Task Force on Climate-Related Financial Disclosure

J.P. Morgan Asset Management
2024 Global TCFD Report

J.P.Morgan
ASSET MANAGEMENT

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Executive Summary

Scope and Purpose of Report

This report describes J.P. Morgan Asset Management's ("JPMAM", "Company", "we" or "our") approach to climate-related risks and opportunities (the "Report") with respect to its client accounts. Please note that JPMAM's approach to managing climate-related risks and opportunities in client accounts is separate from JPMorgan Chase & Co. (the "Firm", "JPMorgan Chase", "Firmwide") firmwide management of climate-related risks. Please note, although there is broad alignment across the J.P. Morgan group regarding climate risks and opportunities, JPMAM's approach is separate, considered with a fiduciary lens, and may differ for a variety of reasons from the approach taken by JPMorgan Chase.

All data in this Report is as of 31 December, 2023 with a reporting period of 1 January 2021 – 31 December 2023.

Who we are

JPMorgan Chase is a leading financial services firm based in the United States of America ('U.S.'), with operations worldwide.

As of December 31, 2023, it had USD 3.9 trillion in assets and USD 328 billion in stockholders' equity.

The Firm is a leader in investment banking, financial services for consumers and small businesses, commercial banking, financial transaction processing and asset management. Under the JPMorgan Chase brands, the Firm serves millions of customers in the U.S. and globally including many of the world's most prominent corporate, institutional and government clients.

J.P. Morgan Asset & Wealth Management is a global leader in asset and wealth management services. The Asset & Wealth Management line of business serves institutional, ultra-high net worth, high net worth and individual clients. With combined overall client assets of USD 5 trillion and assets under management of USD 3.4 trillion as of December 31, 2023, we are one of the largest asset and wealth managers in the world.

JPMAM is the marketing name for the investment management businesses of JPMorgan Chase and its affiliates worldwide. Unless otherwise noted, the focus of this report throughout is on JPMAM.[1,2]

[1] In 2023, JPMAM acquired 100% ownership of its former China joint venture, which has now been renamed as JPMorgan Asset Management (China) Company Limited ("JPMAM China"). Integration of JPMAM China into the global framework of JPMAM is currently in progress. Descriptions in this report concerning JPMAM, therefore, may not fully apply to JPMAM China at the time of publication.

[2] This report describes JPMAM's approach to climate-related risks and opportunities, as an asset manager and as a corporate entity. For information on how JPMorgan Chase is addressing climate-related risks and opportunities please refer to the 2023 JPMorgan Chase Climate Report.

JPMAM is a leading investment manager of choice for institutions, financial intermediaries, and individual investors, offering a broad range of core and alternative strategies, with investment professionals operating in every major world market providing investment expertise and insights to clients. JPMAM oversees more than USD 2.9 trillion in client assets under management globally as of December 31, 2023.

Our approach to engagement on climate risk is to focus on the sectors and companies where, in our view, climate risk poses the greatest material risk to our clients' investments.

Approaches to Sustainable Investing, ESG and Climate

JPMAM acts in its clients' best interests consistent with our fiduciary duty, client goals, and legal requirements.

We offer strategies and products singularly focused on financial goals and objectives. As we strive to meet these objectives, managing financially material Environmental, Social, Governance ("ESG")[3] risks, including climate-related risks and opportunities, is an important part of our investment processes whilst also meeting client objectives for sustainable outcomes through our sustainable investing solutions. We believe that understanding financially material ESG factors plays an important role in delivering long-term value creation for our clients.

Over the past decade, climate risks have emerged and will continue to be important to investment and stewardship considerations in the future because of the expected potential financial impact on the long-term value of companies.

Our approach to assessing climate-risks and opportunities is multi-faceted and is built around several key elements including, ESG integration, identifying climate-related risks and opportunities across time horizons, offering strategies for clients with specific climate goals, engaging with portfolio companies on climate change risks and opportunities and adopting our Climate Risk Framework.

Structure of Report

In line with TCFD recommendations, this Report is structured in four sections. The Governance section discusses how climate-related risks and opportunities feature in our governance and management structures. The Strategy section focuses on the key climate-related components of our strategy: ESG integration, development of tools and methodologies to identify climate-related risk, and investment stewardship. The Risk Management section explores how we identify and manage climate risks through our Climate Risk Framework and three lines of defense. Finally, in the Metrics and Targets section, we disclose the data and metrics we currently use and also report our 2023 carbon emissions baseline.

In this Executive Summary, we present the key highlights of the report and provide a summary of our disclosures for each of the TCFD recommendations in **Figure 1**.

[3] Environmental issues are defined as issues related to the quality and function of the natural environment and natural systems. Some examples include greenhouse gas emissions, climate change resilience, pollution (air, water, noise, and light), biodiversity/habitat protection and waste management. Social issues are defined as issues related to the rights, wellbeing and interests of people and communities. Some examples include workplace safety, cybersecurity and data privacy, human rights, local stakeholder relationships, and discrimination prevention. Governance issues are issues related to the way companies are managed and overseen. Some examples include independence of chair/board, fiduciary duty, board diversity, executive compensation and bribery and corruption.

Figure 1: Summary of disclosures aligned to TCFD guidance for all sectors and supplemental guidance for asset managers*

Governance

Describe the board's oversight of climate-related risks and opportunities.
- Legal entity boards oversee senior management, providing challenge of business activities and controls, which would include where appropriate climate-related matters.
- The JPMAM's Global Risk Committee oversees risk management which includes climate-related risk, as well as various governance frameworks. It is co-chaired by the J.P. Morgan Asset Management Chief Executive Officer (CEO) and J.P. Morgan Asset Management Chief Risk Officer (CRO).

Describe management's role in assessing and managing climate-related risks and opportunities.
- Senior management – including certain members of the Operating Committee ("OC") and relevant leaders within each of our Lines of Business ("LOBs") – are responsible for strategy and execution on ESG matters across the Firm.
- Executive management bodies tasked with overseeing progress towards strategic Asset & Wealth Management ("AWM") business objectives include the AWM Operating Committee and the JPMAM Operating Committee.
- Sustainable Investing Oversight Committee ("SIOC") oversees sustainable investing activities globally, including certifying new strategies as ESG integrated and oversees participation in climate-related targets that are not strategy-/ product specific, including Net Zero Asset Managers Initiative ("NZAMi").
- Business units and functional groups are responsible for overseeing climate-related risks and opportunities as part of oversight in their respective roles.

Strategy

Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term
- JPMAM defines physical risk as the economic costs and financial loss associated with a changing climate.
- JPMAM defines Transition risk as the financial and economic implications associated with a societal adjustment to a low-carbon economy.
- In terms of transition risks, JPMAM considers both the impact of policies that are intended to mitigate climate change, as well as the impact of shifting demand for products and services resulting from policies implemented to combat climate change.
- We recognize that the transition to a low-carbon economy can also present an unprecedented business opportunity for companies that are responding to the challenges of climate change and are able to benefit from shifts in market and consumer preferences.
- Physical risks which we have identified include acute physical risks such as potential declines in asset values due to the destruction or degradation of property, and chronic physical risks such as reduced availability of insurance for those physical assets.

Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.
In our role as an investment manager, our climate-related strategy is built around several key components:
1. ESG integration across asset classes
2. Identifying climate-related risks and opportunities for investments held in fund and client accounts across time horizons
3. Developing tools and methodologies to improve our insights on climate-related risks
4. Offering investment strategies for clients with specific climate goals
5. Engaging with portfolio companies on climate change risks and opportunities specific to such companies
6. Adopting our AM Risk Framework to better manage climate-related risk

JPMAM's annual financial forecasting and budgeting process, which is informed by industry analysis and inputs from product and client subject matter experts, considers potential financial impacts to the business, including where appropriate and material, climate opportunities and risks. In addition, the Firm stresses financial projections, considering adverse market conditions, client outflows and heightened expense environments.

Describe how climate-related risks and opportunities are factored into relevant products or investment strategies.*
- Our investment groups assess the financial materiality of different climate-related factors alongside other relevant factors based on the ESG integration process they have adopted.

Describe how each product or investment strategy might be affected by the transition to a low-carbon economy.*
- As stewards of our clients' assets, we consider factors that are material to our clients' long-term financial returns, including the investment risks and opportunities arising from the transition to a lower carbon economy.
- By leveraging our global research capabilities within our investment analysis, we are working towards better understanding the balance between potential risks and opportunities arising from this transition.
- Additionally, we have a proprietary framework for investing in the low-carbon transition, developed by the Sustainable Investing team in partnership with our Quantitative Solutions team. The low-carbon transition framework is used to construct products across a range of markets for equity and fixed income funds.

Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.
- We are developing portfolio and risk management tools and research focused on assessing companies' climate-risk exposure and resilience. Our central technology platform provides a hub for our fundamental research analysts to assess companies, share insights and provide updates on engagement efforts.

Describe, where appropriate, engagement activity with investee companies to encourage better disclosure and practices related to climate-related risks in order to improve data availability and asset managers' ability to assess climate-related risks.*
- As an active investment manager, we consider engagement with investee companies to encourage them to improve disclosures and adopt their own plans to manage climate risks as part of our investment processes across asset classes. Climate risk is one of our firmwide investment stewardship priorities. We discuss our investment stewardship approach in the Strategy section.

* Reflects recommendations that are included in the Supplemental Guidance for Asset Managers, which incorporates updates to the guidance for the financial sector released by the TCFD in 2021 (**https://assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Implementing_Guidance.pdf**)

Executive Summary

Risk Management

Describe the organization's processes for identifying and assessing climate-related risks.

- With an aim to identify climate-related risks in our investments on behalf of clients, we are continuing to develop tools and methodologies focused on assessing companies' climate-risk exposure and resilience.
- As primary risk owners, investment teams are responsible for identification, discussion and escalation of climate-related risks associated with investments, as appropriate.
- The Firmwide Climate Risk team will review and challenge the integration of climate-related risks as a part of the existing risk management process.
- JPMAM Risk Management team review and challenge material climate-related risks in investment portfolios as a part of the existing risk management process in JPMAM.

Describe how material climate-related risks for each product or investment strategy are identified and assessed. This might include a description of the resources and tools used in the process.*

- We identify and assess climate-related risks and opportunities in our actively managed client accounts and strategies by leveraging our proprietary qualitative and quantitative ESG research and assessments.
- Qualitative assessment of financially material ESG factors, including climate risk and opportunities, varies by investment group and strategy. For example, the Global Equity and Global Fixed income Currency & Commodities investment groups have developed a detailed ESG checklist that sets a baseline fundamental assessment for over 3,000 companies globally.
- The JPMAM's Quantitative ESG Score is a proprietary ESG score used by some investment groups to support their quantitative and qualitative ESG analysis.

Describe the organization's processes for managing climate-related risks.

Describe how material climate-related risks for each product or investment strategy are managed.*

- We have three lines of defense to manage risks in client portfolios, including climate-related risks. These lines work together but with distinct responsibilities to provide oversight over business activities, including climate-related risks.
- As primary risk owners (first line of defense), investment teams are responsible for considering financially material ESG factors which may include climate risks as part of their investment analysis in actively managed investment strategies that are considered ESG integrated under our governance processes. In addition to JPMAM's risk management process, Investment Directors monitor and assess how investment teams are incorporating financially material sustainability risks into their investment strategies as part of their ESG integration approach. The Firms's Compliance, Conduct and Operational Risk ("CCOR") is responsible for the independent governance and oversight of the first line of defense, including the timely escalation of identified issues to the relevant management committee. Our Risk Management team is part of the second line of defense and our Audit function is part of our third line of defense. (see **Figure 18**. for J.P. Morgan Asset Management's Climate Governance Structure).

Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.

- Climate change is viewed as a driver of risk that may impact existing types of risks managed by the Firm
- JPMAM leverages the Firmwide Climate Risk Framework and continues to enhance the processes to capture the transmission channels through which transition and physical risk drivers impact each of our risk types (investment, liquidity, counterparty, reputation, market and operational).
- The JPMAM independent Risk Management team is responsible for challenging and monitoring climate risks.

Metrics and Targets

Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.

Describe metrics used to assess climate-related risks and opportunities in each product or investment strategy. Where relevant, asset managers should also describe how these metrics have changed over time.*

- We are currently evaluating the most appropriate metrics to use for assessing climate-related risks and opportunities, taking into account, as appropriate, data and methodology, quality and availability, the needs of our clients, and regulatory requirements.

Asset managers should disclose Greenhouse Gas ("GHG") emissions for their AUM and Weighted Average Carbon Intensity ("WACI") for each product or investment strategy, where data and methodologies allow. Asset managers should consider providing other carbon footprinting metrics they believe are useful for decision-making.*

- Currently we use carbon footprint and weighted average carbon intensity data from Trucost to measure the carbon exposure of investment portfolios in Global Equities and Fixed Income, primarily in regions where this is a regulatory requirement, but also for interested clients.
- Our carbon exposure metrics for our assets under management for 2023 are:
  - Total financed emissions: 55 M tCO_2e, Carbon footprint: 51 tCO_2e /$million invested
  - WACI: 149 tCO_2e/$million revenue
  - For more information please refer to our Metrics and Targets section which discloses our Scope 1 and 2 GHG emissions.

Asset managers should describe the extent to which their assets under management and products and investment strategies, where relevant, are aligned with a well below 2°C scenario, using whichever approach or metrics best suit their organizational context or capabilities.*

Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.

- As part of our business's strategy to help clients manage climate risks and opportunities, JPMAM became a signatory to The Net Zero Asset Managers Initiative (NZAMI) in November 2021. As of December 2023, the proportion of AUM that is considered in-scope of JPMAM's 2030 interim targets in listed equities, corporate bonds and direct investments in forestry, was USD 1,129 billion (38% of the total JPMAM AUM of USD 2,969 billion).
- JPMAM will measure its progress towards its targets by the proportion of companies in which it invests that have set their own credible net zero targets. By 2030, JPMAM anticipates that the percentage of its AUM held in companies with science-based targets (SBT-validated or equivalent, as determined by JPMAM) will increase to 55%.
- As of December 2023, approximately 32% of JPMAM's in-scope AUM was in investments in companies that had set their own science-based targets.
- JPMAM's membership in NZAMi does not alter its fiduciary responsibility to clients. JPMAM's targets do not change its existing portfolio strategies and do not constrain the investment universe of client accounts or require divestment. JPMAM's ability to meet its voluntary net zero targets is contingent on action from a range of parties, and is dependent on sustained and consistent government policy, accelerated technological breakthroughs and substantial adaption in corporate business models.

* Reflects recommendations that are included in the Supplemental Guidance for Asset Managers, which incorporates updates to the guidance for the financial sector released by the TCFD in 2021 (https://assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Implementing_Guidance.pdf)

Governance

Governance

Board and Committee oversight

Responsibility for oversight and management of climate-related activity is defined at multiple levels within JPMAM and the wider Firm.

Under the oversight of our boards and the leadership of our senior management, we aim to foster an effective and efficient risk and control environment. Matters related to our long-term business success, including management of climate-related risk, form an important component of our business strategy.

The Firm's Board of Directors is responsible for oversight of the business and affairs of the Firm on behalf of shareholders. It is also responsible for setting the cultural "tone at the top". Its core areas of oversight include strategy, executive performance, talent management and succession planning, financial performance and condition, risk management and internal control framework and ESG matters.

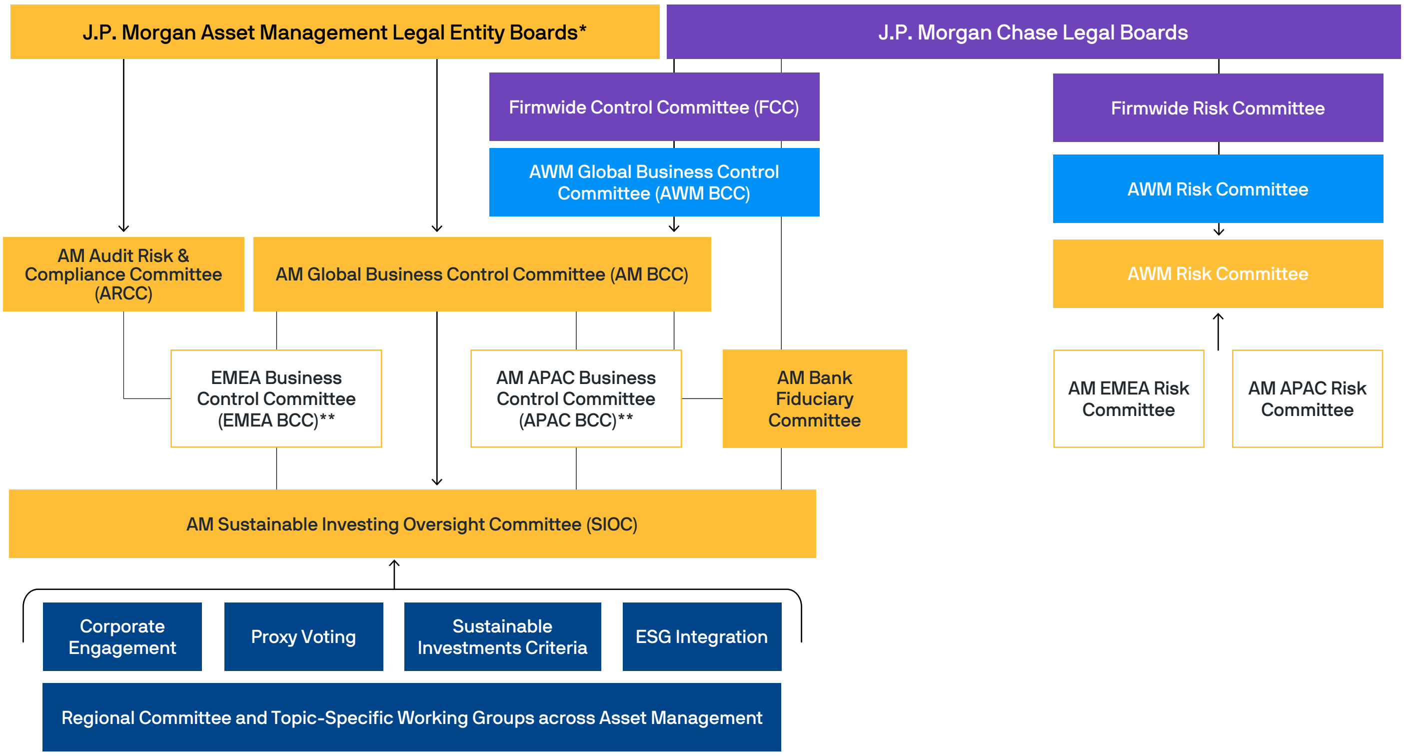
Within JPMAM, the legal entity boards (or appropriate governance committees) oversee local senior management, who are responsible for setting business strategy aligned to long-term value creation for our clients. Legal entity boards also challenge business activities and controls.

For the funds and client accounts that are managed or sponsored by JPMAM entities in the Asia Pacific ("APAC") and Europe, Middle East and Africa ("EMEA") regions, the escalations on sustainability-related matters, including climate risk strategy, are expected to follow the path to certain local entity boards as outlined in **Figure 2** below.

Governance of our activities related to Sustainable Investing (SI) is overseen by our Sustainable Investing Oversight Committee (SIOC). SIOC members include full participation by the AM Chief Risk Officer, AM Chief Legal Officer, AM CCO and all senior control functions within the organization. SIOC can escalate risk and controls issues, including climate-related risks to the Business Control Committees (BCC) of the relevant region, the AM Bank Fiduciary Committee (for specific fiduciary responsibilities) and in turn, the relevant legal entity board where required.

SIOC was responsible for approving JPMAM's NZAMi related efforts, including approving the annual disclosure of progress towards our interim target, which was set in November 2022. The annual disclosure is also formally approved at the AM Business Control Committee.

Figure 2: J.P. Morgan Asset Management Climate Governance Structure



* For additional regional oversight of legal entities that are in scope for TCFD, please refer to the local addendums (where applicable).

** Local committees are also responsible for escalating matters to respective LE Boards as required.

Figure 3: Description of global governance bodies/committees

Governance body/ committee name	Responsibility for climate-related risks and opportunities	2023 meeting frequency*
J.P. Morgan Asset Management Legal Entity Boards	Oversight of each legal entity's business. Please refer to local addendums (where applicable) for more information on certain legal entities.	
Asset Management Business Controls Committee ("AM BCC") (Global)	Provides oversight of the risk and control environment for the Asset Management business, inclusive of Operational Risk, Compliance, and Conduct Risks, for proper identification, management and monitoring of existing and emerging risks, control issues, errors, remediation actions, and trends. Includes decision-making members comprising of Chief Investment Officers (CIOs) across all asset classes/product groups (i.e. Liquidity, Fixed Income, Equities), heads of all major business areas (i.e. Operations, HR, Marketing) and independent risk management members (i.e. Compliance, Risk). The AM BCC will escalate to the respective Legal Entity Board committees and the AWM Business Control Committee as appropriate. **Co-Chairs:** AM Chief Executive Officer and Business Control Manager	11
Sustainable Investing Oversight Committee (SIOC) (Global)	Single point of ongoing strategic oversight, effective decision making, review, and assurance across the key components of Sustainable Investing. This includes corporate engagement, proxy voting, sustainable investments criteria, and ESG integration which are led by SI specialists in partnership across AM. SIOC approves climate-related targets including NZAMi that are not strategy / product-specific. Reviews any regulatory driven changes to policies, disclosures and approaches for Sustainable Investing, including the annual TCFD disclosure. The SIOC escalates to the AM BCC and regional BCCs and the Fiduciary Committee, where appropriate. **Co-Chairs:** Global Head of Sustainable Investing and Global Head of Sustainable Investing Integration	6

Governance body/ committee name	Responsibility for climate-related risks and opportunities	2023 meeting frequency*
Asset Management Risk Committee (Global)	Provides oversight of risks inherent in the asset management business. This committee also provides an escalation channel for issues and risks, as well as oversight of the various governance frameworks. This committee also provides oversight of the governance frameworks for operational risk, reputation risk and compliance risk, including fiduciary risk. **Chair**: Chief Executive Officer and Chief Risk Officer Asset Management	10
Asset Management Audit, Risk and Compliance (ARCC) (EMEA)	Assists the EMEA Legal Entity Boards in meeting their responsibilities related to the oversight of the risk function and risk management framework, the integrity of financial reporting and controls, the Control Management function, the Compliance function applicable **Client Assets Sourcebook** regulatory requirements, the Internal Audit function and the External Auditors. The ARCC comprises three Members all of which are Independent Non-Executive Directors. **Chair**: Independent Non-Executive Director	6

* Each of the governance bodies/committees meets with such frequency and at such times as it is determined in their respective charters (which may allow for additional ad hoc meetings).

Climate-related topics are prepared for the aforementioned governance bodies and committees by working groups across Sustainable Investing and other groups across Asset Management.

Firmwide Climate Risk Framework

The Climate Risk Management function is responsible for establishing the Firmwide framework and strategy for managing climate risk, and engages across the Firm to help integrate climate risk considerations into existing risk management frameworks, as appropriate. Climate Risk is led by the Firmwide Risk Executive for Climate, Nature and Social Risk, who is overseen by the CRO.

The Firm's approach to managing climate risk is consistent with the Firm's risk governance structure. All lines of business, including AWM, are responsible for integrating climate risk management into existing governance frameworks, or creating new frameworks, as appropriate. The LOBs, Corporate and Climate Risk Management are responsible for providing management and the Board Committee, as appropriate, with information on significant climate risks and climate-related initiatives.

Management oversight

Senior management – including certain members of the JPMorgan Chase & Co Operating Committee ("OC") and relevant leaders within each of our LOBs – are responsible for strategy and execution on ESG matters across the Firm.

The OC is the senior management body for the Firm and includes the Chief Executive Officer of AWM.

Subsidiary level executive management bodies tasked with overseeing progress towards strategic AWM business objectives include the AWM Operating Committee and the AM Operating Committee.

Figure 4: Management Committees that have oversight on climate-related topics.

Management Committee	Responsibilities
JPMorgan Chase & Co. Operating Committee	• Most senior firmwide management body, responsible for developing and implementing corporate strategy and managing operations. • The OC is comprised of the Firm's Chief Executive Officer ("CEO"), Chief Risk Officer ("CRO"), Chief Financial Officer ("CFO"), General Counsel, CEOs of each of the LOBs and other senior executives. • The AWM CEO is a member of the Firm's OC. • The CRO and/or senior management provide the full Board and/or the Board Risk Committee with more updates on climate-related initiatives, as appropriate.
J.P. Morgan Asset & Wealth Management Operating Committee	• Senior management body overseeing business segment operations and strategy across JPMAM and J.P. Morgan Wealth Management businesses. • The committee is run by the CEO AWM. • JPMAM CEO is a member of the AWM Operating Committee.
J.P. Morgan Asset Management Operating Committee	• Led by the CEO of JPMAM business segment, the Asset Management Operating Committee sets JPMAM's priorities and business vision. • This body of senior leaders receives periodic updates on sustainability and climate-related initiatives. • JPMAM Global Head of Sustainable Investing, is a member of the Asset Management Operating Committee and provides regular updates to that body on climate-related topics, including the firm's strategy for developing climate analytical tools, climate-related research projects and climate-aware investment solutions.

Integration of climate expertise within Asset Management

At JPMAM, consideration of financially materially sustainability risks including climate risks is led by specialist groups such as our SI team as well as incorporated in existing responsibilities of broader functions, including Investment groups[4] and AM Risk.

JPMAM's dedicated global Sustainable Investing platform includes specialists with climate-related expertise. This includes research analysts focusing on climate change and professionals with climate change-related thematic experience that contribute to product development and client engagement. One of the team's priorities is to support the provision of climate-related metrics and analytics. This involves close collaboration with technology teams across JPMAM for the integration of climate-related metrics into our Spectrum portfolio management and research platform.

Investment groups will operate within the JPMAM climate framework described in this report but the approach adopted on climate may vary across investment teams and products, based on factors such as investment strategy, guidelines, portfolio holdings, asset classes or regions imposing jurisdictional regulation (among others).

[4] We define investment groups as investment teams which share a common investment process and ESG integration approach and common investment strategies.

Figure 5: Role of Functional Groups that have oversight on climate-related topics

Team	Responsibilities/Description	Reporting line
Sustainable Investing Team		
J.P. Morgan Asset Management Global Sustainable Investing Team	● The team is co-led by Global Head of Sustainable Investing and Global Head of Sustainable Investing Integration and lead efforts across sustainability-focused investment research, solutions development and investment stewardship. ● Provides sustainable investing expertise including information on climate-related risks and opportunities that can be applied across asset classes and may assist in the development of investment solutions for clients. ● The team is structured into three pillars: The Sustainable Investing Research pillar develops proprietary ESG, Climate, and Sustainable outcomes driven research by partnering with data scientists, research analysts and portfolio managers. The research enhances our investment capabilities and product innovation. ● The Client Solutions pillar partners with our investment and distribution teams to provide sustainable investing expertise to develop bespoke ESG and Climate solutions to help meet our clients' financial and non-financial objectives. They also engage with our clients on top-of-mind sustainable and climate-related issues (e.g. net zero) and help them address these in portfolios. Finally, they play a role in designing internal and external training to help educate stakeholders on sustainability and climate-related topics. ● The Investment Stewardship pillar provides investment-led, expert-driven stewardship approach, engaging with companies and voting proxies on behalf of our clients. Company and industry level engagements are underpinned by our six global stewardship priorities, including encouraging disclosure from investee companies on material climate risks and opportunities.	● The Global Head of Sustainable Investing is a member of the Asset Management Operating Committee. ● The Global Head of Sustainable Investing reports into both the Chief Investment Officer for Global Equities and the Chief Investment Officer for Global Fixed Income, Currencies and Commodities, and leads the firmwide strategic efforts in sustainable investing. ● The Global Head of Sustainable Investing Integration also reports into the Chief Investment Officer for Global Equities and the Chief Investment Officer for Global Fixed Income, Currencies and Commodities and is responsible for leading the development of the Sustainable Investing business and the firmwide strategic efforts in integrating our global sustainable investing platform across all Asset Management asset classes and client channels.
Broader Functional Groups embedding climate considerations		
Investment Groups[5]	● Investment Groups, including portfolio managers are responsible for implementing consideration of financially material ESG factors including climate-related risks and opportunities (alongside other relevant factors) in actively managed investment processes, as applicable. ● Our portfolio managers are accountable for the performance of relevant funds/ strategies and contribution to client's risk and return objectives, including the consideration of financially material climate-related risks and opportunities for strategies with investment processes that are considered ESG integrated under our governance processes.	● Chief Investment Officers of respective asset classes are members of the Asset Management Investment Committee and the Asset Management Operating Committee.

[5] We define investment groups as investment teams which share a common investment process and ESG integration approach and common investment strategies.

Team	Responsibilities/Description	Reporting line
JPMAM Risk team / Compliance	● Responsible for providing independent challenge, monitoring and review of the investment process. ● Responsible for risk assessing the framework for climate change, independently challenging as appropriate and developing any additional monitoring and testing as needed.	● JPMAM Risk is responsible for independent risk oversight and challenge, including climate-related items presented to the relevant Boards and Committees. The Chief Risk Officer is a member of the Asset Management Operating Committee, Sustainable Investing Oversight Committee and Asset Management Business Controls Committee.

Sustainable Investing Governance

To enhance the governance of our activities related to sustainable investing, JPMAM established the SIOC.

SIOC serves as a single point of ongoing strategic oversight, effective decision-making, review, and assurance across the key components of sustainable investing. This includes engagement, proxy voting, sustainable investments criteria, as well as oversight of ESG integration. SIOC also follows regulatory developments and reviews their impact on climate policies and provides oversight and an annual review of implementation plans and progress for JPMAM's interim targets.

SIOC membership consists of voting, Independent Risk Management and non-voting attendees. Voting attendees include Heads of Investment teams and CIOs, the Global Head of Sustainable Investing, the Global Head of Sustainable Investing Integration. Non-voting Independent Risk Management Members include the Asset Management Chief Risk Officer and the Global Head of Asset Management Compliance. Other non-voting members include Investment Directors across asset classes, the Global Head of Investment Stewardship, J.P. Morgan Asset and Wealth Management's General Counsel, the Head of Guideline Management Control and heads of control functions such as Risk and Controls. Additional attendees will be added to meetings as necessary.

Additionally:

- Where and when required from a controls and risk oversight perspective, formal escalation from SIOC is to the AM BCC and the AM Bank Fiduciary Committee (for specific fiduciary responsibilities). The AM BCC Committee provides oversight of the operational risks and control environment across the entire AM business, with respect to proper identification, management and monitoring of existing and emerging operational risks, control issues and trends. This committee, which is co-chaired by the AM CEO and AM Business Control manager, includes decision-making members comprising all global heads of controls functions, CIOs across all asset classes/ product groups and global heads of all major business areas.

The SIOC met six times in 2023 as part of its continuing oversight of key areas of sustainable investing governance, including climate risk. SIOC will meet at least once per quarter in 2024. As part of governance and continuous improvement in 2024, members of SIOC will receive ongoing information on new trends as well as regulatory and industry developments in sustainable investing and climate-related considerations.

Strategy

Strategy

Introducing our Climate Strategy

As stewards of our clients' portfolios, we consider factors that are material to our clients' long-term financial returns. For investment processes that use ESG integration as part of an actively managed investment strategy, we consider financially material ESG risks and opportunities including risks and opportunities arising from the transition to a lower carbon economy.

In addition, where aligned with our clients' investment objectives, we offer strategies designed to address climate-related risks and act on opportunities through setting carbon emissions reduction targets on such portfolios and excluding certain high emitting industries, investing in companies which are on a path to reduce carbon emissions. This also includes growing our climate solutions product suite across both public and private markets and actively engaging with our investee companies on climate-related topics as well as using our voting power as active owners to encourage companies to take their owns steps to manage climate-related risk.

Our climate-related strategy is multi-faceted

Our climate-related strategy is built around several key components:

1. ESG integration across asset classes
2. Identifying climate-related risks and opportunities for investments held in fund and client accounts across time horizons
3. Developing tools and methodologies to improve our insights on climate-related risks
4. Offering investment strategies for clients with specific climate goals
5. Engaging with portfolio companies on climate change risks and opportunities specific to such companies
6. Adopting our AM Risk Framework to better manage climate-related risk

Our approach to ESG Integration

JPMAM defines ESG integration as the systematic inclusion of financially material ESG factors (alongside other relevant factors) in investment analysis and investment decisions.

Certain actively managed strategies deemed by JPMAM to be ESG integrated under our governance process, systematically assess financially material ESG factors including climate-related risks and other relevant factors, in our investment decisions with the goals of managing risk and improving long-term returns.

ESG integration is dependent on the availability of sufficient ESG information relevant to the applicable investment universe. The portion of investments for which JPMAM considers financially material ESG factors is therefore dependent on the investment universe of the strategy. ESG factors may be considered only for certain investments and may not be considered for each and every investment decision and may not be conclusive.

Securities of companies or issuers may be purchased and retained that may be negatively impacted by such factors while the adviser may divest or not invest in securities of issuers that may be positively impacted by such factors.

Except for certain strategies that use ESG integration as part of their investment process, in addition to other sustainable investing strategies, ESG integration does not by itself change a strategy's investment objective, exclude specific types of companies or constrain a strategy's investable universe.

ESG factors encompass a wide range of issues including, but not limited to climate risk, natural resource use, human capital management, diversity and inclusion, business conduct, governance practices, shareholder rights, and executive remuneration. Whilst not all ESG factors are relevant to a particular investment, we believe that climate-related risks and opportunities are important for many different sectors.

ESG factors that we consider

Environmental

- Air pollution
- Wastewater management
- Biodiversity impacts
- Greenhouse Gas (GHG) emissions

Social

- Product safety
- Diversity and inclusion
- Local community impacts

Governance

- Board composition
- Executive remuneration
- Capital allocation

For those financial products that track the composition of a specific index (specifically pure passive funds tracking a non-sustainable reference benchmark) sustainability risks are not considered due to the passive nature of the strategy.

ESG factors include issues such as:

- Climate risk
- Natural resource use
- Human capital management
- Diversity
- Business conduct
- Governance practices
- Shareholder rights
- Executive compensation

ESG Integration in Investment Strategies

During the fourth quarter of 2023, JPMAM enhanced its ESG integration governance process to require all new strategies to be reviewed individually by SIOC prior to their presentation to JPMAM's Product Steering Committee in order for such strategy's investment process to be considered ESG integrated. Previously, JPMAM's governance process contemplated a SIOC review of ESG integration at the investment group level and did not require review of individual strategies by SIOC.

The following describes JPMAM's enhanced process for determining whether an investment strategy has integrated ESG into its investment processes.

1. **Demonstration**: Investment groups present their ESG integration approach against the 'multi-factor framework' for the strategy
2. **Review**: SIOC assesses the integration approach based on a multi-factor framework and scores the investment group. Unsuccessful teams incorporate feedback from the SIOC and can re-apply under the review process
3. **Approval**: SIOC approves or rejects ESG integration status
4. **Implementation**:
   a. Investment group applies ESG integration according to their own approved method for the strategy
   b. Regular monitoring by their respective Investment Director or equivalent teams

Our process for determining which investment groups are ESG integrated has continued to evolve and improve with the development of the multi-factor framework.[6]

Approach for our Alternatives Business

JPMAM's Global Alternatives platform provides investment solutions in private equity, private credit, real assets, liquid alternative solutions and hedge funds.

Global Alternatives is aligned within the broader JPMAM ESG governance framework including the SIOC review and approval process.

Within Global Alternatives there is ongoing monitoring and review of ESG integration including within formal Oversight Committees (or equivalent) which will typically include qualitative and where applicable quantitative ESG data. Material findings from ongoing monitoring processes are escalated to the CIOs / Business Heads of the relevant asset class using the established investment oversight/escalation process. CIOs are then able to further escalate any issues, including material negative ESG exposures, as needed.

[6] Our investment groups assess the financial materiality of certain climate-related factors alongside other factors based on the ESG integration process they have adopted. Please note that the impact of ESG integration on performance is not specifically measurable as investment decisions are discretionary regardless of ESG considerations. ESG integration does not happen in isolation and is one element alongside other factors considered in our investment processes. The assessment of environmental, social and governance information and events requires subjective judgments, which may include consideration of third party data that may be incomplete or inaccurate. There can be no guarantee we will correctly assess such impact.

For investment groups with strategies invested in real assets, we believe proactive efforts to manage exposure to climate-related risks, particularly physical risks, are essential where they are financially material given their long-term investment horizons.

The Global Real Estate Group for example will review potential physical risks, such as hurricanes, earthquakes, wildfires, flooding, water stress and heat stress, associated with an asset. This helps them assess the potential future risks and can be used to evaluate any potential mitigation strategies that could potentially be implemented.

ESG assessments for climate-related risks and opportunities

We identify and assess, as appropriate, climate-related risks and opportunities in our actively managed funds, client accounts and strategies by leveraging our proprietary qualitative and quantitative ESG research and assessments.

Qualitative Assessment of ESG factors

Qualitative assessment of financially material ESG factors, including climate risk and opportunities, varies by investment group and strategy. For example, Global Equity and Global Fixed income Currency & Commodities have developed a detailed ESG checklist that sets a baseline fundamental assessment for over 3,000 companies globally. The assessment may help inform discussions between portfolio managers and fundamental analysts, and our engagements with the companies we cover.

Along with questions on social and governance considerations, the ESG checklist also asks questions addressing environmental considerations, including how companies are taking climate and climate-related risks and opportunities into consideration in managing their businesses.

ESG checklist sample questions

Is the company vulnerable to regulation aimed at limiting greenhouse gas emissions?

Does the company have issues with toxic emissions, waste management, non-recyclable waste or other environmental damage?

Is the company poised to benefit as a result of their actions related to environmental considerations?

As part of the ESG Integration process within Global Equities, analysts conduct deep-dive research into ESG topics identified as material to our investment process.

Certain asset classes conduct materiality assessments to identify the sectors or investment strategies for which these are most relevant, including climate-related risks that are most likely to have a material negative financial impact on an investee company were to be mismanaged, or conversely, a financially material positive impact in the case of good management.

Across more than 50 different sub-industries, financially material issues alongside ESG related risks are identified by research analysts, who come together to share perspectives with their sector group peers. Investee companies from which we have coverage and data receives a score from 1 (best) to 5 (worst) on each of the material issues identified.[7]

[7] ESG factors may not be able to be analyzed for every company and is dependent on the availability of sufficient ESG information relevant to the applicable investment universe.

Quantitative Assessment of ESG Factors

Improvement in the breadth and quality of ESG-related data has enabled us to conduct more in-depth quantitative assessments on the extent to which certain companies face and manage financially material ESG risks and opportunities. One example of this is the JPMAM's Quantitative ESG score ("QESG"),[8] a proprietary ESG score used by some investment groups in their active investment processes. This in-house score can enhance our investment decision making and provide a consistent view around material ESG themes including climate. The score draws on granular, outcomes-focused data, making use of the significant increase in ESG disclosures by companies and available data over recent years. It also leverages our data science capabilities, such as machine learning, algorithms and natural language processing to provide another reference point to enhance the consideration of material ESG risks and opportunities in active investment processes.[9]

The score assesses more than 10,000 companies, scoring each from 0 (best) to 10 (worst) on our view of their absolute, cross-industry performance. The environmental analysis considers granular metrics such as company GHG disclosures, third-party estimates of emissions impact, and proprietary modeling for data gaps.

Within the Score's methodology, climate risks are considered alongside other ESG related risks. The relative significance is determined using industry-level materiality assessments where relevant data is available. The aforementioned assessments require sufficient data coverage for individual companies, issuers and industries and in absence of such data, no or only limited assessments can be performed.

In addition to the JPMAM Quantitative ESG Score, our investment professionals have access to other quantitative tools and frameworks to help assess climate risks and opportunities. For example, we have developed a tool which flags companies that we believe are showing ESG improvement.[10] This quantitative ESG momentum tool is able to identify companies with positive ESG momentum driven by factors like better management of material climate risks.

Figure 6: Select climate metrics used in quantitative assessments

GHG Emissions	Business Model Resilience
• Scope 1 and Scope 2 GHG emissions intensity • Assessment of carbon reduction target by Science-Based Targets Initiative • Does the company have a climate change policy?	• Products relating to climate change opportunities
Energy Management	**Product Design and Lifecycle**
• Controversies around energy use and GHG emissions	• Scope 3 sales intensity • Controversies around carbon impact of products

8 The QESG score is used exclusively for internal purposes by JPMAM as part of its investment process. Any presentation regarding internal scores may be for illustration purposes only.

9 Such information may not have been audited and no assurance can be made with respect to the accuracy or completeness of such information.

10 The tool considers companies with score improvements of one or more standard deviation in a year.

Leveraging ESG research to identify climate-related risks

With the aim to identify climate-related risks in our investments on behalf of clients, we are continuing to develop portfolio and risk management tools and research focused on assessing companies' climate-risk exposure and resilience. Our central technology platform provides a hub for our investment teams to assess companies, share insights and provide updates on engagement efforts. It also houses quantitative data including climate-related data and metrics that may serve as an additional input into qualitative assessments that can be used by over 300 research analysts across asset classes that are situated globally and organized by sector.

Identifying climate-related risks and opportunities across time horizons

As part of our fiduciary duty, we seek to understand how climate change may influence the risks managed across our client portfolios including evaluating how they could be impacted through transition or physical risks driven by climate change.

The relevance and time horizon of climate-related risks and opportunities to the client accounts and products we manage depends on a number of variables, including investment style, guidelines and objectives, region and asset class. While the investment horizon varies across different investment groups and styles, JPMAM's fundamental active portfolios typically look to hold investments for five years or more, which is why we consider climate change to be an important topic in our investment analysis.

The time horizons associated with climate-related risks can be different from our investment time horizons, and vary by risk type and asset class. Our current view is that transition risks and opportunities, as defined in **Figure 8**, are particularly important in the near term (3 to 10 years), whereas physical risks, as defined in **Figure 8**, are increasingly important over longer time horizons (up to 30 years), although extreme weather events can have near-term impacts.

Even if some climate-related impacts do not materialize within the next five years, we believe there is a probability that expected future impacts will start to be reflected in asset prices and affect financial returns within our long-term investment time horizons. We reflect this view in our interactions with investee companies, such as through our research and investment stewardship activities.

Figure 7: Time Horizons

Short-term	Medium-term	Long-term
Less than 5 years; aligned with the Firm's loss and capital adequacy assessments	**5-10 years; aligns with the Firm's credit risk assessments.**	**More than 10 years; aligns with the Firm's strategic risk assessments.**

Physical and Transition risks and opportunities

Physical risks

We are continuing towards improving our understanding of physical risks across relevant sectors, and these are already a key consideration for our infrastructure and real estate strategies.

Our analysts assess the impact of near-term risks on physical assets for the following core components:

- Operation location
- Human capital (e.g. employee) location
- Core business/economy exposure
- Indirect exposure (supply-chain and distribution network location)

We provide examples of the physical risks we have identified in **Figure 8**.

Transition Risks

In terms of transition risks, JPMAM seeks to consider both the impact of policies that are intended to mitigate climate change, as well as the impact of shifting demand for products and services resulting from policies. A transition to a low-carbon economy entails legislative and regulatory changes, national or regional commitments, such as the Paris Agreement, the Inflation Reduction Act (IRA) in the U.S. and the European Union (EU) Green Deal, as well as the natural shift of supply and demand landscape within industries. Some of these elements are discussed in more detail in the 2023: Long Term Capital Markets Assumptions paper.

We recognize that the transition to a low-carbon economy can also present a business opportunity for companies that are responding to the challenges of climate change and are able to benefit from shifts in market and consumer preferences. By leveraging our global research capabilities within our investment analysis, we are working towards better understanding the balance between potential risks and opportunities arising from this transition.

Examples of the transition risks and opportunities we have identified are in **Figure 9**.

Figure 8: Physical and Transition Risks

Climate risk is categorized into physical risk and transition risk.

Physical risk refers to economic costs and financial loss associated with a changing climate. Acute physical risk drivers include the increased frequency or severity of climate and weather events, such as floods, wildfires and tropical storms. Chronic physical risk drivers include more gradual shifts in the climate, such as rising sea levels, persistent changes in precipitation levels and increases in average ambient temperatures.

Transition risk refers to the financial and economic implications associated with a societal adjustment to a low-carbon economy. Transition risk drivers include possible changes in public policy, adoption of new technologies and shifts in consumer preferences. Transition risks may also be influenced by changes in the physical climate.

Transition and physical risks are interconnected, and transition risks could be further accelerated by changes in the physical climate. For more information please refer to our JPMC Climate Risk Report.

Figure 9: Climate-related risks and opportunities from a low-carbon transition

Impact channel	Risk examples	Opportunity examples
Type – Transition		
Policy and legal	Expected impact of carbon pricing could result in high fixed operating costs and could result in decreased profits for companies with high emissions	Governments may provide incentives and subsidies to encourage a certain transition path
	Increased climate-related disclosures are expected, resulting in increased operating costs	
	Companies with historically high emissions or poor climate performance may be more exposed to future litigation, as well as fines, due to increased climate-related regulation	
Reputation	Negative media or stakeholder perceptions or climate-related controversies could result in a loss of reputation, impact future financial performance and loss of future earnings	Being an early mover on climate issues may improve reputation, resulting in improved financial performance
Market and consumer preferences	Companies may be exposed to potentially declining demand for their products of services as consumers increasingly consider environmental impacts, resulting in loss of revenue	Companies offering low-emissions/ low-carbon products may benefit from increased revenues in response to changing consumer preferences

Strategy

Impact channel	Risk examples	Opportunity examples
Type – Transition		
Technology and energy transformation	Costs associated with the transformation of existing technology may be high	Companies offering low-carbon/zero-carbon energy are expected to benefit from increased revenues and profits due to the global energy transformation
	Breakthroughs in new technology, such as renewables or battery storage, may drive a transition away from carbon intensive goods and services and/or persistent changes in fossil fuel prices	Companies involved in breakthroughs in new technology, such as renewables or battery storage, may benefit from increased revenues as demand for these products increases and/or costs decrease
	Stranded assets	
Type – Physical		
Acute	Significant interruptions to business operations, including supply chain disruption	
	Declines in asset values, including due to the destruction or degradation of property	
Chronic	Reduced availability of insurance	
	Systemic changes to geographies, regional economies and sectors, and any resulting population migration or unemployment	

Within a given sector and region, the importance of different climate-related risks and opportunities can vary significantly. Therefore, we believe considering the materiality of these impacts is an important element of company-specific analysis.

Taking the Oil and Gas sector as an example, most oil companies will likely suffer in any transition to a lower carbon economy for the simple reason that fossil fuel extraction, along with oil consumption, is a significant cause of CO_2 emissions. Thus, companies in this sector along with others in the Utilities, Energy and Materials sectors may be exposed to stranded asset risk. However, companies that are better positioned than their peers, for example those with relatively low emissions intensity, may still see significant opportunities that are not reflected in current asset prices.

We may still choose to invest in companies that are in sectors which tend to be exposed to high transition risk, but which we have identified as having lower risks and or greater opportunities than peers or higher expected risk adjusted returns.

Developing tools and methodologies to improve our insights on climate-related risks

We continue to work towards enhancing our processes for identifying, assessing and managing climate-related risks. As a first step, we are developing the capabilities to deliver climate insights by onboarding relevant climate-related datasets and providing training to teams on these metrics. The core metrics that are already available include company emissions, total financed emissions, carbon footprint and emissions intensity, as defined in the Metrics and Targets chapter. Furthermore, we onboarded corporate decarbonization targets as validated by Science Based Targets Initiative ("SBTI") into our investment platform.

Additionally, we have onboarded climate scenario and stress testing tools that are required in the United Kingdom (UK) for reporting purposes for financial products that are in-scope as per the UK's Financial Conduct Authority's Environmental, Social and Governance Sourcebook regarding disclosures of climate-related financial information consistent with TCFD Recommendations and Recommended Disclosures.[11]

Over time, we aim to add additional data and capabilities to enhance our ability to identify, assess and manage climate risks and opportunities. We envisage that these climate insights will be combined with ESG quantitative analysis and our qualitative assessment tool, to help portfolio managers understand the holistic nature of climate-related risks and opportunities.

During the past year, the Sustainable Investing team partnered with the Technology team to design and develop key climate data analytical capabilities that can be used to assess a company's climate exposures. These tools provide a core set of historical emissions trends and projections that could be used for company analyses, investment decision making and client reporting.

A further key area in which we have developed insights is the validation of company net zero targets. This involves defining a core set of validation criteria. This assessment capability allows us to identify companies that have net zero targets validated by the Science Based Targets Initiative ("SBTi").

Expertise from our dedicated climate researchers in the Sustainable Investing team and our

300+

research analysts

Our sustainable product suite[12]

Our broad product capabilities and global research allow us to partner with clients to meet their needs across a spectrum of solutions.

We have developed and continue to expand a range of dedicated sustainable investment solutions which go beyond ESG integration, typically by screening or tilting portfolios based on sustainability-related criteria that may or may not be financially material or by focusing on specific Environmental or Social themes.

[11] CVaR and ITR metrics are initially being used for reporting purposes only and are currently not part of the investment and decision making process.

[12] JPMAM 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. 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.

Figure 10: Our sustainable product classification

ESG Integrated

Sustainable

Exclusions

The exclusion from a fund or portfolio of certain sectors, companies or practices based on specific ESG criteria and/or minimum standards of business practice based on international norms.

ESG Promote

A defined percentage of the portfolio is invested in positive ESG issuers / companies.

Positive Tilt

An investment style that seeks to meet its objective by maintaining a portfolio that has a measurable tilt towards companies / issuers with positive ESG characteristics vs universe.

Best-in-class

Strategy which invests in a defined percentage of companies / issuers that lead in their peer groups in respect of sustainability performance.

Thematic

An investment style with a focus on a specific environmental or social theme(s), often with an objective to intentionally deliver an environmental and/or social outcome(s).

Table key

- Include values and norms-based exclusions (blue)
- May also apply values and norms-based exclusions (orange)

Exclusions on companies

With regards to exclusions of specific securities/issuers due to ESG-related criteria, we consider the needs of specific clients and/or compliance with laws and regulations, including the European Union's Sustainable Finance Disclosure Regulation (SFDR), and/or expectations set out in sustainable investing-related fund-labeling regimes.

Sustainable investing represents a broad set of approaches, and we have recognized that clients have specific ways they need us to implement their sustainability objectives. This includes having their own custom exclusion list of companies. With that in mind, we seek to meet client needs providing support to implement clients' tailored exclusion lists. These cover a range of areas including:

- Fossil fuels including thermal coal and (un)conventional oil and gas
- Electric power generation
- Tobacco
- Alcohol
- Controversial weapons
- Conventional weapons
- Nuclear weapons
- Gambling
- Adult entertainment
- International norms-based breaches (such as United Nations global compact)

Investing in potential solutions to address climate change

Environmental issues are an ever-increasing part of the investment landscape due to the impact they can have on investment returns and cash flows. At JPMAM, our global scale means we are well placed to help our clients manage various risks and opportunities as a result of climate change. As long-term investors, we seek to understand both physical risks and transition risks and opportunities to our client portfolios as part of our decision-making processes.

Climate change presents important risks and opportunities to investors. We partner with our clients to offer an array of investment solutions to meet their financial goals and non-financial objectives. We will continue to manage existing accounts in accordance with client objectives, guidelines and strategies.

Where requested to do so, this can involve partnering with our clients to achieve their decarbonization goals: this may include developing solutions and products to help them transition to a low-carbon world and seek appropriate pathways to net zero.

We provide our clients with insights, products and capabilities to help them navigate the climate transition. We have sought to make significant investments in our climate-related investment capabilities and enhanced our efforts to help clients consider the material implications of climate change within their portfolios.

We believe our sustainable strategies can help clients with specific climate objectives and seek to help develop an investment strategy or approach that is designed to pursue the clients' climate objectives in accordance with proposed investment guidelines. We also engage with certain investee companies to understand the climate risks they face and discuss the net zero commitments and emission reduction pathways that such companies have set as part of their management of transition risks and creation of opportunities for investors. In addition, where investment objectives permit, we can seek to identify and invest in companies that are well positioned to benefit from the transition to a low-carbon economy. As part of identifying opportunities for our clients, we can invest in solution providers and enablers for the transition to a low-carbon world and identify assets that enable direct removal of GHG emissions from the atmosphere.

Sustainable strategies consider a range of relevant metrics, depending on their objective. Using appropriate metrics allows us to evaluate the alignment of an investment to specific sustainable themes and intended outcomes of the strategy.

Metrics available for use in some of our sustainable products include:

Broad ESG:

E: GHG Emissions

S: Human rights policy

G: % Independent board directors

Climate change mitigation

Weighted Average Carbon Intensity (WACI)

Implied Temperature Rise (ITR)

Social Advancement

Human Capital Development Score

Data Privacy & Security Policy score

For clients with climate objectives, we deploy three types of investment strategies.

1. **Decarbonize portfolios**: To invest in issuers with reduced carbon intensity, carbon emissions, and/or those that are better prepared for the transition to a lower carbon economy
2. **Funding climate solutions:** To invest in issuers with products, services, and/or specific assets that aim to reduce real world emissions and/or improve natural resource use
3. **Enable negative emissions:** To invest in issuers / assets that enable or directly remove GHG emissions from the atmosphere

Figure 11: Our climate investing strategy

1. Decarbonize portfolios	
What it means	To invest in issuers with **reduced carbon intensity, carbon emissions, and/or those that are better prepared** for the transition to a low-carbon economy
Measurement of success	Achieving **a target reduction** in absolute carbon emissions / intensity or a reduction relative to the benchmark
How its done	● **Selecting or tilting toward issuers** that better manage climate change risks / opportunities – including carbon emissions – in their business strategy and are better prepared for the low-carbon transition ● Passive funds can **track the EU Paris-Aligned or Climate Transition benchmarks**, while active funds may deviate in a risk-controlled manner
2. Funding climate solutions	
What it means	To invest in issuers with **products, services, and/or specific assets that enable or reduce real world emissions** and/or improve natural resource use
Measurement of success	● Demonstrating asset and/or portfolio level **contribution to climate change mitigation and/or adaptation activities**
How its done	● Investing in issuers that have significant **revenue derived from products and services** that contribute to or facilitate the low-carbon transition, clean energy transition, etc. ● Investing into debt instruments such as **green bonds** that finance projects facilitating the transition to a low-carbon economy
3. Enable negative emissions	
What it means	To invest in issuers / assets that enable or directly **remove GHG emissions** from the atmosphere
Measurement of success	Reporting total **GHG emissions removed or credits created** that can be used as an offset (e.g. carbon credits)
How its done	● Investing into mechanical carbon removal technologies (e.g. carbon capture and storage) ● Investing into **nature-based solutions (e.g. forestry**, mangroves, and soils) that naturally sequester carbon ● Participating in **carbon credit** markets

Carbon Transition Portfolios

Our low-carbon transition framework

For strategies that are designed to achieve a meaningful reduction in GHG emissions, we have a proprietary methodology for investing in the low-carbon transition, developed by the Sustainable Investing team in partnership with our Quantitative Solutions team. The methodology aims to identify companies that we believe are better prepared for a transition to a lower carbon economy. This is achieved by incorporating a range of climate-related metrics that consider both the risks and opportunities that could arise due to a low-carbon transition. As such, it is designed to identify the leaders in a low-carbon transition (i.e. companies that are already aligned) to a lower carbon economy as well as those that are in the process of becoming aligned, and the laggards (i.e. companies that are taking less action than their peers towards managing a low-carbon transition).

The low-carbon transition scoring methodology can be used in conjunction with other metrics, such as a Weighted Average Carbon Intensity, to create portfolios that seek to achieve a meaningful reduction in GHG emissions – without relying on pure exclusions or sector deviations – and also take advantage of the opportunities presented by the transition. Our Carbon Transition Strategy provides a core global equity exposure that seeks to offer a meaningful reduction in greenhouse gas emissions helping investors position their portfolios for the transition to a low-carbon world. The approach considers both risks and opportunities with a significant reduction in emissions. By using the methodology outlined above, this strategy targets at least 30% carbon intensity reduction compared to the MSCI World Index and a 7% decarbonization target year-on-year, while also providing a core, global equity exposure with lower tracking error.

Our scoring methodology is built around three pillars that reflect the range of challenges companies face and the interconnection between emissions and other environmental issues: Managing Emissions, Managing Resources and Managing Climate-Related Risks. We leverage data reported by companies, insights from third parties and alternative data sources from JPMAM's proprietary natural language processing tool, which can capture a range of innovative signals. The tool looks through public documentation such as regulatory filings, broker reports, news reports or company profiles and identifies companies with textual relevance to a specific theme or signals such as a company's green capital expenditure.

The approach has the potential to be applied across asset classes, allowing investors to adjust a variety of inputs and parameters in line with their individual objectives, including the benchmark, tracking error and carbon-reduction targets. For example, the scores could be used to determine which companies are emphasized, through underweight and overweight positions, without taking sector bets.

Figure 12. Three key ways companies can prepare for the transition to a lower carbon economy

Managing Emissions

Site Emissions

Reduce direct emissions and shift towards greener forms of energy

Consumer Emissions & Opportunities

Benefit from a shift in consumer demands towards low-carbon alternatives

Managing Resources

Electricity Management

Reduce indirect GHG emissions from the usage of electricity

Water Management

Improve the sustainability of water flow management

Waste Management

Reduce waste materials, both hazardous and non-hazardous

Managing Climate-Related Risks

Physical Risk

Mitigate impact of physical risks from extreme weather conditions

Reputational Risk

Improve climate stewardship

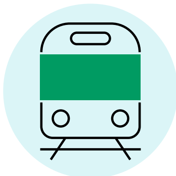
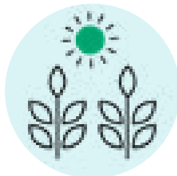
Funding Climate Solutions

Our Climate Change Solutions strategy is an active thematic strategy that combines expertise in Artificial Intelligence ("AI") and data science with fundamental and sector-specific human insight to identify companies that we believe are developing innovative solutions to address the global challenge of climate change. The strategy leverages our machine learning capabilities that enable the investment team to assess more than 14,000 companies globally on exposure to a specific theme.

Based on these results, the investment team conducts active fundamental research and engages with certain companies to gain a fuller picture, drawing on the insight of our experienced in-house research analysts and the stewardship expertise of the Sustainable Investing team. The process results in an unconstrained, high-conviction portfolios of companies that are weighted based on alignment to the theme and related sub-themes.

Figure 13: Case study of sustainable investment approach focusing on climate change

The strategy invests in companies across five main sub-themes:

Renewables & electrification	Sustainable construction	Sustainable transport	Sustainable food & water	Recycling & re-use
				
Companies developing clean energy such as wind, solar, or hydro across the full production chain, and enabling electrification across the economy	Companies developing less carbon-intense forms of construction, including energy efficiency of buildings	Companies investing in sustainable forms of transportation across automobiles, trains and planes	Companies investing in less carbon-intense forms of agriculture, sustainable food, or clean water	Companies developing technologies to reduce waste, including equipment and materials recycling

The portfolio managers assess the investment candidates based on their relevance to a specific theme and evaluate and monitor this relevance over time.

Enabling negative emissions – A spotlight on one real assets business

Campbell Global ("CG"), acquired by J.P. Morgan in 2021, is a recognized leader in global timberland investment managing ~1.5 million acres (0.6 million hectares) of forests across 15 U.S. states, New Zealand, Australia and Chile.

CG acts in its clients' best interests, which is intrinsically linked to the vitality and resiliency of our forests. A major consideration when it comes to identifying and managing climate risks is fire, particularly in regions across the globe where fire is more likely to occur and/or where tree species have longer rotation cycles, and thus investment horizons. CG conducts a fire risk assessment to both define our strategic investable universe and analyze the physical risk during acquisition due diligence. We consider factors such as the presence of fire suppression resources in the vicinity of the property and ownership of neighboring properties. The latter is related as proximity to publicly managed forests may pose a higher physical risk as the fire protection and suppression measures are generally less enforced. Operationally, once a property is acquired, CG utilizes management practices to increase the resiliency and resistance of our forests to fires.

CG also considers the effects of destructive storms, primarily hurricanes, and overlays property boundaries with higher risk areas during acquisition due diligence, taking into consideration the potential for hurricanes to become more intense and frequent under certain climate change scenarios.

Climate change also has the potential to alter tree species distribution and/or growth rates, so CG uses the National Council for Air and Stream Improvement ("NCASI") Climate Projection Analysis Tool to model climate change scenarios and overlay those results with potential acquisition properties to inform investment decisions as well.

Considering climate in our investment stewardship

As discussed in our 2023 Investment Stewardship Report,[13] engaging investee companies in dialogue and encouraging sound environmental, social and governance practices is an important component of how we deliver value to our clients. Our engagement with investee companies is based on our in-depth investment research on companies, alongside our assessment of macroeconomic drivers, sector-specific factors and financially material ESG issues including climate change risk.

This research insight enables us to act proactively and encourage investee companies to acknowledge risks and improve practices before risks are realized and opportunities are missed. We believe this is likely to preserve and enhance asset value.

Climate change is one of our JPMAM investment stewardship priorities.[14] In 2023, we engaged with 517 public and private investee companies[15] on topics related to climate change. These engagements included encouraging companies facing climate risks to provide details of their own decarbonization planning and improve climate change risk disclosures, and those planning to capitalize on opportunities to demonstrate their competitive advantage. Increasingly, our ESG focused engagements are led by the investment research analysts responsible for primary coverage of the company in equity and corporate bonds and are supported by members of Investment Stewardship team with ESG sector experience and climate-related expertise. Our approach to engagement on climate change is to focus on sectors and companies where, in our view, climate risks and opportunities are most financially material to our clients' investments.

For more information about how we engage with companies on climate-related topics, please see our 2023 Climate Change Engagement & Voting Report.

Engaging companies on climate change

517
Number of companies engaged on climate change

41
Number of countries engaged on climate change

27
Number of sectors engaged on climate change

[13] https://am.jpmorgan.com/content/dam/jpm-am-aem/global/en/sustainable-investing/investment-stewardship-report.pdf
[14] https://am.jpmorgan.com/content/dam/jpm-am-aem/global/en/insights/investment-stewardship-priorities-report.pdf
[15] ESG related dialogue with sovereign bond issuers (as well as state-owned/controlled enterprises) are still at a nascent stage in the industry compared with corporate issuers. We plan to work on engagement with sovereign bond issuers further in 2024.

Investment Stewardship in Alternative Markets

The level of influence over our investments in Alternatives differs based on our ownership structure, enabling differing levers for our stewardship of these assets. Stewardship across these assets may take a different form to our listed equity and debt strategies, given that our assets may be directly owned by our portfolios, and they may exercise significant influence. For example, in our commercial forestry investments where we directly control assets, stewardship involves driving higher sustainability standards as part of responsible forestry management and afforestation practices. Similarly, where we tend to hold majority stakes in infrastructure assets, we will hold a board seat and exercise responsible ownership by holding the board accountable to sustainability performance and encouraging the adoption of practices to address financial risks and opportunities. We may partner with property managers in our real estate properties to ensure buildings meet the high efficiency standards for resource use including energy, water and waste.

Engaging on climate change risks

Through our climate change engagement framework, we encourage companies with whom we engage to follow and understand the latest climate developments, develop robust strategies with intermediate milestones, and disclose consistently and transparently on progress.

Our climate change engagement framework encourages companies to (among other things):

1. provide clear disclosure of climate-related risks and opportunities facing the company in line with the TCFD recommendations; and

2. where necessary to mitigate material risks, that such companies set their own scientifically credible emissions reductions targets and transition plans, which outline how targets will be met, the investments required and the financial implications for investors.

Engaging around climate opportunities

The opportunities that may be presented upon the transition to a low-carbon economy enable investors to seek innovative solutions that benefit from shifts in market and consumer preferences, such as investment opportunities in Energy storage, grid resilience, low-carbon transportation and energy efficiency enhancements that enable the transition. Companies that develop best-in-class solutions in these areas will be well positioned for growth due to the increasing urgency around mitigating climate change; growing policy and regulatory support; and competitive advantages due to increasing customer preferences for energy efficiency and low-carbon solutions. Given the scale of the opportunity for companies within this space, it is important for us to understand whether a company's proposed solutions are likely to effectively deliver their promised outcomes. As disclosure standards are lacking for many of these emerging technologies and are uneven across jurisdictions, we seek to understand how products and services deliver their promised climate outcomes and understand if companies are evidencing their claims.

Case study

Abu Dhabi National Energy Company (TAQAUH) | UAE | Bonds

Issue

Ahead of the COP28 Climate Change Conference, the United Arab Emirates (UAE) increased the ambition of its Nationally Determined Contributions (NDCs) as well as its National Energy Strategy, committing to triple renewable power-generation capacity and increasing the share of clean energy in the energy mix to 60%.

In order to understand how Abu Dhabi's energy and utility company TAQAUH would mitigate any potential resulting transition risks, we engaged the company. We sought to understand how the company plans to support the delivery of the UAE's new emissions reduction goals and renewable energy targets including whether it intended to have its own targets validated by the Science Based Targets Initiative (SBTI).

Action

We met with the company and questioned whether its stated emissions reduction targets (25% absolute reduction in Scope 1 and 2 emissions by 2030) were sufficient to meet the UAE's more ambitious goals. While the company indicated it was confident it would be able to meet UAE's goals, it was not able to currently commit to having its targets validated by the SBTI. This was due to the company's own assessment that its small amount of coal exposure in Morocco, and its estimation that it would need to achieve a ~40% emissions reduction by 2030, would make it difficult for it to have its targets validated by SBTI.

In terms of its decarbonisation strategy, the company described its plans to first decommission its legacy gas plants, indicating this will largely happen by 2028. The company targets 30% of gross generation capacity coming from renewables by 2030. However, the acquisition of renewable energy developer Masdar meant it had already met the target at the time of engagement. In line with UAE targets anticipated to be applicable to the company, we encouraged the company to update its renewables capacity growth target, noting the national renewable energy ambitions.

The company indicated it plans to invest approximately USD 10 billion by 2030 in transmission and distribution networks to cater for growth in electrification. They also identified a list of high-level climate-related risks and opportunities in the 2022 Sustainability Report. We encouraged the company to provide more information including TCFD aligned scenario analysis to provide investors with a clearer sense of the materiality of the issues.

Outcome

In September 2023, TAQAUH revised its growth targets, aiming for 150 GW of gross power generation by 2030, with around 65% of its generation capacity coming from renewable power sources. The announcements included plans to invest approx. USD 20 billion until 2030, towards power and water capacity expansion and transmission and distribution networks.

Case study

Infineon | Germany | Equities, Bonds

Issue

Semiconductors are used in green applications across renewable energy technologies and electric vehicles. Advancements in semiconductors are also driving improved energy efficiency across many applications. Some semiconductor companies are beginning to seek ways to measure this positive impact but there is a lack of industry standardisation. Meanwhile, semiconductor manufacturing and product use remain emissions-intensive and are set to rise as production increases globally.

Infineon, a German semiconductor company, offers solutions across green energy, clean mobility and the Internet of Things. The company advertises 'CO_2 savings' of 100m tons CO_2e from products to demonstrate positive product impact and presents this as a 1:33 ratio to the company's CO_2 footprint. Infineon has not set science-based targets covering its own material emissions.

Action

We met with the Global Head of Sustainability to encourage Infineon to increase transparency on the calculation of the company's avoided emissions and decarbonisation strategy.

Infineon reports on CO_2 saved through product use and breaks this down by end use (industrial drives, automotive electronics, wind and photovoltaics), advertising the emissions savings enabled by Infineon solutions. We appreciate that Infineon is measuring emission reductions and provides explanatory notes. We encouraged further transparency on the assumptions underpinning these calculations and consideration of the WBCSD guidance on calculating avoided emissions. We believe such transparency would help evidence Infineon's claims against greenwashing risk, allow investors to better understand this calculation, and potentially move towards greater industry comparability.

We also discussed Infineon's decarbonisation strategy and encouraged the company to establish its own science-based targets verified by a third party. We believe science-based targets will continue to gain importance to customers seeking to decarbonize their own supply chains and is also important to demonstrate the credibility of Infineon's claims to investors.

Outcome

In December 2023, Infineon committed to set third-party verified science-based targets covering material emissions, which strengthens its proposition to customers seeking sustainable solutions and to investors evaluating the financial risks and opportunities of investing in the company. Infineon provided more detail on how CO_2 savings are attributed, accounting for market share and the value of the semiconductor in the equipment.

Proxy voting

Our voting policies are designed to promote the best long-term interests of our client accounts. As such, we may consider climate risk when voting in director elections, executive compensation or other management resolutions, where we are not satisfied with the steps taken by the company to address the material risks it faces because of climate change, the quality of the engagement discussion or its progress.

We believe that providing meaningful disclosure is important to help investors evaluate whether companies are managing material climate risks that could impact returns over time. For more information see our Global Proxy Voting Guidelines here.

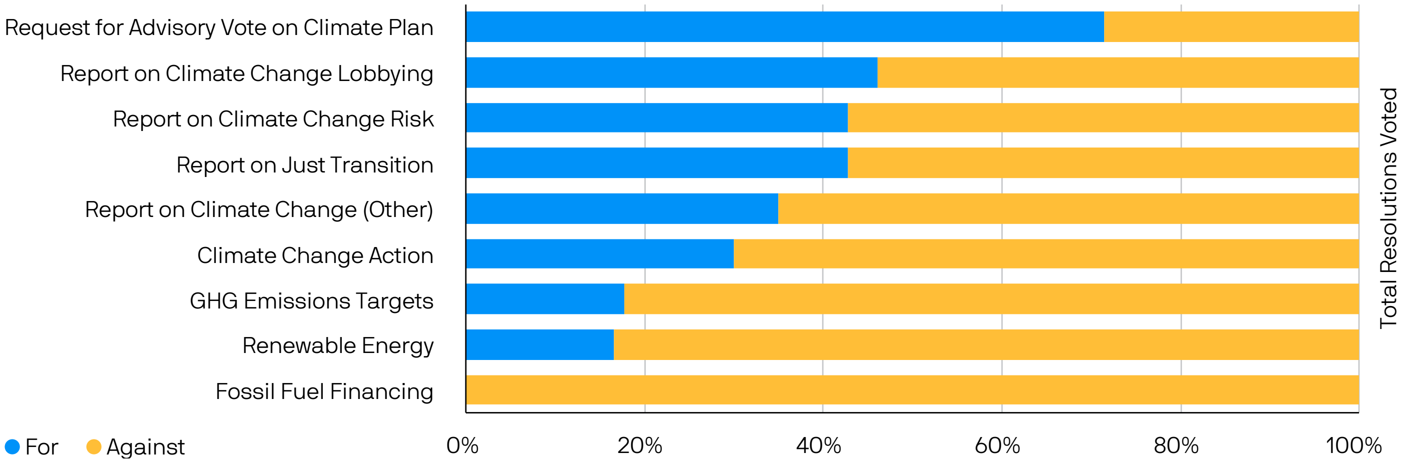
Voting on climate change shareholder proposals is another important way of expressing our views where we think management could better manage climate-related financial risk. In 2023, we saw an increase in the overall number of resolutions being filed and an increase in overly prescriptive shareholder proposals, dictating specific actions by the company and creating the potential for unintended consequences for long-term shareholders. We noted that shareholder proposals in previous years focused on enhanced reporting, such as TCFD reporting, that we tended to support as we believed such reporting provided meaningful information to shareholders to evaluate risks and opportunities at a particular company. As a result, in 2023, we voted in favor of 39 climate-related shareholder resolutions, reflecting a decrease in overall support for these resolutions compared to previous years.

How climate risk impacts our business strategy and financial planning

JPMAM's annual financial forecasting and budgeting process, which is informed by industry analysis and inputs from product and client subject matter experts, considers potential financial impacts to the business, including where appropriate and material, climate opportunities and risks. In addition, the Firm stresses financial projections, considering adverse market conditions, client outflows and heightened expense environments. Across our EMEA legal entities,[16] we measure and assess the impact of transition risk on seed capital, mandatory investment plans and hedge exposures through a climate risk stress scenario, based on the NGFS Divergent Net Zero scenario.

While the climate risks we have identified above may pose meaningful challenges, our diversified client base and product offering, our robust capital position, and flexibility in the ongoing provision of investment solutions, are expected to safeguard the Company's ability to withstand the anticipated impacts of climate change.

Figure 14: Climate-related proposals supported by JPMAM by category 2023



Source: J.P. Morgan Asset Management.

[16] JPMorgan Asset Management International Limited ("JPMAMIL"), completes an annual ICARA (Internal Capital Adequacy and Risk Assessment) in which it measures and assesses the impact of transition risk on seed capital, mandatory investment plan and hedges exposures through a climate risk stress scenario. JPMAMIL also considers a natural disaster scenario driven by environmental factors as part of its operational risk scenarios.

Risk Management

Risk Management

Our target framework for managing Risk

Climate Risk Framework

At JPMAM, we recognize the importance of effective identification, monitoring, and management of climate-related risks and opportunities across our global business.

We leverage the Firmwide Climate Risk Framework and continue to enhance the processes to capture the transmission channels through which transition and physical risk drivers impact existing risk types, such as investment, strategic, liquidity, counterparty, reputation, market and operational risk as it relates to our client portfolios. The key principle underpinning this Framework is that climate change is viewed as a driver of risk that may impact existing types of risks.

This framework is comprised of six core risk capabilities central to enabling assessment, quantification and management of the climate risks that may manifest across our diverse global footprint (**Figure 15**). In this chapter, we will discuss Risk Management capabilities of this framework.

Information on Risk Governance is described in the Governance section, and Data Management is outlined in the Metrics and Targets section. For Risk Reporting, AM Risk team is responsible for reporting climate risk metrics to enable risk oversight and monitoring.

For Risk Identification, first line of defense is responsible for climate-related risk identification, assessment and management of climate-related risks associated with investments, as appropriate. AM Risk team will review and challenge the identified climate-related risks. Below is an example of climate risk identification, that describes how climate risk drivers could translate into potential impacts to our clients and our own operations. We continue to enhance the capture of climate risks in the Firm's risk inventory.

Our approach to scenario analysis continues to evolve. To assess the range of potential climate-driven paths and outcomes, JPMAM Risk team is in the process of integrating climate-related factors into existing stress testing frameworks as the modelling metrics continue to develop over time.

Figure 15: Climate Risk Framework

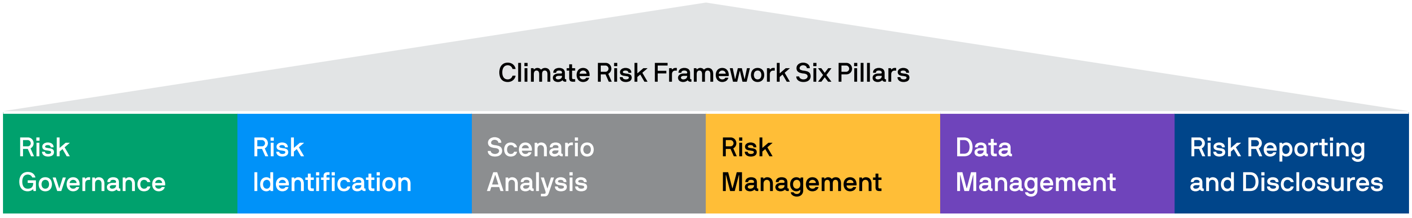
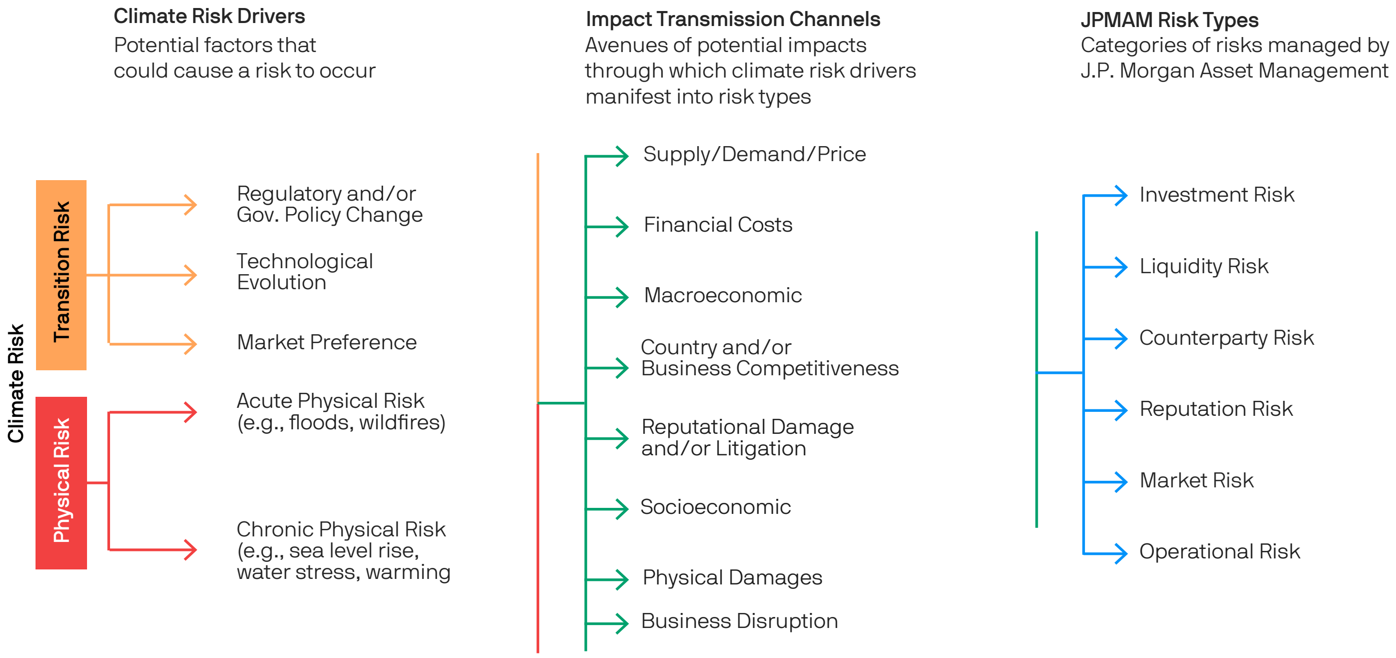


Figure 16: Example of How Climate Risk Drivers Translating into Potential Risks to the Firm



Risk Management by Risk Type

At JPMAM, we are using our resources to better understand how physical and transition risks may manifest and their potential impacts on the existing ‘business as usual (BAU)’ risk types we manage. Our overall objective is to manage the business and its associated risks in a manner that balances serving the interests of our clients while protecting the organization’s safety and soundness.

Physical and Transition risk as defined in **Figure 8**, can manifest in a variety of ways. **Figure 17** below provides examples of different types of physical and transition risks and how they could materialize across the six major risk types we manage on behalf of our clients and JPMAM.

Figure 17: Examples of Potential Climate Risk Impacts

JPMAM risk types		Potential climate risk impacts	
		Phsyical risk	**Transition risk**
Client	**Investment Risk** Risks of investments declining in value due to economic developments or other events impacting the entire market	Temporary disruption in a business’s operations, or those in its supply chains, due to severe weather events leads to potential loss	Shifts in consumer preferences to low-carbon goods and services, changes in policy, or technological advances impact market valuations and yields (e.g., through lower revenues, higher costs, or stranded assets)
	Liquidity Risk Defined as the risk of a fund not meeting requests to redeem shares issued by the fund without significant dilution of remaining investors’ interests in the fund	Capital outflow from most vulnerable regions impacted by extreme weather events	Shifts in investor/client sentiment on climate issues and changes in capital flow into investment products/ instruments that finance the climate transition
	Counterparty Risk Defined as the risk of the other party in an investment, credit or trading transaction not fulfilling its part of the deal and defaulting on its contractual obligations	The business disruption events to counterparties that are impacted by adverse climate events	Changes in regulations/laws could restrict or discourage counterparty’s offerings related to climate- and other sustainability-related issues and counterparties can also be impacted by climate risks which increases the Counterparty/Credit Risk
	Market Risk (for JPMC only) Risk associated with the effect of changes in market factors on the value of assets and liabilities held for both the short and long term to JPMorgan Chase balance sheet	Local weather events cause variability in agricultural output and lead to commodity price volatility	Changes in demand for carbon-intensive products or services lead to price volatility

JPMAM risk types		Potential climate risk impacts	
		Phsyical risk	Transition risk
JPMAM	**Reputation Risk** Risks that an action or inaction may negatively impact perception of the Company's integrity and reduce confidence in the Company's competence by various constituents, including clients, counterparties, regulators, employees or the broader public	Business operating in areas susceptible to climate-related events and lack of transparency around climate-related matters	Real or perceived lack of progress made toward climate-related commitments, as well as how we provide transparency around climate-related matters
JPMAM Operational	**Operational Risk** Risk of an adverse outcome resulting from inadequate or failed internal processes or systems; human factors; or external events impacting the Company's processes or systems	Extreme weather causes physical damage to buildings and decreases worker productivity	New legislation and/or regulatory requirements lead to significant changes in business process and costs

Managing climate risks across three lines of defense

At JPMAM, we have a three lines of defense approach to manage risks in client portfolios, including climate-related risks. These lines work together but with distinct responsibilities to provide oversight over business activities, including climate-related risks, as outlined in the section below. This approach is designed to support a sound control framework by minimizing gaps in risk and control coverage, creating separation of duties and an oversight framework. Our approach is to integrate financially material climate-related risk into existing investment oversight and escalation framework.

Investment teams and business management are the first line of defense

Investment teams are responsible for developing and maintaining effective internal controls and are the primary risk owners, or the first line of defense. Within the first line of defense, financially-material climate-related risks are considered as part of ESG integration and managed within portfolios that are determined to be ESG integrated under our governance process.

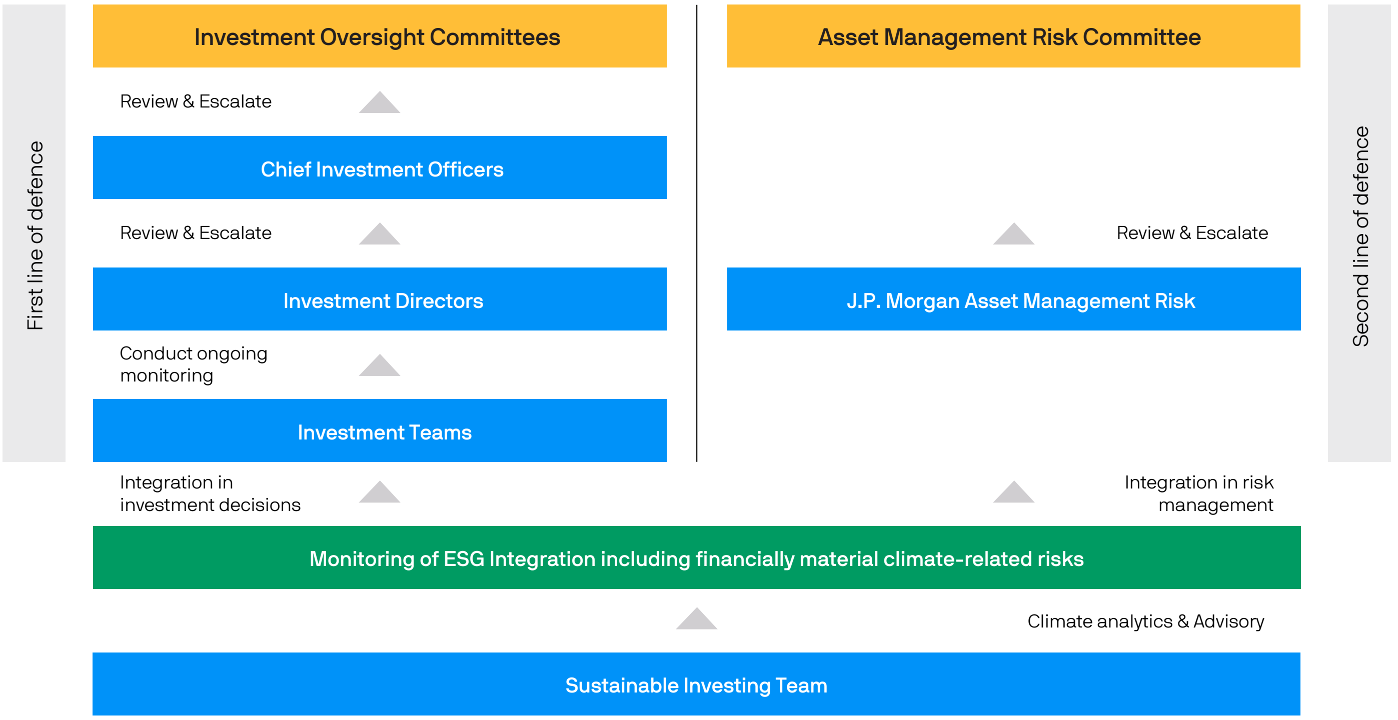
For actively managed strategies not deemed ESG integrated under our internal processes, financially material climate-related risks would be considered if deemed a material investment risk as consistent with our fiduciary duty.

Portfolio managers have primary responsibility for the risk management and oversight of investments in client portfolios. They operate within guidelines and risk parameters and make active investment decisions to generate long-term value to the portfolio. As part of the first line, portfolio managers also coordinate with embedded risk teams dedicated to helping execute risk and performance oversight of the portfolio including review and challenge of the investment process.

The Investment Director teams oversee performance and risk oversight of portfolio management to maintain discipline around investment objectives and process in the context of client objectives or fund guidelines, performance, risk position and ESG profile. The Investment Director teams monitor the relative exposures to financially material ESG related risk of each strategy, looking at overarching trends and reviewing outliers as well as overseeing the qualitative and quantitative ESG integration factors for the strategy. For more information, please see our section; **Monitoring of ESG Integration**.

Investment teams are responsible for considering the risks facing their portfolios. Financially material climate-related risk, alongside other financially material risks are important topics in our investment analysis. These risks are also considered in Investment Oversight Committees organized by each asset class across the Firm globally.

Figure 18: Overview of risk management processes



Sustainability risks are managed alongside the broader risk management processes (e.g. financial risks, operational risks, credit risks, etc.). JPMAM undertakes a monitoring process to ensure that investment teams (as part of their existing, regular investment review system), continue to incorporate sustainability risk within their strategies, as appropriate. Responsibility for the oversight of the monitoring process will sit with the respective Investment Directors who escalate sustainability risk issues to Chief Investment Officers.

Compliance, Conduct and Operational risk (CCOR)

CCOR is responsible for the independent governance and oversight of the first line of defense, including the timely escalation of identified issues to the relevant management committee. The CCOR management framework establishes JPMAM's approach or methodology to govern, identify, measure, monitor, test, manage, and report on compliance, conduct, and operational risks.

AM Risk is the second line of defense

The JPMAM Risk is the second line of defense for managing climate-related risk. The JPMAM Risk function is responsible for providing independent oversight and effective challenge of the risk management process, including measuring, monitoring and managing risk thresholds to review investment, liquidity and counterparty risks.

Climate risk is not a stand-alone risk stripe and may impact or overlap with the existing types of risks managed by the JPMAM Risk. Climate risk is embedded into the JPMAM Risk's overall risk management process. The JPMAM Risk team performs deep dives focused on potential risks across portfolios, and presents those findings to the JPMAM Risk Committee. This includes Climate and Sustainable Investing analyses that are tailored to potential forward-looking risks as well as industry-wide topics of interest. The JPMAM Risk Committee is co-chaired by the JPMAM Chief Executive Officer (CEO) and Asset Management Chief Risk Officer ("AM CRO"). Committee members from across the first line of defense have the ability to escalate items where deemed applicable by the JPMAM Risk Committee Charter.

In addition, we employ the Stressed Market Protocol (SMP)[17] to address periods of high market volatility and market crises, which may include climate events, which enables us to focus on accounts that are under current stress, performance or flow concerns. The AM CRO and/ or the Asset Management Chief Executive Officer (AM CEO) can initiate the Stressed Market Protocol during periods of high market volatility and market crises. Once the protocol is enacted, JPMAM leadership holds regular meetings to focus on key risk-related topics including climate risks where applicable.

Climate-related risks are considered part of Sustainable Investing Risk Oversight. In 2022, we launched the Sustainable Investing Risk Oversight Framework which aims to monitor material ESG metrics and their consideration in the investment process of our strategies. In its initial stage, the framework has the objective to identify investment strategies with ESG factors and carbon metrics that are materially different versus its benchmark and understand the rationale for such differences.

This process aims to raise the transparency of specific exposures or strategies with ESG and climate indicators that may be inconsistent with the strategy's investment objective or disclosures. This process is not expected to limit an exposure identified as an outlier or trigger changes in positions that would negatively impact portfolio returns. On a quarterly basis, results are reviewed to determine material outliers to escalate to the JPMAM CRO, AM CIOs and JPMAM Global Head of Sustainable Investing and to the legal entity Boards as appropriate. This quarterly monitoring process is expected to evolve over time.

The Internal Audit Function is the third line of Defense

The Internal Audit function operates independently from other parts of the Company, providing testing and evaluation of processes and controls across the entire enterprise. The Internal Audit team assesses the effectiveness of our climate risk governance, risk management and internal controls as it relates to climate risk as well as evaluating our compliance with laws and regulations; and identifying opportunities for improvement.

Through this structure, we seek to subject business decisions and actions to rigorous consideration, testing and review for compliance with relevant laws and regulations, as well as consistency with our business principles.

Monitoring of ESG Integration

JPMAM undertakes ongoing monitoring to review the ESG integration work of investment groups - specifically the consideration of financially material ESG factors within their active investment strategies deemed to be ESG integrated under our internal frameworks. Our Sustainability Risks Policy summarizes the integration of sustainability risks in the investment process. This forms part of the regular investment review system.

Investment Director teams in equity, global fixed income, currency & commodities and multi-asset solutions oversee performance and risk oversight of portfolio management. They do this to maintain discipline around investment objectives and processes in the context of client

[17] Additional information on the Stressed Market Protocol can be found in the 2023 Investment Stewardship Report.

objectives or fund guidelines, performance, risk position and ESG profiles. The Investment Director teams monitor ESG metrics as part of their quarterly review meetings as part of confirming that a strategy's investment process continues to be ESG integrated in accordance with the strategy's disclosures and documentation. During these meetings, ESG characteristics of the strategy can be challenged and discussed. Any material findings from the ongoing monitoring process will be escalated to the CIOs of the relevant asset class using the existing investment oversight/escalation process as shown in **Figure 18**.

CIOs are then able to further escalate any issues, including material negative ESG exposures into their respective Investment Oversight Committees. We have regular monitoring processes in the global liquidity and alternatives solutions, which are tailored to the nature of their asset class.

In addition, JPMAM Risk has the Sustainable Investing Risk Oversight framework to monitor the consideration of financially material ESG metrics in the investment process of our active strategies. This process has the objective of identifying investment strategies with ESG metrics scores that are materially different versus their benchmark and understanding the rationale for such differences. The analysis will be shared with JPMAM Risk and CIOs on a quarterly basis. This process aims to increase the transparency of specific exposures or strategies with ESG ratios that may be inconsistent with the strategy's name, investment objective or disclosures. This process is not expected to limit an exposure identified as an outlier or to trigger changes in positions that would negatively impact portfolio returns.

Regulatory requirements related to climate change

JPMAM actively considers global and industry requirements related to climate change where these developments are directly and indirectly related to the firm, our investee companies and the interest of our clients.

Compliance with applicable laws, rules, regulations, codes of conduct, guidelines or standards remains the responsibility of each regulated legal entity within JPMAM, as well as the personal responsibility of each officer and employee.

JPMAM has established a business led regulatory and industry reform risk management framework designed to ensure that business activities are conducted in a manner that complies with applicable regulatory and industry requirements and associated changes thereto; and to identify and mitigate the associated key risks that may directly and indirectly apply to the business globally.

This framework tracks significant regulatory and industry developments, including those related to climate and broader ESG topics, assesses their impact on our business and provides an overarching governance framework regarding the implementation of identified changes.

Metrics and Targets

Metrics and Targets

Carbon metrics

Carbon metrics can be used for investment decision making, portfolio analytics and reporting. The starting point are absolute Scope 1, 2 & 3[18] emissions. Several other carbon metrics can be used to add insight and context to these figures as they take into account the contribution of each company to the overall portfolio carbon footprint, and highlight companies that are performing better or worse relative to their peers in terms of emissions efficiency. A summary of core carbon metrics is shown in **Figure 19** based on current best practices as outlined by the Partnership for Carbon Accounting Financials (PCAF Standard) and the TCFD recommendations. In 2023, we published a paper "Understanding Carbon Exposure Metrics" that outlines the evolution of carbon metric standards and our view of current best practices. As part of our ongoing efforts to improve evaluation of climate-related risk, we determine which of these metrics to leverage in our tools, where appropriate.

Figure 19: Strengths, weaknesses and use cases for carbon exposure metrics

Metric	Strengths	Weaknesses	Potential use cases
Total financed emissions* (tonnes CO_2e)	Portfolio decomposition and attribution analysis Ultimate tracker of emissions	Cannot compare portfolios Trends are sensitive to EVIC variations	To set baselines and track emission evolution
Carbon footprint* (tonnes CO_2e/million invested (USD))	Portfolio decomposition and attribution analysis Portfolio comparisons Intuitive link between ownership and responsibility.	Size and carbon efficiency of companies not considered Trend sensitive to EVIC variations	To compare portfolios and perform company attribution based on ownership
Carbon intensity* (revenues) (Weighted average carbon intensity (WACI)) (tonnes CO_2e/million revenues (USD))	Portfolio decomposition and attribution analysis Size and carbon efficiency of companies taken into account	Can be sensitive to short-term fluctuations in product pricing Sensitive to outliers	To evaluate exposure to carbon-intensive companies
Carbon intensity* (physical) (tons CO_2e/unit production) Sector specific	Fundamental link to physical production Independent of pricing and market positioning Size and carbon efficiency of companies taken into account	Cannot perform portfolio decomposition and attribution analysis Normalization is sector-specific Only suitable for homogeneous sectors	To perform sector-specific deep-dive analyses

* Metrics used by J.P. Morgan Asset Management for reporting.

** EVIC: Enterprise Value Including Cash. Based on the recommendation of the EU Technical Expert Group, EVIC has been recommended by PCAF as the apportioning metric of choice, and the TCFD has also recommended its use for listed equities, corporate bonds and business loans in its latest guidance on carbon metrics

[18] Scope 1: Direct emissions from company owned or controlled facilities, Scope 2: Indirect emissions from purchased electricity, heat and steam, Scope 3: Indirect emissions resulting from upstream and downstream activities of the company such as emissions from purchased products, product end use, business travel and investments. https://ghgprotocol.org/corporate-standard

Bridging emissions data gaps

We receive Scope 1 and Scope 2 emissions data for over 14,000 companies, which covers around 99% of our AUM in listed equity and 91% of AUM in corporate bonds. Where companies do not report emissions, we rely on the emissions estimate model of our data vendor.[19]

To fill additional gaps in coverage, we have devised a hierarchical approach across sectors. We assume that industry or sub-industry emissions intensity can be used as a representative emissions factor for the companies with missing data, which increases coverage to ~100%. For cases where emissions information is not available from our data vendor, but where we have company revenue data, a company's carbon metrics will be derived from the average carbon intensity (tons CO_2e/million USD in revenues) for the industry or sub-industry in which it operates. For companies with missing emissions and revenue data, the industry or sub-industry average carbon footprint is used instead. The sub-industry is used when the distribution of emissions intensities within the sub industry is significantly different from the parent industry, and the calculation is handled separately for Scope 1 and Scope 2 emissions.

Our approach results in a higher proportion of our AUM being included in our carbon exposure metrics compared to using only reported or vendor estimated emissions, but results in values with varying data quality. However, we consider this method to strike a sensible balance between the need to provide a straightforward and transparent approach while providing granular enough inputs to differentiate companies across sectors.

Closing the data gap in Alternative Markets

Within the Private Alternatives business, reporting is typically challenging due to gaps in underlying data and methodological challenges. Such data gaps are generally due to (i) the lack of accuracy in the information currently available, (ii) the lack of climate data vendors and (iii) the absence of common industry views. As the industry develops and the impacts of data gaps decrease, we will continue to review options around the provision of data sources to ensure we continue meet regulatory requirements and industry standards. We aim to provide appropriate transparency and disclosure to investors and will continue to review options to review the quality of ESG data sources across all asset classes.

[19] While JPMAM looks to data inputs that it believes to be reliable,JPMAM cannot guarantee the accuracy, availability or completeness of its proprietary system or third-party data. Under certain of JPMAM's investment processes, data inputs may include information self-reported by companies and third-party providers that may be based on criteria that differ significantly from the criteria used by JPMAM, which often include forward-looking statements of intent and are not necessarily fact-based or objectively measurable. In addition, the criteria used by third-party providers can differ significantly, and data can vary across providers and within the same industry for the same provider. Such data gaps could result in the incorrect, incomplete or inconsistent assessment of an ESG practice and/or related risks and opportunities.

Climate-related metrics

We complement carbon exposure metrics with a selection of additional climate metrics to facilitate a comprehensive analysis of climate-related risks and opportunities at the company and portfolio levels, taking into account both physical and transition issues.[20] Climate metrics can be split into two categories: those that consider a company's impact on climate change and those that consider the impact of a low-carbon transition or physical climate change on a company. Carbon exposure metrics are usually associated with the first category along with portfolio alignment metrics (such as implied temperature rise metrics), while climate scenario analysis metrics that consider the valuation impact on companies fall into the second.

Climate-related metrics often require more detailed or nuanced data inputs than carbon exposure metrics and rely on complex modeling or methodologies. However, the key strength of these metrics is that they can provide insights and understanding beyond those that can be gained through carbon metrics alone.

While carbon exposure metrics can show which portfolios or companies have high emissions or emissions intensities, additional climate metrics could show how this risk may reduce in the future as a result of transition plans that are already underway to reduce these emissions. Similarly, a company with low emissions may not be identified by carbon exposure metrics as having high climate-related risks, but climate scenario analysis metrics may show a potential loss in future revenue if it operates in a sector where there are expected shifts in consumer preferences. Climate metrics are therefore not only useful for reporting and analytics, but also for engagement, as they can provide a more quantitative analysis of a company's risks and opportunities.

As we develop our climate analytics capabilities, we will continue to evaluate which climate-related metrics are most appropriate and useful, taking into account data availability and quality. Depending on the outcome of such evaluations, we expect to use the carbon exposure metrics outlined in **Figure 19** and additional climate-related metrics to assess risks and opportunities in our investment strategies and products and where appropriate and meaningful. As industry standards evolve and we enhance our climate metric capabilities, we acknowledge that the scope, methodologies and data sources that we use may change.

Compensation Framework

The Compensation framework for JPMAM's investment professionals is based on several factors that drive alignment with client objectives, the primary of which is investment performance, alongside of the firmwide performance dimensions. The performance dimensions are evaluated annually based on several factors that drive investment outcomes and value, which may include ESG and climate factors that are aligned with client objectives.

[20] The TCFD recommendations suggests using a number of cross-industry climate-related metrics to provide a more holistic picture of an organization's climate-related risks and opportunities. https://assets.bbhub.io/company/sites/60/2021/07/2021-Metrics_Targets_Guidance-1.pdf

GHG Emissions of our AUM

Figure 20: The carbon exposure metrics for our assets under management[21] are:

Total financed emissions:

2021	2022	2023
55	57	55

$MtCO_2e$

Carbon Footprint:

2021	2022	2023
51	63	51

tCO_2e/$million invested

WACI:

2021	2022	2023
161	184	149

tCO_2e/$million revenue

Targets

Interim Net Zero Targets

As part of our business's strategy to help clients manage climate risks and opportunities, JPMAM became a signatory to NZAMi in November 2021. As of December 2023, the proportion of AUM that is considered in-scope of JPMAM's 2030 interim targets in listed equities, corporate bonds and direct investments in forestry, was USD 1,129 billion (38% of the total JPMAM AUM of USD 2,969 billion).

JPMAM will measure its progress towards its targets by the proportion of companies in which it invests that have set their own credible net zero targets. By 2030, JPMAM anticipates that the percentage of its AUM held in companies with science-based targets (SBT-validated or equivalent, as determined by JPMAM) will increase to 55%.

As of December 2023, approximately 32% of JPMAM's in-scope AUM was in investments in companies that had set their own science-based targets.

Investee companies that set and act on credible science-based net zero targets can help manage risk and build and sustain shareholder value over time to the benefit of client accounts. Client portfolios will also decarbonize over time and minimize transition risks. For companies where we assess climate poses a material risk, JPMAM engages with investee companies on the credibility of their target setting, as well as broader aspects of their decarbonization strategy, and climate risk reporting.

[21] We use the metrics described in **Figure 20** which are calculated following the equations outlined in our paper "Understanding Carbon Exposure Metrics". The 2023 data is based on our holdings as of 31st December 2023 across publicly listed equity and corporate bonds. Other asset classes are currently out of scope due to data limitations and methodological challenges. Included in the calculation are Scope 1 and Scope 2 emissions and revenue based emissions intensities from the 2023 Trucost dataset published in April 2024 with a small percentage covered by a gap-filling methodology based on sector averages.

JPMAM's membership in NZAMi does not alter its fiduciary responsibility towards its clients. JPMAM's targets do not change its existing portfolio strategies and do not constrain the investment universe of client accounts or require divestment. JPMAM's ability to meet its voluntary net zero targets is contingent on action from a range of parties, and is dependent on sustained and consistent government policy, accelerated technological breakthroughs and substantial adaption in corporate business models.

Pursuing firmwide operational sustainability

A key component of the Firmwide approach to sustainability is managing the environmental impact of its own operations. The Firm's reported operational environmental footprint is driven primarily by the energy and resources it uses to run its global network of more than 6,000 corporate offices, bank branches and data centers, as well as regular activities such as business travel. The Firm's approach to minimizing operational impact centers on managing its energy and carbon footprint, constructing and operating more sustainable buildings, and implementing leading practices in sustainable sourcing and resource management. The Firm's strategy for energy and carbon footprint management is guided by its carbon-related operational targets, including reducing Scope 1 and 2 greenhouse gas ("GHG") emissions by 40% by 2030 vs. a 2017 baseline and sourcing renewable electricity for 100% of its global power needs annually.

Firmwide Operational GHG Emissions Footprint

The largest drivers of the firm's operational GHG emissions are the energy it uses for its buildings (e.g., electricity, heating and cooling) as well as business travel. The Firm's key categories of emissions include:

a. **Scope 1**. Direct emissions from the combustion of fossil fuels in buildings and company-owned aircrafts and vehicles (i.e., natural gas, jet fuel, gasoline).

b. **Scope 2**. Indirect emissions from purchased electricity, which accounts for the largest share of the firm's overall footprint.

c. **Scope 3 – Category 6 Business Travel**. Indirect emissions from commercial air travel, as well as ground transportation, hotel stays, etc.

For more information on the firm's reported operational emissions footprint, see the detailed environmental data tables available on its website.

For more information on the firms Operational Sustainability Targets and efforts to manage environmental impact, read the 2023 ESG Report and visit our website.

Firmwide Operational Carbon Management Targets

Source renewable electricity for 100% of our global electric power needs.

Target met

Annually recurring

Reduce Scope 1 and Scope 2 greenhouse gas emissions by 2030 vs. 2017 baseline.

Target in progress

Satisfy at least 70% of our renewable electricity goal with on-site renewable electricity and off-site long term renewable electricity contracts by 2015.

Target in progress

For more information, including on progress toward the firm's operational sustainability targets, please visit our website.

It is important to remember that the MSCI ESG metrics provided in this report may not fully reflect future economic reality. At J.P. Morgan Asset Management, our ESG specialists collaborate closely with our research analysts to understand when that may be the case, and where appropriate we engage with companies to improve disclosure and enhance policies. Where we think climate risk may be material, we review fossil fuel exposure, disclosed reduction targets going forward and other relevant information.

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