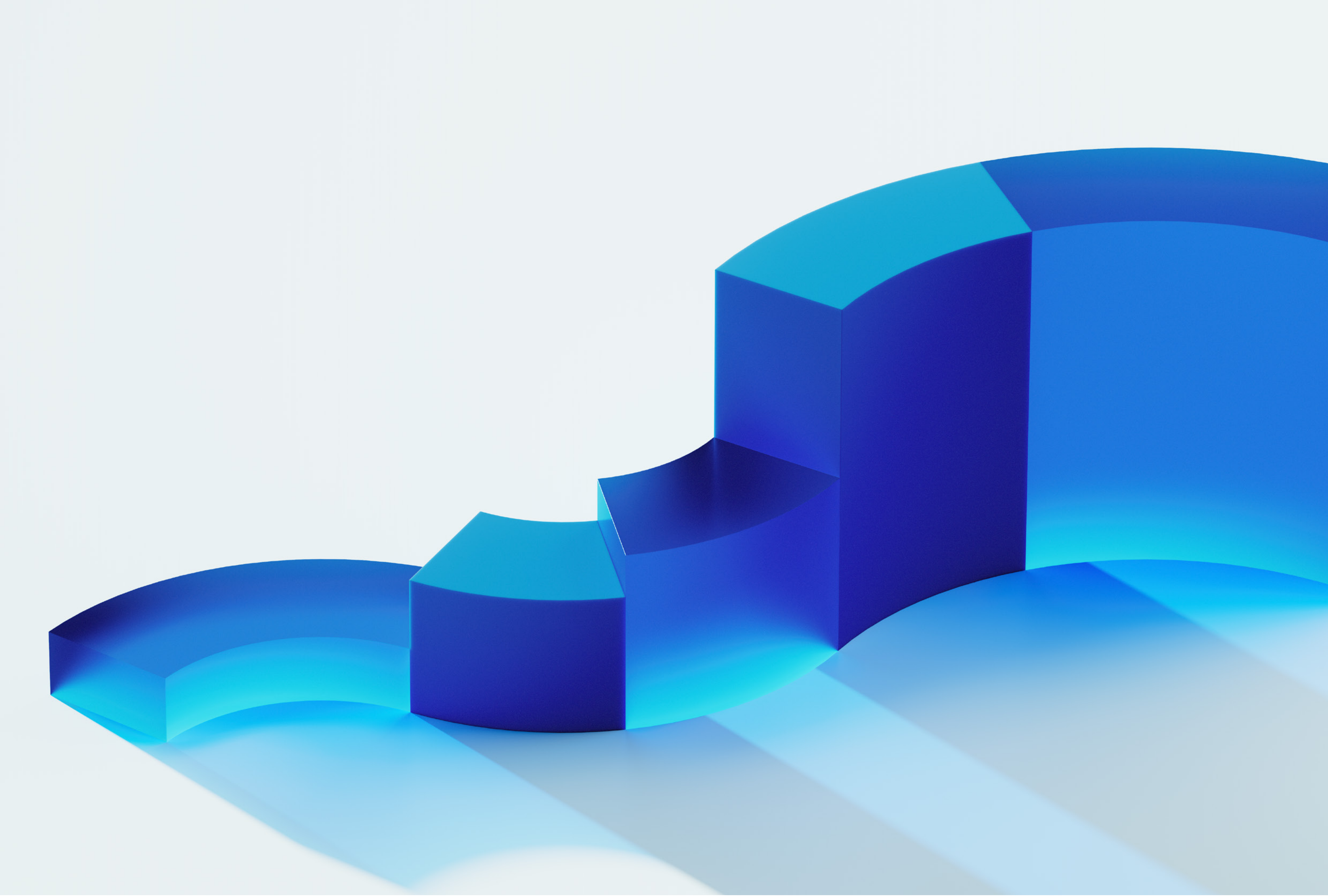


Allocating capital to drive positive change

An investment framework for facilitating the transition to a sustainable and inclusive economy

April 2023

J.P.Morgan
ASSET MANAGEMENT

Contents

Introduction

Addressing the world's most pressing environmental and social challenges requires bold action if the worst systemic threats are to be avoided. Collective and coordinated action is needed by government entities, private institutions and individuals across the globe.

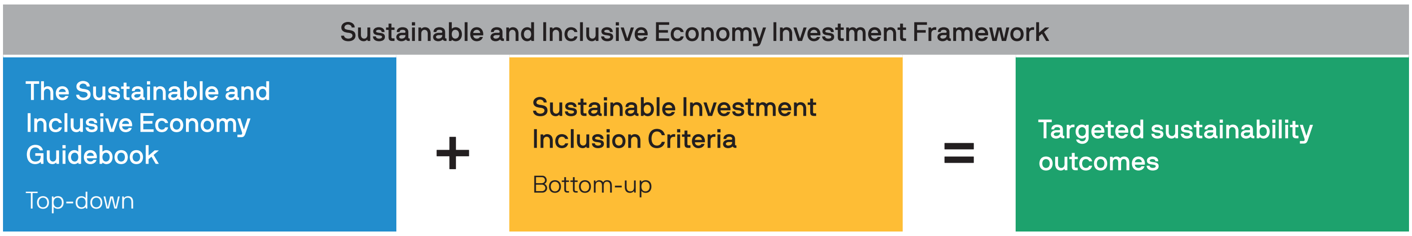
While the task ahead appears daunting, we do have more solutions than ever before at our disposal. For example, long-term secular shifts – such as technology advancements, greater electrification and consumer preference for healthy foods – continue to disrupt every industry around the world, providing tailwinds that position the companies that are leading the adoption of sustainable business activities for tremendous growth.

For investors, there has never been a more exciting time to invest in financially attractive opportunities that are driving the transition to a sustainable and inclusive economy. However, effective stock selection is critical to achieve targeted environmental and social outcomes, while also maximizing investment returns.

In this paper, we look in detail at the process that guides investment decisions across our outcome-driven investment solutions. We first describe why sustainable investing[1] is so important, and show how investors can influence positive change through the efficient deployment of outcome-driven capital.

We then provide a detailed overview of the Sustainable and Inclusive Economy Investment Framework that J.P. Morgan Asset Management's Sustainable Investing team has created to facilitate the intentional deployment of outcome-driven capital at scale (**Exhibit 1**).

Exhibit 1: J.P. Morgan Asset Management Sustainable and Inclusive Economy Investment Framework



Source: J.P. Morgan Asset Management. For illustrative purposes only.

[1] J.P. Morgan Asset Management takes a global approach to sustainable investing, and the solutions offered through our sustainable investing platform meet our internally defined criteria for a sustainable investment. The evolving nature of sustainable finance regulations and the development of jurisdiction-specific legislation setting out the regulatory criteria for a "sustainable investment" or "ESG" investment mean that there is likely to be a degree of divergence as to the regulatory meaning of such terms. This is already the case in the European Union where, for example, under the Sustainable Finance Disclosure Regulation (EU) (2019/2088) certain criteria must be satisfied in order for a product to be classified as a "sustainable investment." Any references to "sustainable investing," "SI" or "ESG" in this document are intended as references to our internally defined criteria only and not to any jurisdiction-specific regulatory definition.

The need for sustainable investing

Sustainable investing has grown over the last decade to the point where sustainable assets account for over one-third of all investment strategies globally.[2]

The sustainable investing phenomenon comes against the backdrop of massive economic change. From the way in which people communicate with each other, to the way in which we create the products that support and improve our lives, several long-term secular trends are transforming the way in which the global economy works.

Some of these changes are positive shifts that are revolutionizing the very way we are able to think about the world – for example, medical enhancements that are extending and increasing the quality of life for once fatal prognoses, or digital connectivity that is allowing colleagues across Hong Kong, London and San Francisco to collaborate and innovate with the click of a mouse.

However, not all change is positive. The proliferation of cheaply produced plastic goods, as one example, has created unprecedented quantities of waste that is polluting our natural environment and slowly seeping into the food we eat. As the global economy continues to grow and develop, strategies must be put in place to ensure that the natural environment is protected, while also improving access to health care and education, reducing inequality and tackling climate change.

In 2015, the United Nations' Sustainable Development Goals (SDGs) provided a much-needed blueprint for countries around the world to end poverty, protect the planet and ensure that all peoples enjoy peace and prosperity. The rise of sustainable investing has coincided with the increasing adoption of the SDGs, which today serve as a call to action for the global investment community.

The aim is clear: to create a more inclusive and sustainable global economy that is prosperous for all.

The role of the investor and outcome-driven capital

As investors, we seek to efficiently deploy capital toward the most compelling investment opportunities, with the financial markets being the tool by which we drive forward the direction of the economy. Capital is funneled toward attractive long-term opportunities while risks need to be appropriately mitigated.

Outcome-driven investment strategies that target specific environmental, social and governance (ESG) issues tap into the growth of those companies that are helping to facilitate a more sustainable future, while also helping to mitigate the systemic risks posed by the environmental and social challenges we face. Outcome-driven investing therefore creates the opportunity for investors to gain exposure to attractive financial returns over the long term, while also addressing fundamental sustainability-related considerations that affect us all.

In short, the deployment of capital toward sustainability outcomes has the potential to allow investors to do well while also doing good.

[2] Global Sustainable Investment Alliance, 2020 Global Sustainable Investment Review ("Review"), which defines sustainable investment as "an investment approach that considers environmental, social, and governance (ESG) factors in portfolio selection and management." The Review uses an "inclusive definition" of sustainable investing, which includes ESG integration, corporate engagement and shareholder action, norms-based screening, negative/exclusionary screening, best-in-class/positive screening, sustainability themed/thematic investing, impact investing and community investing.

The Sustainable and Inclusive Economy Guidebook

The first stage of our Sustainable and Inclusive Economy Investment Framework is to identify sustainability challenges and the business activities we believe will drive the transition to a more sustainable future. To do this, we've designed our centralized and top-down Sustainable and Inclusive Economy (SIE) Guidebook.

Identifying current environmental and social challenges

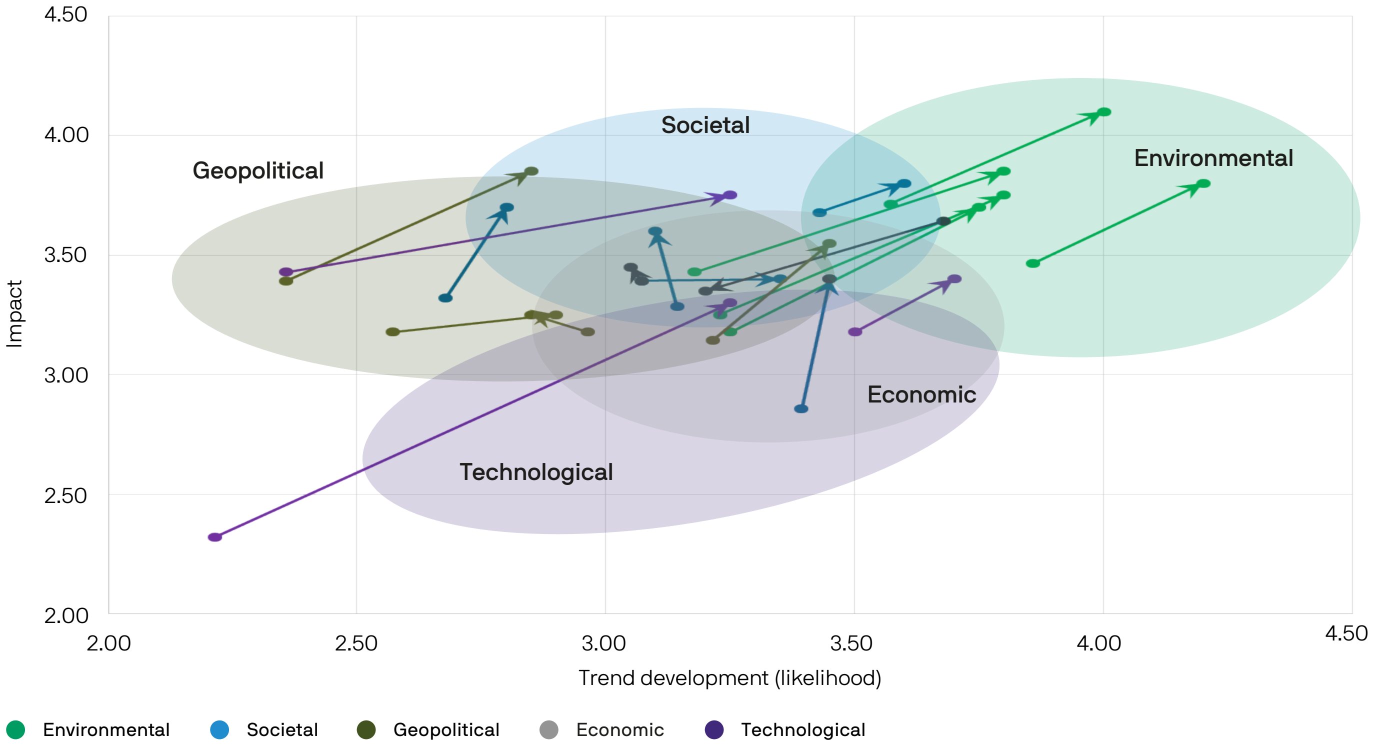
The SIE Guidebook aims to identify the key risks and challenges to the creation of a global economy that supports equal opportunities and sustainable ecosystems. The SIE Guidebook also analyzes the positive effects – and unintended consequences – of each of these challenges, and scrutinizes their second- and third-order implications.

We seek to identify and evaluate key global environmental challenges by consulting research across a diverse range of leading sources, including the United Nations, the World Health Organization and the World Economic Forum, among others.

As one example, tracking global risks identified by the World Economic Forum[3] over the past decade has allowed us to target the main categories of risks that threaten the way the world operates today: environmental, societal, geopolitical, economic and technological (see **Exhibit 2**).

Evaluating the evolution of global risks by perceived likelihood and perceived impact over the past decade depicts a clear and present trend of key risks increasing in terms of both likelihood and impact.

Exhibit 2: Evolution of World Economic Forum global risk categories from 2014 to 2020



Source: World Economic Forum, "The Global Risks Report 2021" (16th Edition), J.P. Morgan Asset Management.

[3] The World Economic Forum (WEF) annual Global Risk Report sources original risk data from its Global Risks Perception Survey. Survey responses are collected annually from the WEF's multistakeholder communities, professional networks of its advisory boards and members of the Institute of Risk Management. The responses of these results are aggregated to show the degree to which key issues are perceived to pose global risks in terms of likelihood of occurring, and global risks in terms of perceived potential impact if they are realized. This chart shows data sampled from 2014 and 2020, depicting data from both time periods to show how trends have evolved during those two time periods.

The Sustainable and Inclusive Economy Guidebook continued

By combining the goal for a global economy that supports equal opportunities and sustainable ecosystems with the insights gained from our in-depth industry analysis, our SIE Guidebook identifies the seven environmental and social challenges that we consider most critical for achieving the sustainability outcomes we seek: preserving biodiversity; managing climate risk; constructing resilient transportation/ infrastructure; ensuring responsible production and consumption; building inclusive digital infrastructure; enhancing health and well-being; and fostering social advancement (see **Exhibit 3**).

Meeting each of these environmental and social challenges can help further a global economy that supports equal opportunities and sustainable ecosystems. However, left unchecked, these seven global challenges could potentially have a devastating impact on our society and deplete the natural resources that sustain life on this planet.

The SIE Guidebook is built on the belief that addressing these global challenges is critical to creating a world in which all stakeholders can survive and thrive. It has been designed to help transform these global challenges into avenues for durable and effective innovation, so that we can efficiently allocate capital to finance the construction of a more resilient world.

Solving for global challenges: Sustainable business activities

Over the last two centuries, our economic system has evolved to identify the most efficient means of distributing resources, goods, services and information across multiple channels. Although complex, these economic structures – both current and under development – facilitate the business activities on which we can build a more sustainable future.

To help allocate capital efficiently and meet targeted sustainability goals, we identify existing business activities that address each of the seven global challenges. These sustainable business activities form the building blocks for each of the pillars of our SIE Guidebook. They are in turn aligned with specific SDGs and must be assessed using targeted sustainability metrics (see **Exhibit 4**).

For example, investments in resources, goods and services that are conducive to reforestation can help in preserving biodiversity. Investments that protect natural capital help allow flora and fauna to flourish, which addresses a range of other related issues, such as pollution and air quality, or large scale industrial agriculture. Investments in suppliers of sustainably sourced materials and sustainable product designers can help ensure responsible production and consumption across the value chain.

In short, the SIE Guidebook seeks to help us allocate capital efficiently by looking across the economic landscape for sustainable business activities that support targeted sustainability goals – while also highlighting sustainable innovations that are being developed.

Exhibit 3: Defining the seven global challenges and the sustainability outcomes we seek

Global challenges	Intended outcomes
Managing climate risk Preserving biodiversity Retrofitting and constructing resilient transportation and infrastructure Ensuring responsible production and consumption	Sustainable ecosystems
Building inclusive digital infrastructure Enhancing health and well-being Fostering social advancement	Equal opportunities

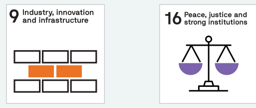
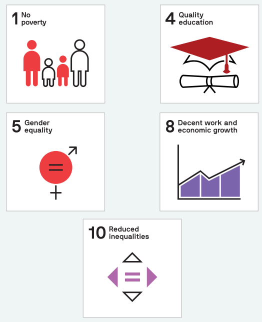
Source: J.P. Morgan Asset Management. For illustrative purposes only.

The Sustainable and Inclusive Economy Guidebook continued

Exhibit 4: The building blocks of a sustainable and inclusive economy

Global challenges	Sustainable business activities that help to address these challenges		Intended outcomes	UN SDG alignment
Preserving biodiversity	Material sourcing focusing on ecological risk, water and waste management Land, marine and biodiversity management Protection and restoration Pollution and air quality Reforestation/deforestation Environmentally sustainable agriculture	Environmentally sustainable animal husbandry Climate-resistant agriculture Sustainable food	Sustainable ecosystems	12 Responsible consumption and production 14 Life below water 13 Climate action 15 Life on land
Managing climate risk	Information support systems Conversion equipment Climate research and development Low-carbon technology Negative emission technologies Storage	Climate change adaptation Energy transition management Renewable energy use		11 Sustainable cities and communities 13 Climate action
Retrofitting and constructing resilient transportation/ infrastructure	Sustainable transportation (electric vehicles, sustainable trains/airplanes, etc.) Autonomous vehicle companies Infrastructure for new transportations Low-carbon economy infrastructure Energy efficiency Mass transit initiatives Railway transition	Waterway transportation Passenger car alternatives Electric and hybrid vehicles Infrastructure for clean transportation		7 Affordable and clean energy 11 Sustainable cities and communities 9 Industry, innovation and infrastructure 13 Climate action
Ensuring responsible production and consumption	Production of goods that ensure transition to a circular economy End-of-life management in product design Recycling and reuse Sustainable supply chains Sustainable material sourcing Preservation of natural resources	Cradle-to-cradle design Second life retailing		12 Responsible consumption and production

The Sustainable and Inclusive Economy Guidebook continued

Global challenges	Sustainable business activities that help to address these challenges		Intended outcomes	UN SDG alignment
Building inclusive and digital infrastructure	Cyber security research and development Data protection program research and development Physical and cloud-based data management enhancement Data privacy enhancement	Network resilience and data backup assurance Enhancing access to digital infrastructure	Equal opportunities	
Enhancing health and well-being	Toxic material removal Clean water provision and water sanitation services Infrastructure for clean water and water loss prevention Nutritious meal provision Protein-rich diet food development Nutrient supplement research and development	Food delivery systems for food security assurance Preventative medicine services Hygiene enhancing solutions		
Fostering social advancement	Promoting equal employment opportunities Promoting equal educational opportunities Promoting equal leadership opportunities Promoting equal financing opportunities: small and medium enterprise financing Microfinance program development	Educational financing services for affordable education Housing affordability programs Protection of workers' rights		

Source: For illustrative purposes only. The sustainable business activities detailed here are intended as references only and may not align with any jurisdiction-specific regulatory definition. This framework may change over time.

Sustainable Investment Inclusion Criteria

The SIE Guidebook is a centralized resource for all outcome-driven investment solutions globally and across asset classes. The SIE Guidebook itself, however, is product and security agnostic. In order to identify individual investment opportunities, we apply our Sustainable Investment Inclusion Criteria. This process allows us to screen the investable universe of equity securities, debt securities, private company prospective deals, loan prospects and real assets in a systematic manner to ensure capital is efficiently deployed to sustainable activities aligned to the SIE Guidebook.

To help determine that investment opportunities under review have the potential to make a significant contribution to a given product's targeted sustainability outcome(s), to drive attractive financial returns, our Sustainable Investment Inclusion Criteria process is comprised of two central evaluations: a top-down analysis of intentionality at the product level and a comprehensive bottom-up credibility evaluation of an individual security's product and service sustainability. Applying this process helps evaluate whether an individual company's contribution to product-specific sustainability outcomes can be measured and reported, providing transparency and accountability (**Exhibit 5**).

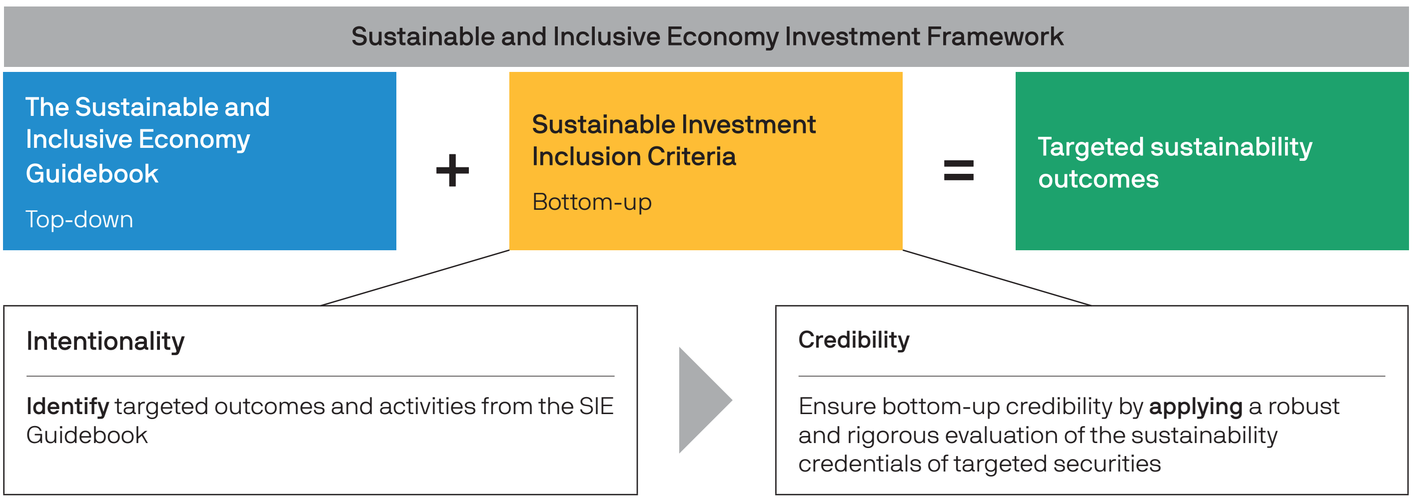
Top-down intentionality evaluation

The intentionality element demands our outcome-driven investment solutions specify the sustainability outcomes they aim to contribute to at the onset of the investment process. Working backwards, as we analyze potential investment opportunities, we want to be able to understand how closely a given company's business practices align with the challenges and solutions outlined in the SIE Guidebook, and ultimately the extent to which an individual investment may help us achieve the goal of a global economy that supports equal opportunities and sustainable ecosystems.

For example, when evaluating vehicle manufacturers, we look at the extent to which they are transitioning to the production of electric vehicles, with the understanding that the production of electric vehicles (the sustainable activity) is critical for reducing greenhouse gas emissions in the transportation sector. Ultimately, this activity helps to manage climate risk (one of our seven global challenges) by mitigating climate change, and it also contributes to more sustainable ecosystems (one of our two targeted outcomes).

Similarly, when it comes to forestry, investing in sustainable forestry practices (the sustainable activity) enhances the carbon sequestration capabilities of forests, reducing climate risk (again addressing the climate risk management challenge) and promoting more resilient or sustainable ecosystems (the targeted outcome).

Exhibit 5: Top-down intentionality and bottom-up analysis help drive sustainability outcomes



Source: J.P. Morgan Asset Management. For illustrative purposes only.

Sustainable Investment Inclusion Criteria continued

In health care, investing in innovative surgical equipment manufacturers (the sustainable activity) could help improve treatment experiences and reduce complications (the challenge), leading to an enhanced quality of life for patients and ultimately accelerating us toward a world of increased social equity for those struggling with health conditions (the targeted outcome).

Bottom-up credibility evaluation

Once we've identified the sustainability goal(s) and targeted sustainable business activities for a given product, we seek to gain a forensic understanding of the degree to which an individual investment's products and/or services contribute to a targeted sustainability outcome – with a focus on "why this company" in particular over its peers and competitors (see **Exhibit 6**).

Exhibit 6: Multi-dimensional asset level analysis

What	What products and services are provided, and why are they sustainable?
Who	Who is benefiting from these products and services?
Reach/scope	At what scale are these products and services delivered? How many products are delivered, and how extensively?
Additionality	Would this outcome have happened without these products or services?
Risks	Are there other business activities in other areas that would negate the positive environmental or social benefits created?
Outcomes	What is the resulting environmental or social outcome?

Source: J.P. Morgan Asset Management. For illustrative purposes only.

Our analysis leverages industry-leading frameworks, such as the Impact Management Project, the International Finance Corporation's Operating Principles for Impact Management and the Global Impact Investing Network's Iris+ metrics, among others. The aim is to provide a holistic understanding of a company's products and services.

We focus on the following factors: what products and services are provided, and why are they sustainable business activities; how are the company's products and services being produced in terms of managing the ESG risks they are exposed to and the negative externalities associated with these activities; who is impacted by the company's products; the reach/scope of the products offered and the benefits realized; and the extent to which any resulting environmental and/or social benefits are unique to that product offering, i.e. additionality.

This evaluation adds nuance to the top-down lens of the intentionality evaluation. We believe it is not enough to invest in a vehicle manufacturer that happens to offer a portion of its fleet as electric vehicles. The framework we have created dives deeper into publicly available data to understand how committed the vehicle manufacturer is to the low-carbon transition. When will the majority of its fleet be electric vehicles? Is it using any innovative sourcing materials that better manage natural resource use? To what extent are the carbon emissions of the entire fleet evolving?

As another example, a waste collection business should be evaluated not just by the extent of its recycling activities, but by the number of people impacted by its sanitation services. An operation in a well-established, suburban neighborhood of a developed country will have a very different impact than that of an operation in a developing country struggling with basic sanitation services. These questions, among many others, are the types of sustainability indicators that help us increase the potential for sustainability outcomes.

By focusing on identifying sustainability indicators and the sustainability outcomes we seek, our analysis allows for the comparison of companies across industries that otherwise might be difficult to review, where comparison points can otherwise be unintuitive, and forensic analysis can be subjective at best. For example, a plant-based meat-alternative manufacturer can be compared against a precision agriculture manufacturer by measuring the avoided emissions resulting from the reduction in fertilizer use and the increase in soil nutrient uptake.

Sustainable Investment Inclusion Criteria continued

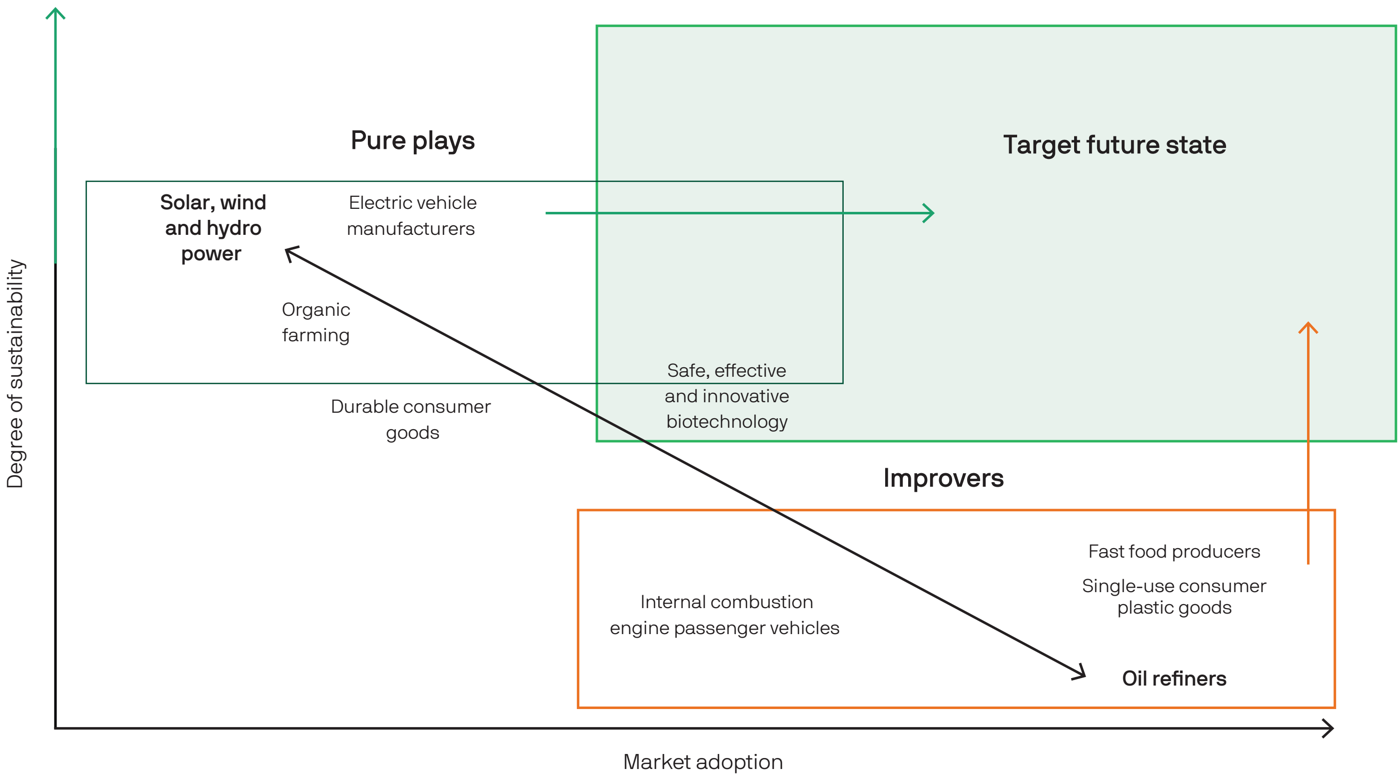
Sustainable business activity adoption

Inputs from many different types of companies are needed in order to help drive the transition toward a sustainable and inclusive economy.

To narrow down the opportunity set, our Sustainable Investment Inclusion Criteria framework is geared toward three types of companies that we believe can have a particularly large impact on sustainability outcomes: "pure plays," "facilitators" and "improvers."

"Pure plays" and "improvers" can be thought of as opposites on a spectrum of sustainable business activity adoption – and often have opposing degrees of market penetration (**Exhibit 7**). The way in which our economic system has been set up has created a distinct societal need for complex, sophisticated businesses that serve human interests of all sorts. However, the notion of placing improvers and pure plays at opposite ends of a spectrum is predicated on the fact that every industry and every company faces the commercial requirement to adapt to changing market dynamics.

Exhibit 7: Sustainable business activity and market adoption spectrum



Source: J.P. Morgan Asset Management. For illustrative purposes only.

Sustainable Investment Inclusion Criteria continued

Pure plays have a high degree of sustainability and rank well in the top-down intentionality evaluation. These companies have direct links to the seven global challenges identified by our SIE Guidebook, and we can invest in them now, given their alignment to positive change. However, the availability of companies identified as investable pure plays is still relatively limited, which can be challenging for portfolio design.

At the other end of the spectrum, improvers – such as fossil fuel companies, single-use plastic manufacturers and fast food producers – are embedded into the fabric of society; however, they often lag behind in terms of current sustainable business activity adoption. It is important to note that many companies in the improver category are critical for the transition to a more sustainable future and should not be faulted for their existing business practices where an improvement opportunity or focus has been identified.

Improvers are still accountable to directors looking to make strategic decisions, management responding to shifting consumer preferences and industry trends and shareholders increasingly demanding change. As such, when the intentionality evaluation holds, we seek targeted investments in these companies to be able to help drive accountability and to move us toward a more sustainable future. In effect, outcome-driven capital plays a key part in accelerating change. Improvers have the potential to become the sustainable businesses of tomorrow.

Achieving the transition to a sustainable and inclusive economy requires the broad adoption of both pure plays and improvers. We believe companies poised for long-term success must have the resilience and ability to adapt to changing market structures, allowing them to either forge ahead as a “sustainable pure play” or retrofit existing activities for more sustainable practices increasingly favored by the market.

The third category of company that our framework focuses on is “facilitators.” Companies and business activities do not exist in a vacuum. In fact, with an increasingly interconnected world, one could argue that sustainable business activities rely on inputs from several companies. For example, when assessing the adoption of solar power as a sustainable business activity, the profits made by solar power generators ultimately result from the collective efforts of panel material providers, solar panel manufacturers, retailers of solar panels, environmental consulting services firms that encourage installation and the installation companies themselves.

Our Sustainable Investment Inclusion Criteria acknowledge the contributions of the manufacturing chain and all the stakeholders involved in a particular business activity. As such, companies that serve as sustainability facilitators are credited for the role that they play in facilitating the transition to a sustainable and inclusive economy.

Bringing it all together: Targeted sustainability outcomes

By connecting key environmental and social challenges with the business activities that can help solve them, our SIE Guidebook and Sustainable Investment Inclusion Criteria form the Sustainable and Inclusive Economy Investment Framework through which we undertake security selection and make investments across our suite of sustainable outcome-driven products (**Exhibit 8**).

Exhibit 8: J.P. Morgan Asset Management Sustainable and Inclusive Economy Investment Framework

Sustainable and Inclusive Economy Investment Framework

The Sustainable and Inclusive Economy Guidebook Top-down	+	Sustainable Investment Inclusion Criteria Bottom-up	=	Targeted sustainability outcomes

The Sustainable and Inclusive Economy Guidebook — Top-down

Identify sustainability challenges and themes of focus with the goal of targeting solution providers

KEY CLIMATE CHANGE SOLUTIONS

Renewables & electrification
Companies developing clean energy such as wind, solar or hydro across the full production chain, and enabling electrification across the economy.

Sustainable construction
Companies developing less carbon-intense forms of construction, including energy efficiency of buildings.

Sustainable transport
Companies investing in sustainable forms of transportation across automobiles, trains and planes.

Sustainable food & water
Companies investing in less carbon-intense forms of agriculture, sustainable food or clean water.

Recycling & re-use
Companies developing technologies to reduce waste, including equipment and materials recycling.

Sustainable Investment Inclusion Criteria — Bottom-up

Apply a robust and rigorous framework to evaluate the sustainability credentials of targeted securities

What
What products and services are provided, and why are they related to the explicit sustainable objective?

Who
Who is benefiting from these products and services?

Reach/scope
At what scale are these products and services delivered? How many products are delivered, and how extensively?

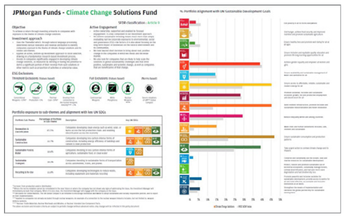
Outcomes
What does the development and adoption of these products and services result in? What is the specific environmental or social outcome that is generated by these products and services?

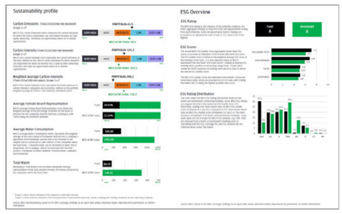
Risks
Are there other business activities in other areas that would negate the positive environmental or social benefits created? If so, is the company planning to address this, and what is the justification for remaining comfortable with the company.

Additionality
Would this outcome have happened without these products or services?

Targeted sustainability outcomes

Report the extent to which the portfolio contributes to the targeted solutions





Source: J.P. Morgan Asset Management. For illustrative purposes only.

Bringing it all together: Targeted sustainability outcomes continued

Measuring sustainable outcomes

While our Sustainable and Inclusive Economy Investment Framework helps us to allocate capital efficiently toward activities that generate positive environmental and social outcomes, the contribution of each investment to these outcomes can often be difficult to measure.

To identify relevant and appropriate sustainability indicators, we analyze internal and external data sources for individual indicators that can be used to demonstrate that a given business activity and/or practice contributes to a targeted environmental or social outcome. This research includes leveraging internal artificial intelligence tools and machine learning algorithms that use natural language processing and revenue attribution techniques to better understand the extent to which companies are engaged in sustainable business activities.

When the information needed to qualify an individual company's contribution to a given sustainability outcome is not readily ascertainable, we may also engage the company directly to better understand its involvement – current and planned – in specific sustainable business activities. The end result of these collective efforts is a growing database of over 300 sustainability indicators linked to all seven environmental and social challenges included in our SIE Guidebook.

Active bottom-up research informed by top-down insight

As active investors, our Sustainable and Inclusive Economy Investment Framework is founded on bottom-up analysis of companies and investments in which we have the opportunity to invest. Throughout the entire framework, we maintain our top-down goal to direct our investments toward companies that are adopting sustainable business activities and are delivering solutions that facilitate the transition to a more sustainable future, in a manner that we believe is both measurable and aligned to our sustainability goals.

The framework forms the foundation for individual security review across our outcome-driven investment solutions, globally and across asset classes.
The collective goal is to facilitate and enhance the deployment of outcome-driven capital into financially attractive investment solutions that drive the transition to a more sustainable future and cater to our clients' needs.

For more information on our SIE Framework, contact your J.P. Morgan Asset Management representative.

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