and ethical standards	
Qualified clinical investigators overseeing adm. of experimental compound	Evaluation by Regulatory Authorities	
No errors, omissions, or violations of regulatory systems to our knowledge	Evaluation by Regulatory Authorities	
Corporate Governance	Indicators	Score
Board quality and diversity	Diversity; relevant composition to biotech. Pref separation of CEO and Chairman role	
Board independence	Percentage of board members independent from biggest shareholders	
Fair executive compensation structure, including CEO's remuneration	Relative to industry average	
Adequate degree of transparency	Informative public communication; good IR communication	
Sound ethical mission and values		
Access to Health	Indicators	Score
Fair preliminary market access strategy	Sound price in relation to clinical and socioeconomic benefit; value-based reimbursement	
Fair pricing policies	See the above	

Innovation Capability

A highly innovative company is more apt to provide meaningful impact to the population. We emphasize the company's research focus, as we aim to invest in companies that develop treatments for diseases of high medical needs. Innovation capability refers to a company's ability to discover and develop more cost-efficient and efficacious treatments through original thinking and more effective management of competitive resources.

Involvement in programs such as the Orphan Drug Designation and Breakthrough Therapy Designation is a clear indicator of innovation. The assignment of orphan status to a disease or any treatment used to treat it encourages the development of drugs that otherwise lack sufficient profit motive and market—typically because the given medical condition is rare. Orphan status makes it easier to gain marketing approval for drugs or may allow for market exclusivity for an extended period of time. Breakthrough therapy designation is a process designed to accelerate the development and review of drugs against serious or life-threatening diseases. A company may be granted the designation if preliminary clinical evidence indicates possible improvement over available therapies.

An innovative pipeline with a high percentage of internally innovated product candidates stems from substantial investment in R&D and highly skilled and educated employees. Therefore, the percentage of R&D expenses relative to total budget, the number R&D employees relative to total employees, and the percentage of PhDs in the R&D organization are considered. Finally,

we look at the company's human capital management and annual employee turnover rate to get a sense of the company's talent retention.

Safe and Ethical Product Development

Justification for the commercial development of drugs relies on clinical safety and ethical conduct in every stage of the drug development process. Safe and ethical product development is practiced by adhering to study trial protocols that avoid activities that do harm to the people or animals involved, or the environment. Companies may face direct or indirect financial losses through fines, penalties, litigations or reputation damage, unless they work in accordance with requirements, standards, guidelines, and ethical codes. As such, companies ought to employ qualified clinical investigators overseeing the administration of the experimental drug to avoid study errors, omissions or violations. Transparency regarding study protocols and procedures is key, and the extent to which the companies prioritize safety is reflected in their public press releases and investor relation communication.

Corporate Governance

Long-term performance depends on the quality of the company's corporate governance, which refers to the mechanisms, processes and relations by which the company is directed. Governance quality determines the company's risk management and strategy oversight regardless of the company's size and stage. We believe a company is better off with a board that is diverse and qualified for the stage at which the company is. The board must be independent from the largest shareholders in the company, and there must be a fair compensation structure in place, indicating a large degree of business ethics. Good governance is reflected in the mission and values of the company. We highly emphasize the degree of transparency between the company and the public and investors, as it reveals the extent to which the company follows its mission and values.

Access to Health

Biotech companies play a part of the multifaceted challenge, involving many different actors, of securing access to the medicines they develop to relevant patient groups worldwide. We consider the company's preliminary market access strategy to reach those patients. When the company does receive approval for commercialization, we analyze its final market research and subsequent pricing policy in relation to clinical benefit. Pre-market strategies and pricing models must be equitable. A positive access determinant is the inclusion of treatments in value-based reimbursement programs in which patients pay according to clinical outcomes. The goal of these programs is to reward the company with incentive payments for the quality of treatment, and to offer a financial protection mechanism for the patients.

Innovation Capability: Substantial impact in public life science requires a remarkable degree of innovation; novel thinking and way of doing make companies more apt to develop leading-edge treatments for unmet medical needs.

Safe and Ethical Product Development: Safety in humans and with regards to society justifies commercial development of drugs. Companies may face direct or indirect financial losses unless study procedures meet safety requirements.

Corporate Governance: Overall performance correlates to good corporate governance regardless of the company's size and stage, allowing for proper risk management and strategy oversight.

Access to Health: Relevant patient groups worldwide must have access to the drugs in order for the biotech to provide long-term health and socioeconomic benefits to these patients and society.

Research Focus

Innovative pipeline
 Promise in clinical testing for severe diseases
 Investment in R&D
 Highly skilled employees Talent retention

Transparency of protocols and procedures

Qualified clinical investigators

Adherence to regulatory systems

Sound pollution management

Board quality and diversity

Board independence

Compensation structure

Transparency

Sound ethical mission and values

Equitable pricing model in relation to socioeconomic and clinical benefit

Value-based reimbursement programs

Investment Selection

Our screening and extended ESG analysis provide a more expansive view of the long-term risks and opportunities faced by potential investees. We use these insights to inform our decision-making, and seek to select companies with good performance relative to peers. A good score may be given to companies yet to have unlocked their full potential for sustainable operations if they demonstrate a commitment to improve the management of material ESG issues in the long-term.

Monitoring & Engagement

Due to our long-term investment horizon, we opt to pursue a working relationship and conversation with the portfolio companies. An active and transparent dialogue enhances our ability to evaluate companies, select high-grade candidates, and monitor companies' standing. For example, it is often the case we need to ask the smaller biotech companies to disclose relevant ESG data so that we can better inform our judgments of their risk exposure and management. By promoting ESG disclosure, we aim to create awareness around ESG issues material to the given company and the life science industry as a whole.

In addition to using our proxy vote on issues we deem relevant, we survey investees on ESG issues pertinent to their business on a biannual basis. Engagement in the ownership process facilitates positive outcomes for both investors and company investees. Evidence suggests such engagement can enhance stock price performance by an average of 7.1% over an 18 month period.^{ix} This green alpha⁴ is exactly what Arctic Aurora LifeScience seeks to capture by taking account of ESG considerations in our investment.

If we believe it would benefit long-term performance, we may decide to engage in a conversation on one or more ESG goals when possible and appropriate. If the companies do not take action on material ESG issues, we will divest of holdings.

In our previous survey of selected small- and mid-cap biotech investees, we asked about indicators of innovation and environmental impact. We were pleased with our responses, which indicated a continued high degree of innovation, and an increased awareness of environmental impact in decision-making processes. Most of these companies have limited environmental impact due to their size and operations, yet several companies are in the process of developing environmental targets. Furthermore, several companies stated they will be developing ESG policies in the near future.

⁴ "Green alpha" quantifies the proportion of total ungeared differential returns from an individual asset investment can be attributed to sustainability and energy efficiency initiatives

Reflections and Discussion

In addition to evidence that links investor engagement and rise in stock price, there is growing empirical evidence that suggests the management of material ESG factors leads to stronger financial performance. According to the University of Oxford and Arabesque Partners, the incorporation of sound ESG standards has shown to benefit operational performance of companies as well as lower the cost of capital.^x In a study by Klassen and McLaughlin, evidence strongly suggests strong environmental management has a positive impact on financial performance as measured by stock market performance.^{xii}

Arctic Aurora LifeScience has delivered strong returns since its inception two years ago, and as of 31st of August 2018, the fund's USD class has reached a return of approximately 37% which is 19% better than the benchmark. ESG considerations is part of our broad investment process and so while one cannot attribute the fund's outperformance solely to ESG integration, the cases where our ESG analysis has definitely facilitated successful investments are increasing.

Innovation has been a determining factor in the potential for value growth and stock price performance, as deduced by the returns of the portfolio by sector. Our heavy emphasis on the development of treatments that are more efficacious and cost-efficient than ever, has meant picking the most innovative biotechnology companies, one example being the U.S. biotech, Kite Pharma, Inc. As one of the two first companies to successfully develop immune cell therapy that is now being used by patients, Kite Pharma saw their share price rise nearly threefold from when it was included in our inaugural portfolio (May 2016) to 15 months later when the company was acquired by Gilead Sciences.

Several of our other investments in biotech that tackle oncology have delivered returns of more than 100% since Arctic Aurora LifeScience's initial investments. The underlying genetic causes of cancer have never been better understood, and completely new treatment methods have raised the bar for precision and efficaciousness. For example, it is only about a year ago that the first treatments in which the patient's own immune cells are extracted and loaded with new genetic material to effectively kill cancer cells, and then reintroduced to patients—eradicating cancer cells at an unprecedented rate—were approved for commercial use. While many obstacles remain before cancer can be effectively cured or managed as a chronic disease, we have witnessed staggering improvements with new treatments, offering glimpses into the future of cancer treatment.

Furthermore, we see more and more cases where the identification of major ESG risks has facilitated successful investment risk management and outperformance. Examples include exclusions of companies with little R&D yet growing revenues due to unjustified price increases of older drugs—simply put, business models we deem unsustainable. One of the most

prominent examples is our exclusion of Valeant Pharmaceuticals (now Bausch Health Companies Inc.) prior to constructing the inaugural portfolio. Valeant, whose drug prices and accounting practices went on to face scrutiny from lawmakers, health insurers, and the general public, lost 97% of its market cap within 18 months.

Afterword

The path towards global sustainable development is a dynamic process where the financial industry plays a pivotal role. Consequently, Arctic Aurora LifeScience views sustainability evaluations as an ongoing process subject to constant improvement. The purpose of this report on Responsible Investments in Life Science is to pave the way for more robust evaluations of ESG management of small- and mid-cap biotechnology companies, and underline the multifold value potential of responsible investing in public life science.

In doing so, we encourage stronger measuring and reporting practices by company investees so as to facilitate such evaluations and clear sustainability targets. Shareholders ought to take active ownership and promote sustainable business practices—from which both the investor and company investee may financially benefit. Going forward, we encourage cooperation and innovation on sustainability matters between companies, shareholders, financial institutions, rating agencies, governmental agencies, and other relevant stakeholders to finance a sustainable planet.

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