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# Microplastics

## Macro risks and the cost of inaction

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# Executive summary

**Microplastics – the tiny particles created as plastics degrade – are fast becoming a major concern for businesses. Found in everything from soil and water to the food we eat and the air we breathe, microplastics are almost impossible to clean up once they enter the environment. Studies increasingly link them to serious health risks, including hormone disruption and heart disease.**

**One of the biggest sources of this pollution is packaging waste, especially from consumer-facing industries like food, drinks, and personal care, putting companies that produce large volumes of plastic at growing legal, environmental, and financial risk.**

Key findings from our analysis include:

- High-risk sectors are consumer-facing: Downstream sectors such as personal care products, household products, and soft drinks are the largest contributors to packaging and material waste. These sectors are also under greater scrutiny from regulators and the public.
- Many companies lack clear packaging goals: Over half of companies in sectors such as packaged foods and restaurants have no packaging-related targets, leaving them exposed to regulatory and reputational risk.
- Comprehensive strategies are rare: Most companies fail to provide detailed, company-wide plans for reducing packaging waste, limiting their ability to mitigate microplastic-related risks. Only a handful of companies, such as Coca-Cola HBC AG, show leadership with robust, transparent strategies.
- Narrow commitments undermine credibility: Even where packaging goals exist, many are limited to specific products or geographies, raising concerns about greenwashing and regulatory non-compliance.
- Small sectors can pose outsized risks: Industries like industrial conglomerates and packaging materials, though small in number, generate a disproportionately high share of waste and lack strong sustainability leadership.
- Poor plastic risk management is financially material: Companies with weaker packaging governance have shown less stable financial performance and a greater likelihood of large share price declines. Over a 12-year period, firms in the bottom quintile of plastic-related governance were more than twice as likely as top-quintile peers to experience a drawdown of 70% or more. These results indicate a clear association between weak plastic strategies and elevated downside risk, though other factors may also contribute.

To stay ahead, companies need to reduce their plastic waste and rethink how they design and manage packaging. Failing to act could mean lawsuits, tougher regulations, and long-term damage to brand trust. Investors have a key role to play by pushing for better packaging goals, checking for transparency around plastic use, and factoring microplastic risk into investment decisions. Proactive companies that align with emerging standards and reduce their plastic footprints stand to benefit from reduced regulatory risk, stronger consumer trust, and long-term resilience.

# Call to action

**To navigate the growing risks linked to microplastics, investors can take a proactive role by:**

- Reviewing their portfolios with a focus on industries that contribute significantly to microplastic pollution, identifying potential legal, regulatory, or ESG risks related to microplastics generation, management, and disclosure.
- Encouraging companies to set clear and ambitious goals for using recycled materials and adopting circular packaging solutions to reduce their microplastic footprint/exposure.
- Incorporating microplastic pollution risk, such as the breakdown of packaging materials into microplastics, into ESG assessments and factoring these risks into investment decisions.

# Introduction

**Recent international developments highlight the pressing need for stronger plastic regulation and better risk management. In August 2025, the second part of the fifth round of negotiations for the Global Plastics Treaty (INC-5.2) concluded without agreement on key issues. Despite over 100 countries calling for global measures to curb plastic production, mandatory rules on chemicals of concern, and a voting mechanism for future treaty action, all were removed from the draft text.[1]**

This outcome points to two critical trends for investors. First, that current multilateral processes may be unable to deliver ambitious, enforceable global standards. Second, investors are increasingly taking action: over 88 institutional investors representing USD 7.48 trillion in assets have issued a joint statement demanding clearer strategies, stronger targets, and accountability from plastic and petrochemical companies.[2] Even though INC-5.2 concluded without binding global rules, the combination of ongoing regulatory uncertainty and rising investor pressure means that companies with weak plastic waste strategies remain exposed to significant financial risk. Fragmented national and regional regulations, together with investor scrutiny, can create tangible costs, reputational damage, and operational challenges, making inaction or half-measures increasingly material for business performance.

Alongside regulatory and investor pressures, growing scientific evidence highlights the health and environmental stakes of microplastic pollution, which further reinforces the material risks for companies. Microplastics have been linked to significant environmental damage and health concerns, including hormonal disruption, toxicity and potential links to chronic illnesses. Global studies, including the World Health Organization's 2019 report, "Microplastics in Drinking-Water" evaluates the risks of microplastics in drinking water [3],while its 2022 review expanded the scope to exposure through food, and air, and potential effects on human health.[4] Complementing these findings, the Minderoo-Monaco Commission on Plastics and Human Health provided a comprehensive 2023 review of the impacts of plastic and microplastic exposure across the human lifecycle, linking it to developmental toxicity, endocrine disruption, cancer risks, and other chronic conditions.[5] More recently, a 2024 study published in Nature further revealed that microplastics in human blood vessels could be linked to increased risks of cardiovascular conditions, such as heart attacks and strokes.[6]

The economic and health costs of plastic pollution are significant. The global burden is estimated to USD1.5 trillion annually [7], while in the United States alone, research has shown that chemicals in plastics, including microplastics, contribute to health care costs exceeding USD250 billion per year, or 1.22% of the country's GDP.[8]

Key risk drivers include:

- Accountability for discharging microplastics into water or soil.
- Product liability and consumer protection lawsuits due to misleading claims or failure to warn consumers.
- Shareholder litigation for omitting material environmental, social, and governance (ESG) risks in disclosures.
- Regulatory enforcement under expanding national and international laws targeting plastic leakage.
- Class actions and tort litigation as scientific evidence of health impacts increases.

This report demonstrates how companies and investors can identify, manage, and mitigate microplastic-related risks, turning an emerging challenge into an opportunity for strategic resilience and sustainable growth.

# Why investors should care

**Concerns about microplastics and packaging waste have moved well beyond environmental debates. Regulators, investors and consumers increasingly treat them as legal liabilities, financial exposures and reputational tests. Companies without clear, organisation-wide packaging policies risk being unprepared for tightening regulations and may appear less credible on sustainability to investors and customers.**

On the other hand, companies that take the lead with clear recycling goals and circular packaging strategies can reduce legal risks, build customer trust, and stay ahead of emerging climate and sustainability standards. Effective packaging management is emerging as a key indicator of a company's resilience and strategic foresight.

Planet Tracker's Climate Transition Analysis [9] on Fast-Moving Consumer Goods (FMCG) companies illustrates this divide. For example, Unilever has made measurable progress by using scenario planning and working closely with suppliers, while others like Procter & Gamble and Colgate-Palmolive fall behind. They have yet to lay out solid plans to cut upstream emissions tied to plastic packaging, and they do not provide enough transparency around the financial risks. This gap does not just weaken their climate strategies; it also leaves them more exposed to regulatory costs like carbon pricing and packaging waste penalties. For investors, the message is clear: companies that fail to manage packaging risks properly face tangible legal, financial, and reputational consequences, which can directly affect long-term returns.

# Risk overview

**Plastic packaging is a significant contributor to microplastic pollution. It breaks down in the environment and degrades into microplastics that enter soil, waterways, and food systems.[10] Companies with high packaging waste and low recycled content goals face heightened regulatory and reputational exposure.**

## Legal risks

Companies can be held accountable for pollution events, use of harmful chemicals and misleading claims. Litigation is expanding across the value chain – from resin producers to fast-moving consumer goods (FMCG) companies and retailers – with cases brought by regulators, consumers and civil society. For instance, Nestlé faced legal action for allegedly violating California's Extended Producer Responsibility (EPR) laws regarding plastic waste from its bottled water products. Litigation costs in the sector are projected to exceed USD 20 billion cumulatively by 2030, with probable maximum liabilities potentially exceeding USD 100 billion.[11] While this figure represents a small fraction of total sector profits, extreme cases could have material financial impacts. Indirect effects – such as credit rating downgrades, higher insurance premiums, and share price volatility – further amplify these risks.

Mismanagement of plastic waste-related risks can have repercussions for companies and investors. For example, PepsiCo is facing a lawsuit from Los Angeles County alleging it misled consumers about the recyclability of its plastic packaging and downplayed environmental harms. The county seeks civil penalties, restitution for cleanup costs, and an injunction against deceptive marketing. If successful, the case could result in substantial financial liabilities, reputational damage, and stricter regulatory obligations for PepsiCo's packaging practices.

## Reputational risks

Consumers and civil society are becoming increasingly sensitive to packaging-related environmental harm. Narrow or selective commitments can be perceived as greenwashing, eroding brand trust and potentially harming investor reputation as well. Greenwashing – where companies present themselves as more environmentally responsible than they truly are – has become increasingly sophisticated, and some major companies now recognise greenwashing claims as a material risk in their legal filings.[12]

## Regulatory risks

Governments worldwide are tightening regulations on single-use plastics, recycling mandates and EPR schemes. Non-compliance can result in fines, penalties and operational constraints. Companies with weak strategies face escalating costs and potential market restrictions whereas proactive firms can align with evolving standards and reduce exposure.

- Europe: advanced extended producer responsibility (EPR) frameworks and bans on single-use plastics are raising compliance costs.
- North America: rules remain fragmented but tightening at a state-level rules, with lawsuits increasingly test corporate accountability.
- Asia-Pacific: uneven enforcement but accelerating reforms.
- Global: the anticipated Global Plastics Treaty is expected to drive convergence and elevate mandatory disclosure and reduction obligations, even though the last round of negotiations was again inconclusive. Nevertheless, a wave of regulation is coming, whether the treaty is ultimately established or not.[13]

Sectors such as personal care, household products, and soft drinks are under growing scrutiny. Many companies in these industries lack clear goals or strategies for reducing packaging waste. This combination of high waste and limited transparency increases the likelihood of financial and operational consequences, making effective risk management critical.

## Financial risks

Effective management of plastic waste may translate into reduced risk and volatility for investors overall. Over the last 12 years, the companies that most effectively managed their related risks show lower volatility in their revenues and cash flow and were significantly less likely to see major drawdowns in share price than their worst-performing peers.

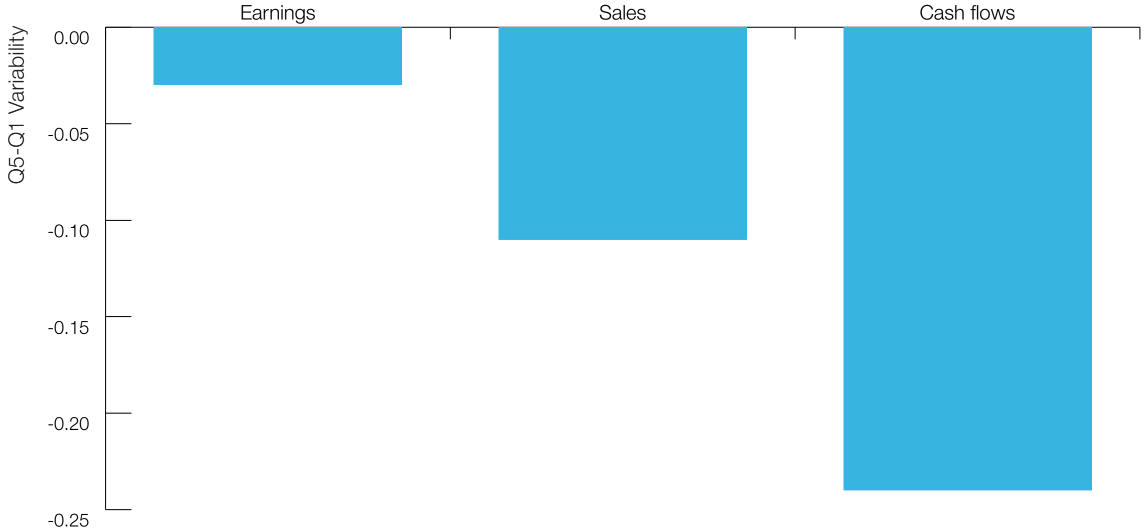
The Packaging Material & Waste assessment within MSCI's ESG Ratings framework, analysed in this report, evaluates financially material environmental risks linked to a company's use of packaging and exposure to waste-related regulations. It is designed to gauge how these risks might impact a company's operations, cost structure, and ultimately, long-term shareholder value. This evaluation focuses on both the degree of a company's exposure to packaging-related challenges and the effectiveness of its risk management practices.

From a financial materiality perspective, companies that rely heavily on plastic packaging face rising regulatory pressures, such as bans on single-use plastics, extended producer responsibility schemes, and recycling mandates. These can lead to increased compliance costs, reformulation expenses, or lost revenue from market restrictions and shifting consumer preferences.

The assessment also examines how companies manage these exposures through transparency, recycling initiatives, circular packaging strategies and time-bound targets to reduce environmental impact. Companies demonstrating strong management are likely to face lower transition risks, benefit from efficiency gains, and lower associated reputational risks.

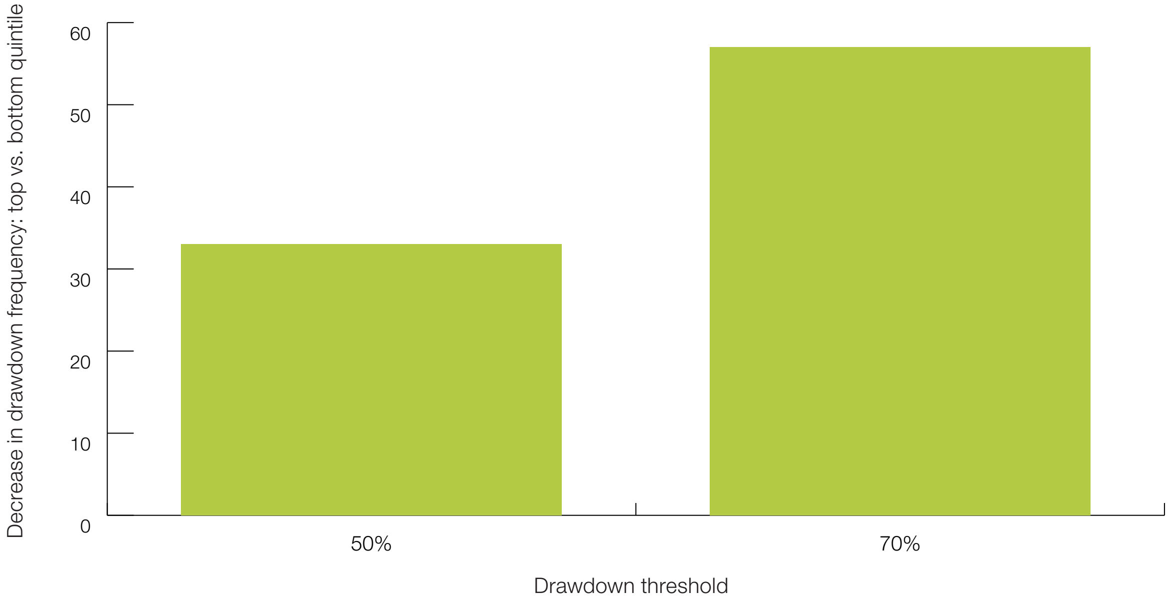
To evaluate the relationship between plastic-related risk management and financial outcomes, the assessment was converted into a quantitative score. Companies in the top quintile were then compared to those in the bottom quintile over a 12-year period. This analysis aimed to determine whether plastic-related risks have been associated with elevated fundamental or market risk for investors. The results indicated that companies with stronger plastic waste risk management exhibited more stable operating performance, characterized by lower variability in sales, earnings, and cash flows. These companies were also less prone to significant share price declines. Specifically, an analysis of drawdowns of 50% and 70% revealed that firms in the bottom quintile were more than twice as likely to experience a drawdown of at least 70% compared to their top-quintile counterparts.

## Variability in sales, earnings and cash flows for top-scoring companies compared to their worst-scoring peers




Data period from September 30, 2013, to April 30, 2025. Analysis covers constituents of the MSCI ACWI Index that were assess on the packaging material and waste key issue during that period (around 4% of companies). The sample was divided into quintiles every month based on the key issue score and the spread was calculated as the top minus bottom quintile's average variability in sales, earnings and cash flows. Quintiles are based on plastic waste risk management scores, where negative values indicate that companies with stronger plastic risk management had lower variability in sales, earnings, and cash flows. Source: MSCI ESG Research LLC.

## Reduction in the frequency of large drawdowns for top-scoring companies compared to their worst-scoring peers




Data period from September 30, 2013, to April 30, 2025. Analysis covers constituents of the MSCI ACWI Index that were assess on the packaging material and waste key issue during that period (around 4% of companies). The sample was divided into quintiles every month based on the key issue score and compared to the frequency of large drawdowns over the course of the next 3 years. Source: MSCI ESG Research.

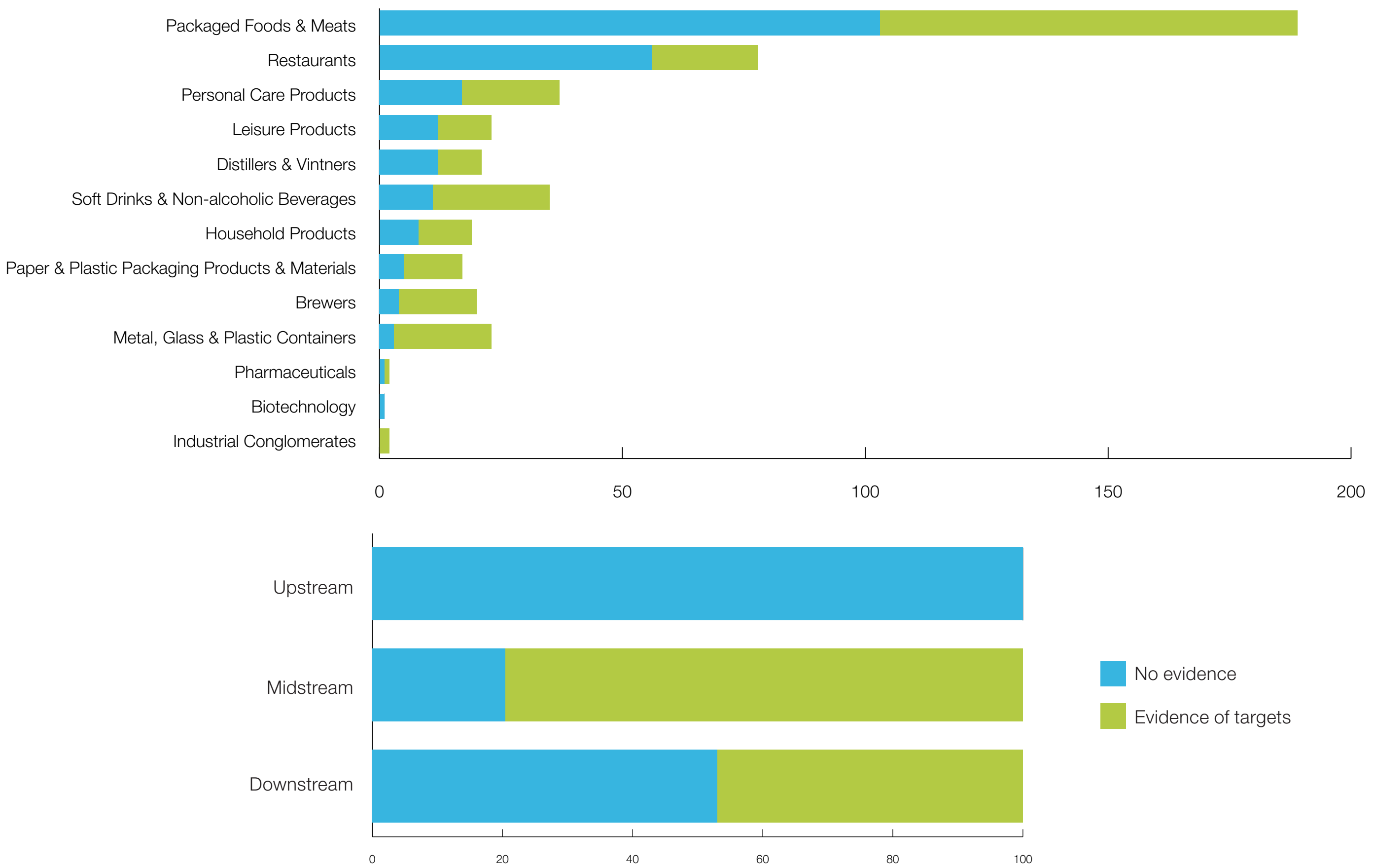
# Sector risk profiles and strategy gaps

## Many companies lack packaging targets

In many consumer-facing sectors, a large proportion of companies still have no measurable packaging commitments, leaving them exposed to regulatory scrutiny and reputational criticism. Analysis of the MSCI ACWI index shows a clear divide across the value chain: downstream companies display mixed levels of commitment, with 223 firms showing no evidence of packaging targets compared to 199 that have set goals to increase recycled content. Midstream companies are more engaged, with over 75% (35 out of 44) reporting packaging-related targets, while upstream players show almost no involvement at all.

At the industry level, the gaps are stark. In the packaged foods and meats sector, more than half of companies (103 out of 189) report no packaging-related targets. In the restaurants sector, 56 of 78 companies lack commitments, while in personal care products 17 of 37 have yet to establish documented goals. This widespread absence of measurable targets highlights a broader accountability gap, raising concerns over both regulatory compliance and the credibility of corporate sustainability claims.

### Commitments to managing packaging waste – a key source of microplastics

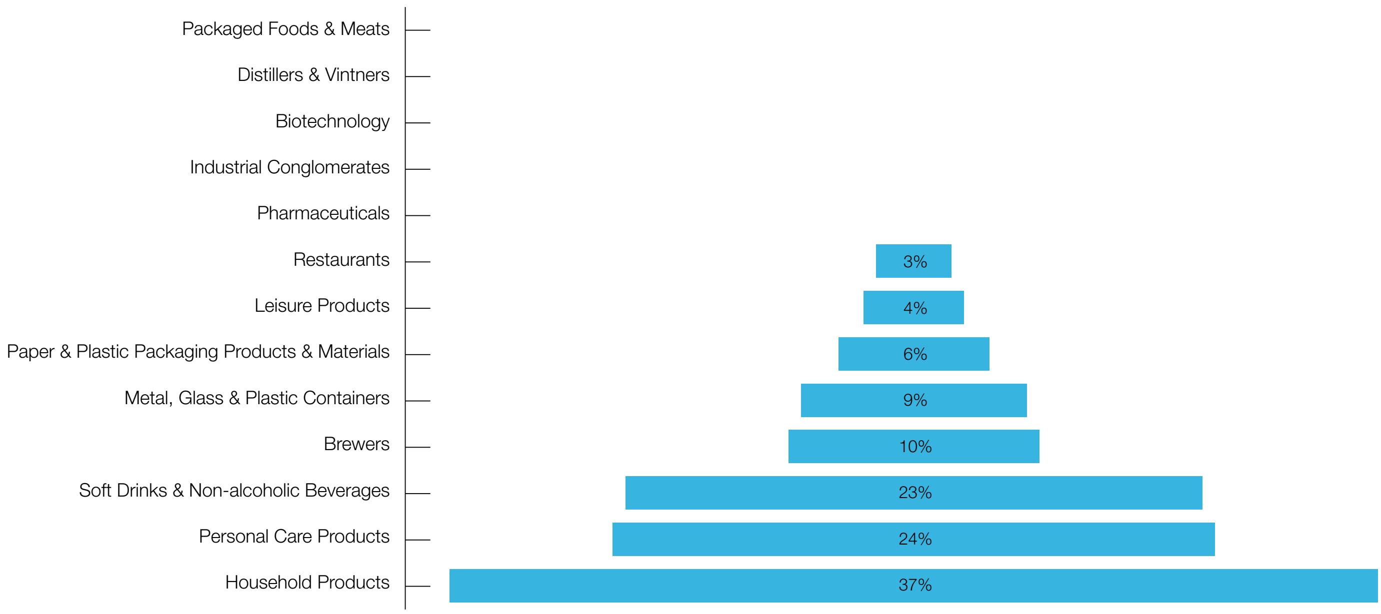



Scope of targets to increase recycled material content of packaging by segment (left) and GICS Sub-Industry (right)
Source: MSCI ESG Research LLC. Analysis covers constituents of the MSCI ACWI Index

# Few companies have comprehensive strategies

Most companies do not have clear, detailed plans for making their packaging more sustainable, which leaves them open to risks from regulators and the public. For example, in the packaged food & meats sector, none of the 189 companies analysed have set clear strategy for managing packaging impacts. The restaurants sector shows only marginal improvement, however efforts are localised and limited with just. The widespread lack of clear strategy points suggests these industries may not be fully prepared to handle growing pressure around packaging waste and microplastic pollution.

## Companies with strategy to reduce the environmental impact of packaging




Source: MSCI ESG Research LLC. Analysis covers constituents of the MSCI ACWI Index. Percentage of companies with strategy to reduce the environmental impact of packaging within their GCIS Sub-Industry/ Source: MSCI Institute

Companies should adopt company-wide, measurable strategies aligned with circular economy principles. Effective engagement focuses on scaling pilot programs, broadening the scope of initiatives, and enhancing transparency, ensuring they are better prepared for stricter regulations, reputational scrutiny, and potential financial exposure.

## Many commitments are narrow or product specific

A large share of companies set packaging targets that apply only to selected product lines or materials, rather than across their full operations. For example, in the packaged food and meat sector, commitments were almost evenly split between narrow and company-wide goals. Similar patterns appear in other sectors such as restaurants and personal care products, where narrow pledges are just as common as broad ones.

This distinction matters. Narrow, product-specific commitments reduce both the effectiveness and credibility of sustainability strategies. They also heighten legal and reputational risks, as regulators and courts increasingly expect companies to demonstrate consistent, verifiable, and organisation-wide action. Selective initiatives, if not embedded in a broader strategy, risk being perceived as greenwashing.

A handful of companies, however, show what credible leadership looks like. For example, Coca-Cola stands out for setting broad, time-bound targets backed by a comprehensive strategy. The company discloses its full packaging material mix, implements waste reduction and recycling programs across its operations, and provides evidence of measurable improvements in packaging design and recovery efforts. While such examples highlight what best practice can look like, the broader trend across sectors remains one of fragmented, narrow commitments. PepsiCo followed closely behind, demonstrating strong performance with anecdotal evidence of consumer waste-reduction programs in certain locations or for specific materials. However, it is worth noting that both Coca-Cola and PepsiCo have a long history of missing and moving their targets, raising concerns about consistency and long-term accountability in its sustainability commitments.[16]

### What good targets look like

Leading frameworks – such as the **Ellen MacArthur Foundation's Global Commitments**[15] or the **WWF's Resource program**[16] – highlight the characteristics of credible packaging targets:

- Time-bound, science-based goals.
- Absolute reduction commitments (tonnes of virgin plastic cut).
- Minimum recycled content thresholds.
- Reuse and refill benchmarks.
- Transparent baselines and reporting - ideally independently verified.
- Phasing out unnecessary or problematic plastics.

### Examples:

- **Unilever:** 50% reduction in virgin plastic use by 2025 vs. 2018 baseline, including an absolute cut of 100,000 tonnes. However, in 2024 Unilever announced a revision of this target, shifting the goal to a 33% reduction by 2026. This adjustment means the company now plans to reduce its virgin plastic use by approximately 100,000 tonnes less annually than originally intended.[17]
- **PepsiCo:** Double reusable packaging share from 10% to 20% by 2030.[18]

These benchmarks allow investors to differentiate between headline ambitions and credible transition strategies. Firms with clear interim milestones and transparent reporting are better positioned to comply with emerging regulations, reduce reputational risk, and manage financial exposure, while those with vague or partial commitments face growing challenges.

## Small but high-risk sectors

Some sectors have only a few companies but create a surprisingly large amount of packaging waste and they often lack strong leadership to manage these risks. For example, the industrial conglomerates sector even though there are just two companies in this group, Lotte Corp and Swire Pacific Ltd, they produce 24% of the packaging and material waste and neither has shown solid plans to address it. The metal, glass & plastic containers sector and the paper & plastic packaging products sector also generate a lot of waste (15% and 12%, respectively) but do not offer much transparency or clear strategies for sustainability. Because of their big environmental impact and weak risk management, these smaller sectors could soon face more pressure from regulators and legal authorities.

# Conclusions

**Microplastic pollution is no longer a marginal concern; it is quickly becoming a major legal, environmental, and financial risk that directly affects how companies perform and what investors can expect.**

Companies that produce a lot of plastic waste but do not have strong, clear strategies in place are increasingly at risk of lawsuits, stricter regulations, and damage to their reputation. The data shows that many, especially in high-waste, consumer-focused industries, are not ready for these challenges.

As regulations tighten worldwide, including the ongoing negotiations for a Global Plastic Treaty, and people become more aware, the cost of doing nothing will only get higher. Companies need to go beyond small, product-by-product promises and set science-based, company-wide goals for packaging and recycling. Investors should treat packaging governance as a key ESG risk, actively engage with the companies they invest in about their sustainability efforts and use this information to make smarter risk and investment decisions.

Tackling microplastic risks goes beyond compliance: it is an opportunity to strengthen business models, safeguard long-term value, and support the shift to a circular, low-waste economy.

## What comes next

The INC-5.2 talks ended without agreement on several issues, including production caps, chemicals of concern, and decision-making mechanisms. While the next round of negotiations has not yet been scheduled, it is clear that regulatory action at national and regional levels will continue to grow. Companies that take steps now to improve packaging strategies and reduce plastic exposure will be better positioned to navigate evolving rules, strengthen resilience, and lower both financial and reputational risks.

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# About

## Planet Tracker

Planet Tracker is a non-profit financial think tank producing analytics and reports to align capital markets with planetary boundaries. Our mission is to create significant and irreversible transformation of global financial activities by 2030. By informing, enabling and mobilising the transformative power of capital markets we aim to deliver a financial system that is fully aligned with a net-zero, nature-positive economy. Planet Tracker proactively engages with financial institutions to drive change in their investment strategies. We ensure they know exactly what risk is built into their investments and identify opportunities from funding the systems transformations we advocate.

## Plastics Tracker

The goal of Plastic Tracker is to stem the flow of environmentally damaging plastics and related products that are creating global waste and health issues by transparently mapping capital flows and influence in the sector starting from resins production through to product-use. By illuminating risks related to natural capital degradation and depletion, investors, lenders and corporate interests across the economy will be enabled to create more sustainable plastics products.

## MSCI Institute

We're on a mission to advances knowledge that tackles systemic challenges to create long-term value for global capital markets. We pursue our mission through interdisciplinary research, education and events that equip financial institutions, academic researchers, policymakers and NGOs with the insights they need to drive progress.

For more information and to engage with us, visit https://www.msci-institute.com

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