



ESG integration at J.P. Morgan Asset Management

Global Fixed Income, Currency & Commodities (GFICC)

1 March 2022

For certain strategies that the adviser determines to be ESG integrated, the adviser integrates financially material environmental, social, and governance (ESG) factors as part of the Fund's investment process (ESG Integration). ESG Integration is the systematic inclusion of ESG issues in investment analysis and investment decisions. ESG Integration is dependent upon the availability of sufficient ESG information for the applicable investment universe. In addition, in order for an actively managed strategy to be considered ESG integrated, the adviser requires: (1) portfolio management teams to consider proprietary research on the financial materiality of ESG issues on investments; (2) documentation of the adviser's research views and methodology throughout the investment process; and (3) appropriate monitoring of ESG considerations in ongoing risk management and portfolio monitoring. ESG determinations may not be conclusive and securities of companies / issuers may be purchased and retained, without limit, regardless of potential ESG impact. The impact of ESG Integration on performance is not specifically measurable as investment decisions are discretionary regardless of ESG considerations.

Global Fixed Income, Currency & Commodities (GFICC)

Research / due diligence

We use a disciplined and systematic process to evaluate and identify attractive investment opportunities through the analysis of fundamental, quantitative and technical investment factors. Proprietary research forms the foundation of our approach to ESG integration, with over 70 career research analysts dedicated to thoroughly analyzing every aspect of an investment, including ESG factors. As part of this in-depth fundamental research, credit analysts assess the impact of ESG risks and opportunities on issuers' current and future cash flows. If the analysis of ESG factors shows that they are material and relevant, analysts will reflect this view in their credit opinions.

Our proprietary research process incorporates inputs such as company regulatory filings, annual reports, company websites, direct communication with companies and government issuers, media, third-party research and proprietary J.P. Morgan Asset Management research. Other inputs include sell-side investment research and reports from industry groups. We have developed a proprietary materiality matrix, which highlights the key ESG-related risk factors across all fixed income markets. This tool serves to guide analysts' research efforts to the specific topics within each sector that have the most impact.

Our fixed income sector teams have developed proprietary quantitative ESG rating systems, which capture the nuances within their specific markets and align to their existing investment processes. These include a 40-question ESG checklist for the corporate bond market; country ESG rankings for both developed and emerging markets; and systematic identification of ESG leaders and laggards in the securitized space.

These scoring frameworks serve as useful tools for aggregating the numerous ESG metrics for each issuer and allow for comparison across issuers in the universe. Importantly, the scores are applied to portfolios in a judgmental, not formulaic, fashion and they are accompanied by analysts' qualitative research. Please see below for more information on each sector team's ESG frameworks.

Within Spectrum™, our centralized technology platform, analysts also have access to third-party ESG data for each issuer. This data is displayed in various ways to track individual environmental, social and governance scores, and to observe changes over time. This third-party data serves as a supplement to our analysts' views. Our analysts form their own opinions based on their research and judgment, and this is articulated in written research reports, which contain specific sections for ESG comments.

ESG analysis and research are visible on Spectrum™ and shared across all investment teams, including fixed income and equities, enabling greater collaboration and leverage across the J.P. Morgan Asset Management platform.

Portfolio construction

Investment decisions are informed by a combination of traditional credit metrics, our qualitative analysis of ESG-related factors and the signals generated from our quantitative ESG scoring frameworks. Portfolio managers regularly discuss ESG-related topics with analysts, both for individual issuers and thematically within sectors, to understand how ESG issues may impact risks to cash flows, relative value opportunities and an issuer's overall risk profile.

Where ESG factors are material and relevant, they can directly influence how portfolio managers position issuers versus benchmark. ESG evaluations may be differentiators for names within the same sector, as well as an overall risk assessment tool for top-down portfolio analysis. For example, when two names have similar relative value and similar credit fundamentals, ESG factors can help to differentiate positioning based on governance, environmental initiatives and/or social impact. ESG views may also have a bearing on where along the spread curve portfolio managers choose to invest—for instance, if there is more long-term ESG risk in a particular sector or an individual issuer, portfolio managers may opt to allocate in the shorter-end of the spread curve. ESG factors are integrated into security selection decisions when research analysts believe they are relevant to cash flows.

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Engagement

As bondholders, although we do not typically carry voting rights, we believe our role in providing financing to issuers means we have the ability to advocate for and influence positive change. As such, we engage on a wide range of ESG issues with a variety of market participants. Our large global scale and status within the asset management industry allows us significant representation across asset classes. We often conduct engagement in conjunction with members of the Investment Stewardship team; we also collaborate with our equity colleagues to engage with companies to which we have exposure in their bonds as well as their equity. We participate in thousands of meetings with issuers from across the fixed income investment universe (companies and countries) every year.

The C-suite relationships our research analysts have developed over their careers enable us to engage regularly with company management and representatives of government issuers on matters material to our credit assessment, including relevant ESG factors. We also regularly meet with originators of securitized products and regulators. During these engagements, research analysts raise issues identified as material and relevant, including ESG concerns, in an effort to positively influence issuers to adopt best practices.

We also aim to contribute to positive change by participating in industry forums and regularly consulting with third-party data providers. For instance, we have board representation on industry bodies, such as the Edison Electric Institute and the European Leveraged Finance Association. This allows us to encourage closer cooperation among issuers on key ESG initiatives and to advocate for better disclosure and transparency across the industry. We also scrutinize the data from third-party ESG data providers, working closely with them to improve their coverage of the fixed income universe, data accuracy and timeliness.

In the sovereign space, we recognize engagement is critical, but it can be more nuanced compared to the corporate market given the inherent politics involved. We seek to engage with the sovereign market in a variety of forms, including investing in sovereign debt to finance specific sustainable projects, meeting with government officials regularly to review progress on climate goals, and participating in industry groups to collectively advocate for better disclosure and improved practices from state-owned companies.

The results of our ESG engagement are reflected in the research reports produced by analysts, and they feed back into the overall view of an issuer, thereby influencing investment decisions.

Documentation and monitoring

Qualitative analysis and quantitative metrics related to ESG are housed in our common technology platform, Spectrum™, to ensure full transparency and access for all investors. This documentation includes analysts' credit opinions, which have dedicated ESG sections, and meeting reports, for which we have built out the tagging and search functions to improve the ability to track our engagement practices. Research analysts are responsible for conducting fundamental ESG research, engaging with issuers and ongoing monitoring of the ESG opinions for each credit they cover. When green bonds come to market, research analysts also complete a questionnaire focused on the 'green' aspect of the bond issuance; for instance, considering whether the bond splits out proceeds and what specific project the bond is supporting.

Quantitative ESG metrics, such as the J.P. Morgan Asset Management data-driven ESG score and data from third-party ESG providers, are accessible in our systems for all investors. Portfolio managers also have a daily view of their exposure to the risks associated with ESG factors in our proprietary portfolio management system, which can be customized depending on the nature of the portfolio, thereby aiding them in their portfolio construction and risk management responsibilities.

In addition to the in-depth, bottom-up research our analysts conduct into each bond, continual monitoring is required to understand the ongoing ESG profile of each portfolio. Our risk management team has developed periodic risk reports, sent directly to portfolio managers and accessible in our systems. This enables portfolio managers to monitor the ESG risks to which they are exposed and to identify potential outliers—issuers that stand out as having significantly better or worse ESG scores and practices than their peers.

The GFICC Investment Director team is responsible for 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 across all sectors. Where possible, the Investment Director teams monitor the relative ESG

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exposures of each strategy, and oversee the level of integration from both qualitative and quantitative angles. The qualitative perspective is captured through discussions with the portfolio managers around the consideration of ESG factors at the quarterly review meetings. Quantitative factors, which include measurable metrics on ESG characteristics or exposure of the portfolios, are available in Spectrum™ and our portfolio management system.

Given the scale and diverse nature of fixed income markets, each of our sector teams takes a tailored approach to the ESG integration process discussed above.

● **Corporate credit:** For investment grade and high-yield corporate issuers across both developed and emerging markets, relevant ESG risks are systematically considered as part of bottom-up fundamental analysis. Included in this fundamental research are the impacts to both current and future cash flows from ESG risks and opportunities. This process is guided by the 40-question ESG checklist, which was developed by our equity colleagues and recently implemented for fixed income. Research analysts and portfolio managers use this checklist to assess corporate entities across the capital structure and as an input to portfolio positioning. The checklist is completed for each company under the team's coverage and consists of 12 environmental questions, 14 social questions and 14 governance questions.

Analysts across fixed income and equity collaborate on the questionnaire. This results in one set of responses on environmental and social matters, as we believe these are consistent across the capital structure, with governance questions differing slightly by asset class. The checklist includes both negative and positive questions, and a severity assessment. Rather than a 'pass/fail' exercise, the checklist is a tool to inform discussions between portfolio managers and research analysts, as well as to guide engagement with our investee companies. Examples of questions on the checklist include:

- Does the company lack a credible/measurable strategy or plan to reduce greenhouse gas emissions?
- Is the company poised to benefit as a result of their actions related to environmental considerations?
- Does the company have unaddressed issues with labor relations?
- Does the company engage in anti-competitive behavior and/or treat its customers unfairly?
- Does the owner have a history of poor governance or of abusing minority shareholders?
- Does the company have a history of aggressive issuance of secured/senior debt that disadvantages existing bondholders?

the Exhibit below depicts an example of the 40-question ESG checklist in Spectrum™.

Illustration of 40-question ESG checklist within Spectrum™

The screenshot shows a software interface titled 'COMPANY NAME' and 'Analyst Questionnaire'. It features a user profile dropdown, 'View Report', and 'Edit' buttons. Below is a table summarizing scores for three categories: Environment, Social, and Governance. Each category is broken down into 'Red Flags', 'Positive Flag', and 'Improver Flag' counts. The 'N' column represents the total number of questions in the category, and the 'Y' column represents the number of questions answered.

Category	N (31)	Y (9)
Environment	9	3
Red Flags	8	2
Positive Flag	-	1
Improver Flag	1	-
Social	10	4
Red Flags	8	4
Positive Flag	1	-
Improver Flag	1	-
Governance	12	2
Red Flags	12	1
Positive Flag	-	1

Image source: J.P. Morgan Asset Management Spectrum™.

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● **Sovereign debt:** Our ESG integration process for sovereign debt is guided by a proprietary ESG scoring framework which results in a score for each sovereign issuer in both the developed market (DM) and emerging market (EM) universes. The score is the output of a number of metrics across each of the environmental, social and governance pillars (16 metrics for DM and 8 metrics for EM). We believe that a proprietary ESG score allows us to better understand data inputs and limitations, and to align our ESG approach with our existing investment processes. For both DM and EM, governance factors carry the largest weight in the overall score as they are the most empirically relevant for asset prices; philosophically, we also view good governance as a foundational pillar for positive ESG developments in the other two pillars. Outside of governance, environmental has a higher weight for EM while social has a higher weight for DM. This is driven by both fundamental reasons (developed countries

generally have greater resources to solve climate change challenges, while emerging countries can be more vulnerable to environmental risks) and the way the proprietary ESG scores fit within our existing investment processes. Within each of the three pillars, we focus on two consistent themes: emissions management and climate risk and resource management for environmental; socio-economic and gender for social; regulatory environment and governance and corruption for governance. Within these themes, we use different metrics for DM and EM to reflect differences in data coverage and materiality. Importantly, comparing DM and EM sovereigns separately allows us to remove some income bias (i.e. richer countries tend to have higher ESG scores than poorer countries). We then supplement these ESG scores with a forward-looking qualitative assessment. The exhibit below depicts our sovereign ESG scoring framework.

J.P. Morgan Asset Management's Sovereign ESG scoring framework

Universe		Developed markets	Emerging markets
Environmental (15% weight DM, 20% weight EM)	Emissions Management	<ul style="list-style-type: none"> ● Carbon emission per Energy (Global Carbon Project) ● Energy Intensity per GDP (World Bank) ● Renewables as % consumption (World Bank) 	<ul style="list-style-type: none"> ● CO2 per capita (Emissions Database for Global Atmospheric Research)
	Climate Risk and Resource Management	<ul style="list-style-type: none"> ● Notre Dame Global Adaptation Index (ND-GAIN) - Vulnerability ● Natural Resource Depletion (World Bank) 	<ul style="list-style-type: none"> ● ND-GAIN - Vulnerability
Social (25% weight DM, 15% weight EM)	Socio-economic	<ul style="list-style-type: none"> ● Gini Index (World Bank) ● Labor Force Participation (World Bank) ● Human Development Index (United Nations Development Program (UNDP)) ● Education as % of government spending (World Bank) 	<ul style="list-style-type: none"> ● Poverty (World Bank)
	Gender	<ul style="list-style-type: none"> ● Female to Male Labor Force Participation Rate (World Bank) 	<ul style="list-style-type: none"> ● Gender Development Index (UNDP)
Governance (60% weight DM, 65% weight EM)	Regulatory Environment	<ul style="list-style-type: none"> ● Ease of Doing Business (World Bank) 	<ul style="list-style-type: none"> ● Ease of Doing Business (World Bank)
	Governance and Corruption	<ul style="list-style-type: none"> ● World Bank Governance ● Transparency International Corruption ● Debt to GDP (IMF, J.P. Morgan Asset Management) ● Fiscal Balance (IMF, J.P. Morgan Asset Management) 	<ul style="list-style-type: none"> ● World Bank Governance ● Transparency International Corruption ● Short-term Political Index (J.P. Morgan Asset Management)

Source: J.P. Morgan Asset Management; as of August 2021.

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- **Securitized:** We conduct bottom-up research on both the underlying collateral and the deal structure of securitized products. The analysis of the collateral focuses on the quality of the underlying receivables and the likelihood that future cash flow payments will ultimately be received. The primary focus of assessing the deal structure is the structural factors that can alter the payments flowing from the collateral to different tranches in the deal, to better understand each security's expected total return under different prepayment or expected loss scenarios.
- **Municipal bonds:** As a part of the credit research process, credit analysts integrate material ESG factors into their overall internal credit risk assessments, assigning obligor-level ESG indicators and documenting relevant and material ESG-related comments in the municipal credit database. From this database, credit analysts store and disseminate credit research reports that include the ESG factors and any material ESG-related comments. Portfolio managers incorporate the internal credit opinion, along with relative value assessments, into their investment decision to purchase, hold, or sell a bond.

ESG factors are key components of both the collateral and structural analysis we perform, as they can have a notable impact on future cash flows. We have developed a proprietary materiality matrix which highlights the sources of the most material ESG risks by securitized sub-sector to guide and direct the efforts of our research analysts.

In addition to our focus on proprietary fundamental research, we leverage the depth of our securitized team and alternative third-party data and research providers as a means of uncovering and understanding ESG risks across the securitized space, given the lack of dedicated ESG ratings from third-party providers for the securitized market. For instance, third-party data which provides the geographic concentration of underlying collateral can help to inform potential exposure to extreme weather events. Based on our assessment of the ESG factors, we systematically score securities in the universe as leader (+1), neutral (0) or laggard (-1) across each of the three environmental, social and governance pillars. Leaders are identified as those securities which meet pre-defined sustainability standards and contain a long-term plan; neutral securities are those which are adequate and meet industry standards; and laggards are those which detract from sustainability intentions and lack long-term vision. This scoring process incorporates considerations from across multiple dimensions including borrower and collateral; sponsor, originator and servicer; and deal & structure.

In addition to this scoring framework, analysts include an ESG write-up for new issues as part of the credit process, stored in the Research Notes repository in Spectrum™. Quarterly credit reviews are undertaken across securitized assets, and ESG factors are reviewed and updated as part of these quarterly reviews.

For more information on our approach to ESG Integration please contact your J.P. Morgan Asset Management representative.

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