

ESG Materiality Map

Paper And Forest Products

Oct. 19, 2022

Climate-related risks are the most material factors. Biodiversity and resource use, workforce health and safety, impact on communities and sustainable products and services are examples of factors currently more material for stakeholders than credit.

This report does not constitute a rating action



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In line with the research report “[Materiality Mapping: Providing Insights Into The Relative Materiality Of ESG Factors](#),” published on May 18, 2022, S&P Global Ratings is publishing research on the ESG materiality map for the paper and forest products sector. We provide an illustration of our current view of the relative materiality of certain environmental and social (E&S) factors, from both the stakeholder and credit perspectives, for the sector. The materiality map does not represent any new analytical approach to the treatment of E&S factors in our credit ratings. See our ESG criteria for more information on how we incorporate the impact of ESG credit factors into our credit ratings analysis.

Paper And Forest Products Sector

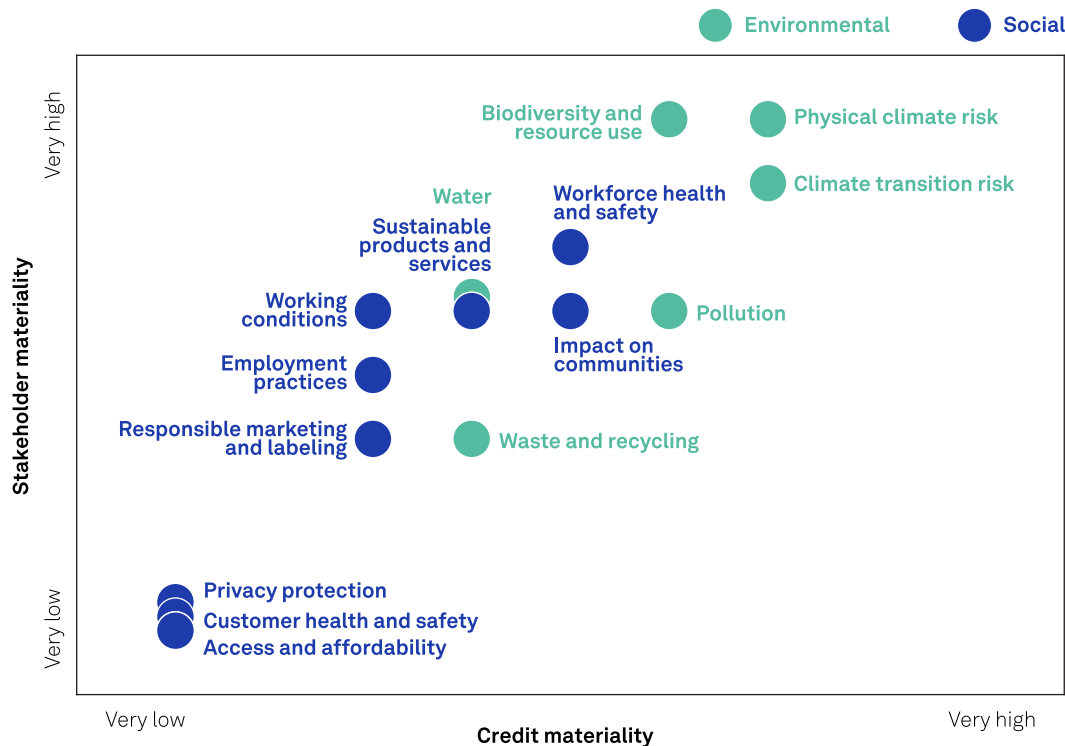
The paper and forest products sector covers a broad range of subsectors and as such, environmental and social considerations are varied within the value chain. The sector includes companies whose primary activity is harvesting timber or converting wood fiber and recycled cellulose fiber into pulp, paper, or converted wood products.

Key Takeaways

- Environmental issues, particularly climate-related risks, are the most material for both stakeholders and credit. This is due to higher potential for destruction of physical assets. We believe the systemic impact associated with deforestation could be significant and reforestation and afforestation could be critical in combating climate change.
- Biodiversity and resource use is a very material factor for stakeholders but relatively less for credit. There is high social awareness and various stakeholders engaged in ensuring or promoting land, water, and wildlife conservation. Logging activities are regulated globally, embedding costs and business protocols to ensure sustainable harvests.
- Workforce health and safety, impact on communities, and sustainable products and services hold more significant materiality for stakeholders than for credit. This is because of the inherently dangerous nature of some professions within the industry, close links to the community, and sustainable credentials of final products.

See materiality map on the following page.

ESG Materiality Map For The Paper And Forest Products Sector



The materiality map provides an illustration at a point in time, of our findings on the relative materiality of certain environmental and social (E&S) factors, from both the stakeholder and credit perspectives, for the sector. It does not represent any new analytical approach to the treatment of E&S factors in our credit ratings. See our ESG Criteria for more information on how we incorporate the impact of ESG credit factors into our credit ratings analysis. Source: S&P Global Ratings.

How To Read The ESG Materiality Map

The stakeholder materiality (Y axis) reflects our assessment of the relative level of impacts and dependencies of the sector on the environment, society, and economy.

The credit materiality (X axis) reflects our assessment of the relative level of potential and actual credit impact for the sector. The credit implications for the factors positioned on the left side to the middle of the X-axis would be more limited and absorbable. On the right side, there is higher potential for these implications to be more disruptive. We assess credit implications for an entity based on its individual characteristics.

Assessing E&S factors' materiality: We consider both the likelihood of the impact from a given factor, as well as the magnitude of the impact. The materiality of the factors varies depending on the perspective (stakeholder or credit) as well as the evolving and dynamic interactions between these two dimensions.

The main areas of the map:

- The upper-right quadrant displays the most material, on a relative basis, E&S factors identified for the sector from both a stakeholder and credit perspective.
- The upper-left quadrant presents factors that are more material from a stakeholder than credit perspective. These factors have the potential to become more material from a credit perspective.
- The bottom-left quadrant shows factors that are less material for both stakeholders and credit. Their materiality may evolve over time and this dynamic may not be linear.

Examples Of Material Factors

Below we provide the rationale of some of the material factors to illustrate the above findings.

Physical climate risk

Physical climate risks such as wildfires and droughts, as well as greater prevalence of pests and diseases associated with a warming world, are highly material to both stakeholders and credit. These risks will continue to affect stakeholders as climate change results in more extreme, and oftentimes unpredictable, weather patterns. Paper and forest product companies around the world contend with wildfires every year. These events may be worsening-- fires are becoming larger and more damaging--and 'fire seasons' around the world could become longer due to climate change. From a credit perspective, the destruction of such physical assets--either raw material trees/forests or the equipment used to process them--will delay companies' ability to provide products and ultimately reduce volume.

Climate transition risk

Climate transition risks are highly material for the sector for both stakeholders and credit. The forest sector can provide a range of climate mitigation options, including carbon storage in forests and soils, harvested wood products, and from wood-based products replacing fossil-based ones, particularly biofuels. As a major store of carbon, there could be increasing pressure in the future to protect forested areas, potentially restricting areas that can be used to produce forest products. The impact of climate transition risks on credit will likely depend on implementation of energy efficiency measures, alternative fuels for producing heat, availability of more environmentally-friendly substitutes for chemicals used in the pulp and paper-making process, and the prevalence of regulation by local governments that will affect costs. We expect these dynamics to continue but vary regionally.

Biodiversity and resource use

Biodiversity and resource use are highly material for stakeholders and material for credit, albeit less so. In addition to being the main source of virgin raw materials for the paper and forest products industry, forests also provide a wide range of ecosystem services, including carbon sequestration, water filtration and storage, pollution capture, soil quality, and habitat for biodiversity. Various stakeholders are engaged in ensuring land, water, and wildlife conservation and a number of regulatory bodies have mandated the setting aside of certain areas of land in order to protect biodiversity. Credit impact stems from costs related to the overall industry's conservation efforts. While the regulation and/or enforcement in certain geographies (Indonesia, the Amazon) is not very strong, sustainable practices appear to be followed in most developed markets and by large industry players even in emerging markets. Forest practices that are detrimental to forest health could bring about adverse publicity, boycotts, and regulatory scrutiny, which could influence future credit quality.

Pollution

Pollution is a material consideration for both stakeholders and credit for pulp and paper and to lesser extent for wood products makers. The use of chemicals (such as chlorine, paper dyes, fungicides) in production means the industry must closely monitor water quality. Companies must typically meet required air pollution standards, in addition to water discharge and waste

management, in their production facilities with potentially significant penalties for any regulatory breaches. These considerations are important for stakeholders' materiality. With good public awareness with respect to potential threats to waterways, the potential for demand contraction for products and producers that are above-average pollution contributors could have a negative impact on credit quality.

Workforce health and safety

Workforce health and safety is more material for stakeholders than for credit. Workers in the industry, both in the timber harvesting and the processing phases, face potential for significant bodily injury and exposure to hazardous materials. Being a logging worker, for instance, was the second most dangerous profession in 2020 according to U.S. Bureau of Labor Statistics with a fatal work injury rate of 91.7 per 100,000 full-time equivalent workers. Historically, the credit materiality of this was more limited due to health and safety in the sector being highly regulated in most developed markets with high adoption of and low- to zero-tolerance for failing to abide by safety requirements, which can limit both litigation and operating disruption risks. Nevertheless, in markets with less stringent legal requirements or enforcement capacities and with growing scrutiny of safety practices by stakeholders, legal and reputational risks may increase over time, affecting the factor's credit materiality.

Impact on communities

Relations and engagement with communities and indigenous populations are material for stakeholders but to-date have had fewer material impacts on credit. Paper and forest products companies are often a large employer in local communities and support local economies and tax base. At the same time, the proximity of their assets to usually small or rural communities can have adversely effects. Concerns include air and water pollution, as well as odor and noise. Therefore, pulp and paper producers can face opposition from local communities and regulators that could, in serious cases, have credit impacts. In particular, land-use disagreements with local and indigenous populations can delay production, disrupt operations, or cause reputational issues. Historically, the ability of companies within the industry to manage their relationships with communities has generally limited the impact of this factor on credit, usually owing a breadth of assets and locations that can insulate companies from acute localized issues. And risks as they relate to community relations can be further mitigated due to the often-outsized presence companies in the sector have as a major employer in the regions in which they operate.

Sustainable products and services

The sustainable products and services factor is increasingly material for stakeholders but currently has a relatively lower credit materiality. From the stakeholder perspective, demand for sustainable paper and forest products from consumers and businesses will continue growing and gradually become the norm and, in some regions or sectors, is already well established. If companies properly manage the sector's sustainability risks (e.g. deforestation, health and safety, community impacts), forestry products can be viewed as a potentially more sustainable material than alternatives due to the renewable nature of the raw material and its circularity characteristics compared with substitutes. From a credit perspective, therefore, implementing more sustainable practices and developing sustainable products in response to customer and public demand may lead to short-term costs. But a failure to do so may affect customer relationships and have reputational implications. Sustainable product offerings may potentially provide access to new or greater market opportunities and potentially increased margins and

revenues in the longer term. Notably, the sector benefits from mature and widely recognized sustainability standards, including, but not limited to, the Program for the Endorsement of Forest Certification (PEFC) and Forest Stewardship Council (FSC), which provide reputable guidance that help give companies, customers, and stakeholders comfort in the sustainability of products. Use of these standards and certifications can mitigate potential stakeholder risks and act as a point of differentiation for companies while reducing concerns about defending sustainability claims.

What is our approach to research on the ESG materiality map?

Referring to the research report “[Materiality Mapping: Providing Insights Into The Relative Materiality Of ESG Factors](#),” published on May 18, 2022, this research is built on the ESG materiality concept that considers ESG issues as material when they could affect stakeholders, potentially leading to material direct or indirect credit impact on entities. It considers that all businesses, through their activities and interactions, impact and depend, directly or indirectly, on stakeholders such as the environment (natural capital), society (human and social capital), and economy (financial capital). Using this ESG materiality concept, S&P Global Ratings has worked toward identifying a common, global, cross-sector set of E&S factors that we believe are material to stakeholders, and either are already, or have the potential to become, credit material for entities. The materiality map we propose provides an illustration at a point in time, of our findings on the relative materiality of those factors, from both the stakeholder and credit perspectives.

How does the sector ESG materiality map relate to credit ratings or ESG evaluations?

The sector materiality map is a visual representation of the factors that we consider impactful to the sector from a stakeholder and credit perspective for the purposes of this research. It does not represent any new analytical approach to the E&S factors in our credit ratings.

The relative materiality of the factors indicated on the materiality maps may inform the E&S Risk Atlas scores and the weights of the E&S factors used in ESG evaluations.

They may also inform our discussions with issuers on those factors’ existing or potential credit materiality.

Related Research

- [Materiality Mapping: Providing Insights Into The Relative Materiality Of ESG Factors](#), May 18, 2022
- [Environmental, Social, And Governance Principles In Credit Ratings](#), Oct. 10, 2021
- [ESG Evaluation Analytical Approach](#), Dec. 15, 2020

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