Reengineering MSCI's ESG Ratings Methodology

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ABSTRACT

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This study builds on the existing Morgan Stanley Capital International (MSCI) ESG Ratings methodology and introduces a complementary framework designed to better incorporate supply chain considerations and dynamic risk factors. While MSCI's established model effectively evaluates Environmental, Social, and Governance (ESG) factors using fixed weights and proportional adjustments, there is an opportunity to further refine the approach by incorporating industry-specific key issues, regional ESG risk variations, and the interconnected nature of ESG dimensions. To support this, we propose enhancements across seven key areas, such as dynamic redistribution of key issue weights, governance scoring that reflects industry context, and controversy assessments that factor in a company's remediation efforts.

A key contribution of this work is the introduction of a dedicated Supply Chain pillar, transforming ESG into ESSG (Environmental, Social, Supply Chain, and Governance). This expansion addresses the systemic oversight of upstream risks and labor violations, which often go unnoticed under the current three-pillar model. We argue that supply chain transparency, ethical sourcing, and logistical resilience should be evaluated independently, given their growing relevance to financial, operational, and reputational performance of companies

Furthermore, we propose a dynamic weighting framework that adjusts key issue scores based on their relative importance within an industry context. Unlike the current approach, which redistributes weights uniformly, our model assigns weights based on issue criticality.

We further address the limitations of static geographic and governance weightings by introducing context-sensitive exposure and management adjustments. These include a flexible geographic risk multiplier and flexible governance weighting based on how strict the rules are in different industries. Controversy deductions are also restructured using a remediation scoring mechanism, enabling companies to partially offset penalties by demonstrating corrective actions.

Finally, we propose for an integrated approach to ESG scoring that captures interdependencies across pillars, recognizing that risks and opportunities often intersect. For instance, poor social practices in supply chains can intensify environmental harm, a connection the current siloed methodology often fails to capture.

Through these enhancements, our proposed framework delivers a transparent, and actionable assessment of corporate sustainability. It encourages continuous improvement, supports long-term planning, and better aligns ESG ratings with the realities of globalized business operations.

Keywords: ESG Ratings, Supply Chain Sustainability, ESSG Framework, Remediation Scoring, Dynamic Weighting, Industry-Specific Risk Assessment, Cross-Pillar Interdependencies, ESG Exposure Adjustment

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1.INTRODUCTION

1.1 ESG Framework

In recent years, ESG (Environmental, Social, and Governance) frameworks have become essential tools for measuring how well companies perform in terms of sustainability, ethics, and risk management. One of the most widely used frameworks is the MSCI ESG Ratings. This framework evaluates companies based on three main pillars: environmental impact, social responsibility, and governance practices. While this structure provides a solid foundation, there is room to expand its scope to more fully reflect business activities-particularly within the supply chain.

Supply chains play a huge role in a company's overall sustainability, affecting everything from carbon emissions and labor conditions to sourcing practices and compliance risks. However, current ESG frameworks typically spread supply chain issues across the Environmental and Social pillars instead of treating them as a major factor on their own. This makes it difficult to fully understand a company's risk or performance when it comes to how their suppliers operate.

This study examines the possibility of supply chain-related risks and practices that should be recognized through a separate, dedicated pillar in the ESG scoring model, turning ESG into ESSG (Environmental, Social, Supply Chain, and Governance). Along with this, we also highlight other important areas where the current MSCI ESG methods could be improved. These include the need for industry-specific governance weights, better ways to measure company exposure based on geography, and more flexible scoring methods that consider a company's efforts to fix past mistakes or controversies. By addressing these gaps, we can build a more reliable and fairer ESG system-one that helps investors, companies, and policymakers make better decisions about sustainability and long-term performance.

1.2 MSCI-The Company

Morgan Stanley Capital International (MSCI) is a well-known global company that helps investors make better decisions by providing tools like market indices, risk analysis, and ESG (Environmental, Social, and Governance) ratings. Founded in 1969 and based in New York, MSCI plays a major role in the financial world. One of its most recognized tools is the MSCI ESG Ratings system, which looks at how well companies manage environmental, social, and governance risks. Companies are scored from AAA (the best) to CCC (the worst), and these scores are widely used by investors, fund managers, and policymakers to evaluate how sustainable and responsible a business really is. However, while MSCI's approach is detailed and widely accepted, many experts argue that it doesn't give enough attention to risks within a company's supply chain. This has sparked discussions about how the ESG rating system could be improved to better reflect the full picture of a company's operations.

2.LITERATURE REVIEW

In recent times, ESG frameworks have become increasingly vital for evaluating corporate sustainability, ethical practices, and long-term financial health (Chen et al., 2023). Among these, the MSCI ESG Ratings system is highly regarded for assessing how companies manage ESG risks and opportunities that can financially impact their performance. This system organizes ESG risks and opportunities into three core categories: Environmental, Social, and Governance (Martiny et al., 2024). However, while these pillars provide a solid foundation, they fall short of addressing one critical area-supply chains-which serve as the backbone of corporate operations in an increasingly globalized world. Recent studies and disruptions in global supply chains, such as the COVID-19 pandemic, geopolitical tensions, and climate change events, have exposed the fragility and critical role of supply chain dynamics in sustainability assessments (Carter & Rogers, 2008). For instance, the semiconductor shortage during the pandemic illustrated how supply chain inefficiencies could cripple entire industries. Despite their growing importance, supply chain dynamics are often treated as secondary considerations within ESG frameworks rather than as core elements. The MSCI ESG Ratings system evaluates companies on a global seven-point scale, derived from scores across the three pillars-Environment, Social, and Governance. Combined, these pillars provide a comprehensive picture of a company's ESG performance which enables stakeholders to benchmark and compare organizations effectively in terms of their sustainability efforts (Lee & Suh, 2022). However, the current framework does not explicitly address supply chain sustainability

There is an increasing importance of integrating ESG principles into sustainable corporate behavior (Barbosa et al., 2023). While ESG frameworks are important in evaluating corporate sustainability, their current structure often lacks the granularity necessary to address the critical role of supply chains. Supply chains have emerged as a critical element in determining an organization’s environmental, social, and governance performance (Krause et al., 2009). For example, they can account for up to 90% of a company’s carbon emissions and resource consumption, particularly in industries like manufacturing and retail (Seuring, 2013). This immense contribution to environmental footprint underscores the importance of evaluating supply chains not just as logistical functions, but as central to corporate sustainability. Moreover, supply chains are deeply intertwined with issues of ethical sourcing, labor rights, human health and safety, and long-term operational resilience. These areas directly affect a company’s reputation, regulatory

compliance, and investor confidence. However, supply chain issues are often categorized under the Environmental or Social pillars in existing ESG frameworks (Pagell & Wu, 2009). Issues like supplier compliance, raw material sourcing, and logistics are sometimes subsumed under Environmental and social pillar of ESG framework (Krause et al., 2009). Raw material sourcing is often evaluated solely for its environmental impact, overlooking supplier-related risks. Similarly, many organizations adopt environmental management systems and promote social equity but not the sustainable supply chain practices (Sharma & Henriques, 2005). Social equity measures often fail to reflect the ethical challenges of subcontracting to tier-2 or tier-3 suppliers operating in regions with weak labor laws. This gap underscores the need for a more targeted approach to evaluating supply chain practices within ESG frameworks.

In the realm of sustainable supply chain literature, ESG (Environmental, Social, and Governance) disclosure and standards have gained significant global recognition, establishing a framework for companies to enhance their sustainability performance and for investors to assess ESG-related risks and opportunities. ESG ratings have evolved into a widely accepted metric for evaluating corporate sustainability, influencing both operational strategies and investment decisions (Dai & Tang, 2021). Since its introduction in a United Nations report in 2006, ESG has become the dominant measure of corporate sustainability and governance. However, existing ESG frameworks often fail to adequately capture supply chain-specific risks and interdependencies, despite supply chains being one of the most critical components of a company's environmental and social impact. Given the increasing importance of supply chains in determining corporate sustainability, there is a need to expand ESG by adding Supply Chain as a separate pillar, transforming ESG into ESSG (Environmental, Social, Supply Chain, and Governance). A dedicated Supply Chain pillar would provide Granularity in Supply chain-specific risks, such as raw material dependency, supplier compliance, and logistics disruptions (Agrawal et al., 2024). Including these aspects under a single Supply Chain pillar ensures their unique importance. Supply chains are inherently complex, yet they play a vital role in sustainability (Seuring, 2013). Companies that adopt sustainable procurement practices, transparent supplier management systems, and robust risk mitigation strategies in their supply chains often outperform their peers in long-term financial and reputational metrics (Jia et al., 2018). For example, initiatives such as blockchain for traceability and supplier audits have proven to be effective tools for reducing risks and improving sustainability outcomes. Supply chain risks vary widely between industries. For example, manufacturing sectors face

challenges in resource sourcing, while retail industries face logistics efficiency related challenge. A new pillar would allow for industry-specific assessments and fairer ESG evaluations (Li et al., 2025). A dedicated pillar would encourage organizations to prioritize transparency and traceability. Traceability of raw materials ensures compliance with ethical sourcing practices and ESG standards. The lack of transparency in supply chains can lead to legal and reputational risks(Jia et al., 2024). Without clear visibility into supplier practices and sourcing origins, companies may inadvertently engage with suppliers involved in unethical labor practices, environmental violations, or regulatory non-compliance. For example, firms failing to disclose supplier information have faced import bans due to allegations of forced labor or unsustainable resource extraction. Inefficient logistics and poor supplier management amplify risks, particularly in global supply chains (Arowosegbe et al., 2024). Delays in transportation, disruptions in supply routes, and inadequate supplier coordination can result in significant financial losses, inventory shortages, and operational bottlenecks. For instance, just-in-time (JIT) supply chain strategies, which rely on minimal inventory buffers, are highly susceptible to logistics failures, leading to production halts and revenue declines. Additionally, weak supplier management can cause quality inconsistencies, regulatory non-compliance, and ethical concerns, particularly in industries with complex multi-tier supplier networks. Ultimately, organizations that do not prioritize supply chain transparency and efficient logistic management face compounded financial and operational challenges, making a strong case for incorporating supply chain considerations within the ESG framework.

A company recognized as an ESG leader might significantly depend on first-tier suppliers with weak sustainability practices (referred to as laggards). This reliance creates reputational, operational, and ethical risks that existing ESG frameworks fail to fully address (Arowosegbe et al., 2024). To close this gap, incorporating a dedicated Supply Chain pillar into ESG ratings can provide a more comprehensive assessment by focusing on supply chain dependencies and their influence on a company’s overall sustainability profile (Dai et al., 2024). Most companies, especially in sectors like manufacturing, retail, and technology, do not operate in isolation. Their sustainability performance is closely tied to the practices of their suppliers (Zhang & Hezarkhani, 2021). For instance, over 90% of a company's greenhouse gas emissions and 50%–70% of operating costs can be attributed to supply chains (CDP, 2020). Similarly, weak labor practices in supplier networks, such as forced labor or unsafe working conditions, can lead to reputational damage, legal repercussions, and regulatory penalties for the purchasing company. However,

current ESG frameworks tend to focus primarily on evaluating the company itself, often neglecting the sustainability performance of tier suppliers critical to their operations (Villena & Gioia, 2018). For instance, a company may adhere to robust ESG standards internally, but if its suppliers engage in unethical practices like child labor or illegal deforestation, it indirectly plays a role in these issues while avoiding accountability under current frameworks. Although ESG leaders may implement supplier codes of conduct or monitoring mechanisms, these measures are not always sufficient to address risks associated with laggard suppliers. As a result, current ESG frameworks fail to effectively capture the degree of these dependencies or penalize companies for indirect exposure to supply chain risks.

Scholars like (Bax et al., 2021) and the European Banking Authority (2020) have pointed out that ESG data can help improve how one predicts company performance and financial risks. However, most current ESG frameworks still look at Environmental, Social, and Governance issues separately. This means they often miss how these issues are connected and how problems in one area can make others worse. The current ESG rating frameworks often adopt a static structure. This structure tends to evaluate Environmental, Social, and Governance dimensions in isolation, without capturing how these dimensions interact one another. As a result, the frameworks may overlook compounding risks (where the simultaneous occurrence of multiple ESG issues leads to only one impact). For example, weak oversight of suppliers (a Governance issue) might lead to both poor labor conditions (a Social issue) and harmful environmental practices like deforestation (an Environmental issue). However, when these are scored separately, one can't see how serious the combined risk really is. Hence, the current ESG scoring might miss bigger or hidden risks, thus making it less useful for investors or companies alike..

Many ESG frameworks assign a fixed and relatively high importance to the Governance pillar, regardless of the industry context. In systems like MSCI's, governance is usually scored as one large category, with the same importance given to all sectors. However, this approach doesn't reflect the fact that governance risks vary depending on the industry. This uniform approach often overlooks the fact that governance risks are not equally significant across all sectors. For instance, industries such as finance, pharmaceuticals, or insurance are subject to stricter regulatory oversight and more complex governance structures, making governance a critical area of concern. On the other hand, sectors like mining or manufacturing may face fewer governance-related challenges

and more pressing environmental or operational risks. Scholars such as (Garefalakis & Dimitras, 2020)have noted that failing to adjust governance weightings by industry can lead to incomplete or skewed evaluations. A company might be rated favorably under the Governance pillar simply because it performs well in one area, like board structure, even if it has serious shortcomings in others, such as tax transparency. To provide a more accurate assessment, researchers suggest putting governance weights based on sector-specific risk profiles. This would allow high-risk industries to be evaluated with greater emphasis on governance, while others can focus more on their primary areas of exposure, creating a more balanced and meaningful ESG evaluation.

Current frameworks typically use a fixed adjustment factor based on geography to modify a company's exposure score. It applies the same adjustment across all regions without considering the severity of local risks or the company's mitigation efforts. This can lead to overestimating or underestimating a company's actual exposure depending on its operating environment. To address these limitations, recent approaches suggest using a dynamic adjustment method that considers both the risk level of the country in which a company operates and the industry's sensitivity to ESG issues. This would allow the exposure score to more accurately reflect the specific risks tied to both the company's location and sector. By doing so, the model better captures the complexity of global operations and supports a more realistic assessment of ESG vulnerabilities. Similar issues exist in the way management scores are calculated. These scores aim to measure a company's ability to manage ESG risks through strategies, programs, and past performance. The assessment of ESG management practices often includes controversy deductions to penalize companies involved in significant incidents. However, the simplistic deduction model that uniformly subtracts a fixed amount from the management score may not fully capture the complexity of corporate responses to controversies. Nirino et al. (2021) emphasize that when a company faces controversies (like scandals or violations), its financial performance is usually hurt. Even if the company has strong ESG practices (like being environmentally responsible or treating employees well), those efforts alone don't fully fix the damage. ESG helps build trust and long-term value, but it doesn't completely repair a company's reputation or profits after a controversy. Therefore, integrating a dynamic adjustment mechanism, such as remediation scoring into the controversy deduction model can help reflect the actual effort companies make to address their controversial issues

The latter part of this work offers a comprehensive elaboration on both the current methodology used by MSCI ESG Ratings and the proposed enhancements under the ESG framework, highlighting key structural differences. While the MSCI model evaluates Environmental, Social, and Governance risks separately and assigns fixed weights across industries and regions, the proposed ESG framework emphasizes interdependent scoring and dynamic weighting. Based on these insights, several future recommendations emerge, incorporate a dedicated Supply Chain pillar into ESG scoring, assess all supplier tiers, especially tier 2 and tier 3, adopt interlinked risk opportunity assessments, and apply industry and region-specific weighting.These recommendations aim to make ESG evaluations more context-aware, forward-looking, and reflective of real operational risks. In conclusion, reengineering the current MSCI ESG methodology fills critical gaps in the existing framework. These enhancements provide a more realistic and holistic view of corporate sustainability, capturing the complex interdependencies that define today's global operations. By reflecting a company's true exposure and management capabilities, the revised methodology enables stakeholders to make better-informed, risk-aware decisions in an increasingly interconnected and volatile global economy.

3. METHODOLOGY DEVELOPMENT

There are eight modifications proposal to improve the MSCI's ESG rating methodology. The current text in the company methodology is provided on the left column indicating the page number in company document. The modifications proposed are presented on the right column, highlighting the modified text in bold in both the current and proposed texts.

3.1 Modification #1

Current Text	Recommended Text
3.1.1 Company-Specific Key Issues (Page 11) In some cases, a company may face a unique Environmental or Social Key Issue that is not shared by other companies in its industry. This can arise from several scenarios, ranging from companies with unique or diversified business models to subsets of companies within an industry that face a unique set of risks (see Exhibit 7). In these cases, a Company-Specific Key Issue is added to the analysis and the weights on the remaining Key Issues are reduced **proportionally**. In other cases, a company may not share a particular Environmental or Social Key Issue that other companies in its industry face. In such cases, the issue is removed from the analysis and the weights on the remaining Key Issues are increased **proportionally**.	**3.1.1 Company-Specific Key Issues (Page 11)** In some cases, a company may face a unique Environmental or Social Key Issue that is not shared by other companies in its industry. This can arise from several scenarios, ranging from companies with unique or diversified business models to subsets of companies within an industry that face a unique set of risks (see Exhibit 7). In these cases, a Company-Specific Key Issue is added to the analysis and the weights on the remaining Key Issues should be reduced **dynamically**. In other cases, a company may not share a particular Environmental or Social Key Issue that other companies in its industry face. In such cases, the issue is removed from the analysis and the weights on the remaining Key Issues should be increased **dynamically** based on priority with this new equation- $NWi=Wi-(Ri/S\times A)$ Let:

	• **A** = Weight of the new key issue. • **N** = Number of existing key issues. • $\mathbf{W_i}$ = Original weight of key issue **i**. • $\mathbf{I_i}$ = Importance rank of key issue **i** (1 = most critical, N = least critical). • $\mathbf{R_i}$ = Redistribution factor for key issue **i**. • **S** = Sum of redistribution factors.

Enhancements and Supporting Rationale

MSCI ESG Ratings methodology provides a comprehensive framework for assessing how companies address ESG issues across various industries and regions. The evaluation process is structured in a hierarchical manner. At the highest level, the methodology organizes assessments into three core pillars: Environmental, Social, and Governance. These pillars are further divided into themes, which encompass specific key issues. For the Environmental and Social pillars, companies are assessed on their exposure to two to seven key issues, while all companies are evaluated on six governance-related key issues. Key issues can be grouped into three main categories. First, there are Universal Key Issues, which are relevant across all industries, like governance.

The problem of this situation is that proportional adjustments often overlook the relative importance of Key Issues, diminishing the emphasis on industry-critical issues. For example, in the beverage industry, water management is an important sustainability concern. Reducing its weight proportionally due to the addition of deforestation diminishes its critical role in the industry. Assigning a 20% weight to deforestation, which may be less concerning in the beverage context, could unintentionally overlooks importance of water management. A more tailored weighting

approach that prioritizes industry-critical factors would enhance the accuracy of company evaluations.

The framework applies a uniform adjustment rather than evaluating the impact of the new Key Issue relative to existing industry risks. Seuring (2013) emphasizes that such methodologies fail to account for the importance of certain issues, leading to misleading scores. Instead of proportionally redistributing the weights of existing Key Issues, the adjustment can prioritize the significance of existing issues. This ensures that critical Key Issues retain most of their original weight while less critical issues absorb a larger share of the deduction.

An example for the proposed text is as follows-

$$Ri = \left(\frac{(\mathrm{N-Ii+1})\text{^}2}{\sum_{j=1}^{N}(\mathrm{N-Ij+1})\text{^}2}\right) \text{ x } 100$$

Step 1: Assign Redistribution Factors

- Most Critical Key Issue -Smallest deduction
- Moderately Critical Key Issue -Medium deduction
- Least Critical Key Issue- Largest deduction

Each existing Key Issue's weight is reduced based on its importance:

Equation: $NWi=Wi-(Ri/S\times A)$

Key Issue	Original Weight (%)	Importance Rank	Redistribution Factor Rank
Water Management (Most Critical)	40%	1 (High)	3
Packaging Waste (Moderate)	30%	2 (Medium)	2
Supply Chain Labor Standards (Least Critical)	30%	3 (Low)	1

$\sum_{j=1}^{N}(N - Ij + 1)$= (3−1+1)^2+(3−2+1)^2+(3−3+1)^2=14

R3= {(3-3+1)^2/14}×100= (1^2/14)×100=7.1%

R2=(2^2/14)×100=28.6%

R1=(3^2/14)×100=64.3%

The redistribution factors R1,R2,R3 determine how much each existing key issue will absorb from the newly added key issue (A=20). The logic behind assigning these redistribution factors follows the principle that:

- Least critical issue gets the highest reduction.
- Moderately critical issue gets a medium reduction.
- Most critical issue gets the smallest reduction.

NW1=40−{(7.1/100)×20}=38.58%

NW2=30−{(28.6/100)×20}=24.28%

NW3=30−{(64.3/100)×20}=17.14%

Key Issue	**Adjusted Weight**
Water Management	38.58%
Packaging Waste	24.28%
Supply Chain Labor Standards	17.14%
Deforestation (new)	20%

A dynamic redistribution framework is proposed, where these percentages are determined through a detailed evaluation of industry specific and company-specific factors, such as operational impact, regulatory risks, and controversy history. This percentage can be customized and reductions based on the findings.

3.2 Modification #2

Current Text	Recommended Text
3.1.2 Setting ESG Key Issue weights (Page 13) Once the Key Issues have been selected for a GICS sub-industry, MSCI ESG Research sets the weights that determine the contribution to the overall rating of: • Each Key Issue in the Environmental and Social Pillars; and • The Governance Pillar. Each Environmental and Social Key Issue typically comprises 5% to 30% of the total ESG Rating. The weights for these Key Issues are determined for each GICS sub-industry based on the sub-industry's contribution to the negative externality associated with the Key Issue and the expected time horizon for the Key Issue to materialize, as illustrated conceptually in Exhibit 8, below. For the Governance Pillar, the weight is set at the Pillar level rather than at the key issue level. The Governance Pillar weight is determined for all sub-industries assuming a "High Contribution/Long Term" and "Medium Contribution/Long Term" assessment on Corporate Governance and	**3.1.2 Setting ESG Key Issue weights (Page 13)** Once the Key Issues have been selected for a GICS sub-industry, MSCI ESG Research sets the weights that determine the contribution to the overall rating of: • Each Key Issue in the Environmental and Social Pillars; and • The Governance Pillar. Each Environmental and Social Key Issue typically comprises 5% to 30% of the total ESG Rating. The weights for these Key Issues are determined for each GICS sub-industry based on the sub-industry's contribution to the negative externality associated with the Key Issue and the expected time horizon for the Key Issue to materialize, as illustrated conceptually in Exhibit 8, below. For the Governance Pillar, the weight is set at the Pillar level rather than at the key issue level. The Governance Pillar weight is determined for all sub-industries assuming a "High Contribution/Long Term" and "Medium Contribution/Long Term" assessment on Corporate Governance and Corporate Behavior, respectively. Additionally, the weight on the

Corporate Behavior, respectively. Additionally, the weight on the Governance **Pillar** is floored at a **minimum value of 33%**.	Governance Pillar should be determined at the **key issue level**, ensuring that **individual governance factors** are weighted according to their relevance within a given industry

Enhancements and Supporting Rationale

The Governance Pillar currently applies a minimum weight of 33%, evaluated at the pillar level rather than individually for specific issues. There may be opportunities to enhance this approach by introducing more issue-level granularity in governance assessments.

Example: Industries with strong board structures but poor tax transparency are evaluated equally under the Governance pillar, which may misrepresent their actual governance performance.

Governance risks vary significantly across industries, yet all governance factors are grouped under a single weighted score. The approach does not differentiate between governance factors of varying importance for different industries. A fixed governance weight is replaced with a scoring framework based on industry. Governance weight can be adjusted dynamically based on the governance-related risks in specific industries.

Industries can be grouped into three governance risk tiers based on factors such as:

- **Regulatory scrutiny:** Industries with stricter compliance requirements, such as banking, insurance, and pharmaceuticals, face higher governance risks.
- **Corporate governance complexity:** Sectors where board structure, executive compensation, and tax transparency significantly impact investor confidence.
- **Historical governance controversies:** Industries with frequent governance-related violations or financial fraud cases.

We can use industry-specific benchmarks to determine the governance weight. Industries with higher regulatory scrutiny (e.g., Financial Services) could have higher governance weights (e.g., 30%-35%). Industries where governance is less critical compared to operational or environmental risks (e.g., Mining) could have lower governance weights (e.g., 20%-25%) and the intermediate one is 25-30%.

3.3 Modification #3

Current Text	Recommended Text
3.1.3 Key Issue assessments (Page 14) Depending on the nature of the Key Issue, one of three evaluation approaches is undertaken: • Risk Key Issues: A Risk Exposure Score and a Risk Management Score are combined such that a higher level of exposure requires a higher level of demonstrated management capability to achieve the same overall Key Issue Score. The ESG Risk Exposure Score is calculated referencing a granular breakdown of a company's business: its core product or business segments, the locations of its assets or revenue, and other relevant measures such as outsourced production. See Section 3.2: Analyzing Risk Exposure and Section 3.3: Analyzing Risk Management. • Opportunities Key Issues: A Risk Exposure Score and a Risk Management Score are combined such that a higher level of exposure permits a wider range of outcomes, whereas a low level of exposure constrains the score closer to a value of 5 (out of 10). • Governance Key Issues: For each Key Issue, an absolute score is provided. Key Issue Scores range from 0 to 10, with lower scores	**3.1.3 Key Issue assessments (Page 14)** Depending on the nature of the Key Issue, one of three evaluation approaches is undertaken: • Risk Key Issues: A Risk Exposure Score and a Risk Management Score are combined such that a higher level of exposure requires a higher level of demonstrated management capability to achieve the same overall Key Issue Score. The ESG Risk Exposure Score is calculated referencing a granular breakdown of a company's business: its core product or business segments, the locations of its assets or revenue, and other relevant measures such as outsourced production. See Section 3.2: Analyzing Risk Exposure and Section 3.3: Analyzing Risk Management. • Opportunities Key Issues: A Risk Exposure Score and a Risk Management Score are combined such that a higher level of exposure permits a wider range of outcomes, whereas a low level of exposure constrains the score closer to a value of 5 (out of 10). • Governance Key Issues: For each Key Issue, an absolute score is provided. Key Issue Scores range from 0 to 10, with lower scores

indicating more severe risk. See Section 3.4: Analyzing Governance.	indicating more severe risk. See Section 3.4: Analyzing Governance. **ESG risks and opportunities are often interdependent and influence each other. For example, a company's environmental management practices can not only mitigate risks but also open up opportunities for innovation or cost savings. Similarly, poor social practices in a supply chain can exacerbate environmental risks, such as deforestation or pollution, which is often underplayed in traditional models. To improve the accuracy and actionability of ESG assessments, it is essential to link Risk and Opportunity Key Issues and consider the interdependent nature of ESG factors. For this, an equation is provided in methodology development 7.**

Enhancements and Supporting Rationale

The current methodology evaluates Risk Key Issues and Opportunities Key Issues separately without considering how risk mitigation can convert risks into opportunities. Example: In industries like renewable energy, environmental risks (e.g., resource scarcity) can evolve into opportunities (e.g., resource-efficient technologies).

Example: Poor labor practices in supply chains (a social issue) can exacerbate environmental risks, such as deforestation or pollution, when suppliers operate unsustainably.

Recognizing the overlap between ESG risks and opportunities can provide a more holistic understanding of sustainability performance. For instance, In the context of renewable energy companies, resource scarcity is identified as an Environmental risk**.** For example, the limited availability of rare earth metals used in solar panels or wind turbines poses a challenge to their operations. Renewable energy companies might develop or adopt resource-efficient technologies to address the scarcity, such as creating materials that require fewer rare elements or recycling existing materials. This innovation could improve operational efficiency, reduce costs, and position the company as a sustainability leader.

Similarly, governance issues, such as poor oversight of labor practices in supply chains, can amplify environmental risks like deforestation or pollution. Evaluating these dimensions independently, as the current methodology does, risks overlooking these critical interdependencies, resulting in incomplete or misleading ESG assessments. By adopting a more integrated approach that captures these overlaps, the framework can provide a more accurate and actionable evaluation of a company's true ESG profile. An integrated approach in ESG (Environmental, Social, and Governance) assessment refers to evaluating ESG risks and opportunities together rather than analyzing them separately. Instead of giving disconnected ESG scores, this method captures interdependencies and offers a more realistic view of a company's ESG impact. For this integration, we need to evaluate how mitigating one risk creates opportunities in another area. For instance, managing water scarcity (Environmental risk) can lead to operational efficiency and cost savings (Opportunity).

Dynamic Weight Scaling: If poor labor standards (Social) are identified as a key driver of environmental degradation (deforestation or pollution from unsustainable supply chains), the weight assigned to labor standards should increase. Garefalakis and Dimitras (2020) also suggested specific minimum and maximum weights to better capture their interconnected nature.

Incorporating a Supply Chain Pillar into the ESG framework can effectively address the interconnections between multiple ESG factors by introducing cross-pillar metrics. For instance, supply chain labor practices (Social) often influence deforestation risks (Environmental), especially when unsustainable sourcing or unethical labor practices lead to over-extraction of natural resources. A dedicated Supply Chain Pillar could Assess Interdependencies:

Evaluate Supply Chain Practices Across ESG Dimensions: A dedicated pillar can provide a detailed analysis of how each supply chain activity impacts not just one ESG category, but multiple categories. For example, a company's decision to source raw materials from unsustainable suppliers may not only have environmental consequences (deforestation or water contamination) but also social implications (labor exploitation or poor working conditions). By evaluating both the social and environmental impacts of sourcing decisions, companies can make more informed choices that address multiple ESG risks simultaneously.

Monitor and Mitigate Risk Synergies: A Supply Chain Pillar can help identify synergies between different ESG risks that might otherwise go unnoticed if the pillars are considered independently.

Assess Long-Term ESG Performance and Trends: The Supply Chain Pillar can also help track the long-term trends of ESG performance across the supply chain. For example, over time, companies might observe that ethical sourcing of materials leads to a decrease in environmental degradation and improved labor conditions.

Assessing interdependencies means analyzing how different ESG factors influence each other within the supply chain. Instead of treating Environmental (E), Social (S), and Governance (G) factors separately, an integrated approach looks at how one ESG factor impacts another through supply chain actions. Suppose- Labor violations in supply chains are categorized as a Social Issue. Deforestation due to unsustainable sourcing is categorized as an Environmental Issue. These two issues are evaluated separately, even though they are connected. If suppliers engage in unethical labor practices (e.g., forced labor, unsafe working conditions), they may also engage in illegal deforestation to reduce costs. By evaluating supply chain labor conditions, companies can predict and mitigate environmental risks.

3.4 Modification #4

Current Text	Recommended Text
3.2.2 Determining Exposure Scores (Page 17) In the Environmental and Social Pillars, Exposure Scores ranging from 0 to 10 are calculated for each Key Issue, indicating a company's level of exposure to this specific Key Issue based on its unique mix of business and geographic segments. The 0-10 score is calculated in the following steps: 1. Weighted average Business Exposure Score, based on 0-10 Business Exposure Scores for each business line weighted by percentage of assets, percentage of revenue or percentage of operations. 2. Combined with company-specific factors, if applicable (e.g., size of workforce, percentage outsourced, etc.); and 3. Multiplied by geographic multiplier, if applicable. The exposure score can **increase/decrease by up to 50%**, based on the geographic mix of assets or revenue.	**3.2.2 Determining Exposure Scores (Page 17)** In the Environmental and Social Pillars, Exposure Scores ranging from 0 to 10 are calculated for each Key Issue, indicating a company's level of exposure to this specific Key Issue based on its unique mix of business and geographic segments. The 0-10 score is calculated in the following steps: 1. Weighted average Business Exposure Score, based on 0-10 Business Exposure Scores for each business line weighted by percentage of assets, percentage of revenue or percentage of operations. 2. Combined with company-specific factors, if applicable (e.g., size of workforce, percentage outsourced, etc.); and 3. Multiplied by geographic multiplier, if applicable. The exposure score can **increase/decrease dynamically based on the geographic mix of assets or revenue following the equation of-** $$GMULTIPLIER=1+\{(C_{RISK}\times I_{RISK})/10000\}$$ $$ESCORE=min(10,BESCORE\times WGM)$$ **Where:**

	C_{RISK}=Country-Specific ESG Risk Score (0-100) **I_{RISK} = Industry-Specific ESG Sensitivity Score (0-100)** **ESCORE= Exposure Score** **BEScore=Business Exposure Score** **WGM= Weighted Geographic Multiplier** **The 10000 is derived from this 100 x 100 = 10000 (0-100 range of both Crisk and Irisk).** **Bscore=Business exposure score**

Enhancements and Supporting Rationale

The current methodology for determining Exposure Scores in the Environmental and Social Pillars provides a framework for assessing a company's exposure to ESG risks. The steps involved—weighted business exposure, incorporation of company-specific factors, and geographic multiplier—aim to capture a company's risk profile. However, there are some potential limitations. The geographic multiplier adjusts the exposure score based on the company's geographic mix of assets or revenue. The exposure score can increase/decrease by up to 50% based on geographic location. The 50% adjustment is too rigid, as it does not reflect the varying degrees of country-specific risks. For instance, operating in a country with strong environmental regulations versus one with weak regulations should result in different adjustments to the exposure score. The same geographic multiplier is applied regardless of local variations in risk. A fixed 50% increase or decrease may lead to over-penalizing or over-rewarding companies based on geographic location without sufficiently considering the mitigation strategies they have in place.

The dynamic geographic multiplier equation we have provided can be more flexible approach for adjusting the Exposure Score based on a company's geographic mix of assets or revenue. This

approach considers both Country-Specific ESG Risk (CRisk) and Industry-Specific ESG Sensitivity (IRisk) to better reflect the company's exposure to risks based on its location and sector. The 0-10 scale provides a simple, standardized range that makes it easy to compare companies' exposure to specific ESG risks. A dynamic approach enables a more accurate reflection of real-world risks, as it adjusts the exposure score based on the actual geographical risks a company faces. This dynamic adjustment allows the model to better align with the nuanced reality of global operations.

Example-Assume a technology manufacturing company operates in two locations:

- 70% of its revenue comes from semiconductor production in France (moderate environmental impact, high water usage).
- 30% of its revenue comes from battery manufacturing in India (high environmental impact due to mining and chemical use).

Semiconductor Production → Score: 6 (moderate risk).

Battery Manufacturing → Score: 8 (high risk).

Weighted Average Business Exposure Score

(6×70%)+(8×30%)=6.6

If there is a 50% increase due to operations in a country with weak environmental regulations, labor concerns, and high pollution risks, then-

Exposure Score: 6.6 × 1.5=9.9

An example for the proposed text is as follows-

Risk	Low	Moderate	High
Cris	10-30	40-60	70-90
Irisk	10-30	40-60	70-90

Business segment	Country	C_{risk}	Irisk
Semiconductor	France (Moderate risk)	40	60
Battery	India (high risk)	70	90

Geographic Multiplier for Semiconductor Production (France)

$GMULTIPLIER_{SEMI}=1+\{(40\times60)/10000\}= 1.24$

Geographic Multiplier for Battery Manufacturing (India)

$GMULTIPLIER_{BATT}=1+(70\times90)/10000)= 1.63$

taking the weighted average for the overall multiplier:

$GMULTIPLIER=(1.24\times70\%)+(1.63\times30\%)= 1.35$

Geographic mix leads to a 35% increase

$ESCORE=min(10,BEScore\times WGM)$

$ESCORE=min(10,6.6\times1.35)=min(10, 8.9562)= 8.91$

Now assume that the same technology manufacturing company operates in low and high risk countries-

- 70% of its revenue comes from semiconductor production in German (low environmental impact, high water usage).
- 30% of its revenue comes from battery manufacturing in India (high environmental impact due to mining and chemical use).

Semiconductor Production → Score: 4 (low risk).

Battery Manufacturing → Score: 8 (high risk)

Weighted Average Business Exposure Score: $(4\times70\%)+(8\times30\%)=5.2$

Business segment	Country	C_{risk}	I_{risk}
Semiconductor	German (low risk)	20	30
Battery	India (high risk)	70	90

Geographic Multiplier for Semiconductor Production (Germany)

$GMULTIPLIER_{SEMI}=1+\{(20\times30)/10,000\}=1.06$

Geographic Multiplier for Battery Manufacturing (India)

$GMULTIPLIER_{BATT}=1+(70\times90)/10000) =1.63$

taking the weighted average for the overall multiplier:

$GMULTIPLIER=(1.06\times70\%)+(1.63\times30\%)= 1.23$

Geographic mix leads to a 23%

$ESCORE=min(10,BEScore\times WGM)$

$ESCORE=min(10,5.2\times1.23)=min(10, 6.4)= 6.4$

3.5 Modification #5

Current Text	**Recommended Text**
3.3.5 Determining Management Scores (Page 21) In the Environmental and Social Pillars, management scores ranging from 0 to 10 are calculated for each Key Issue, indicating a company's strategy, programs and proven track record on this Key Issue. The 0-10 score is calculated in the following steps:	**3.3.5 Determining Management Scores (Page 21)** In the Environmental and Social Pillars, management scores ranging from 0 to 10 are calculated for each Key Issue, indicating a company's strategy, programs and proven track record on this Key Issue. The 0-10 score is calculated in the following steps:

• Each underlying indicator collected is transformed into a 0-10 score, where 10 indicates best practice and 0 indicates a lack of management. • Scores are equally weighted within each management category. For example, if three indicators are assessed to determine a company's Strategy, then these three indicators are equally weighted in determining a Strategy Score. • Category-level scores are equally weighted to determine an overall management score, before taking Controversies into account. For most Key Issues, Management Score is determined as a simple average of practices (typically comprising indicators related to strategy, policies, programs, initiatives and targets) and performance (including indicators related to performance trends vis-à-vis prior years and vis-à-vis industry peers). • **A controversy deduction ranging from 0 to -5.0 points is subtracted from the overall Management Score, based on the severity and type of controversies facing the company on a particular Key Issue**:	• Each underlying indicator collected is transformed into a 0-10 score, where 10 indicates best practice and 0 indicates a lack of management. • Scores are equally weighted within each management category. For example, if three indicators are assessed to determine a company's Strategy, then these three indicators are equally weighted in determining a Strategy Score. • Category-level scores are equally weighted to determine an overall management score, before taking Controversies into account. For most Key Issues, Management Score is determined as a simple average of practices (typically comprising indicators related to strategy, policies, programs, initiatives and targets) and performance (including indicators related to performance trends vis-à-vis prior years and vis-à-vis industry peers). • **A controversy deduction, ranging from 0 to -5.0 points, is applied to the overall Management Score based on the severity and type of controversies a company faces on a particular Key Issue. However, this deduction can be partially offset through the**

	calculation of Remediation Points, which account for the company's corrective actions **Following the equation of-** **ADS= PDS × (1- RS/10)** **Where,** **ADS=Adjusted Deduction Score** **PDS= Previous controversy deduction score of Exhibits 11** **RS-Remediation Score**

Enhancements and Supporting Rationale

In the Environmental and Social Pillars, MSCI ESG Research assesses a company's ability to manage its risk exposure on a Key Issue by evaluating three broad categories:

- Strategy & Governance
- Initiatives & Programs
- Performance

The overall Management Score is first calculated based on these three components and then adjusted by deducting points for controversies. However, this approach has significant limitations

- **Issue:** The current controversy deduction model applies a penalty for a given range od 0 and -5, which heavily outweighs a company's proactive risk management efforts. Even if a company has a robust strategy, strong initiatives, and a positive performance record, a single severe controversy can drastically reduce its Management Score, failing to account

for corrective actions and ongoing improvements. The current scoring system is backward-looking, meaning it only accounts for past performance and controversies while ignoring future risks and planned improvements. Companies that have strong future commitments, such as sustainability pledges or government-mandated improvements, do not see these efforts reflected in their scores.

- **Suggested Solution:** Introduce a Remediation Score, allowing companies to offset some of the controversy deduction.

The following exhibit is built for calculating the remediation point-

Category	Low	Moderate	High
Strategy	0-3	4-5	6-10
Initiatives	0-3	4-5	6-10
performance	0-3	4-5	6-10

Low (0-3): Indicates poor performance in in implementing corrective actions.

Moderate (4-6): Represents average performance, where the company has decent corrective actions but may have room for improvement or faces challenges in execution.

High (7-10): Reflects excellent performance, where the company has implemented strong corrective actions with clear goals and successful outcomes.

Example for corrective actions-

Indicator	Score	Category
Clear climate strategy	8	Strategy
Implement carbon reduction	5	Initiative
Implement greenhouse gas omission project	6	Initiative
Track Record (historical performance in maintaining corrective actions or initiatives)	6	Performance

Strategy Score=8

Initiative score= (5+6)/2=5.5

Performance score=6

Total management score- (8+5.5+6)/3=6.5

Suppose this company has severe structural controversy (associated with a -2.5 score in Exhibit 11, related to greenwashing claims indicating they exaggerated their carbon reduction achievements

For severe structural the management score now will be: (-2.5 + 6.5)=4

But if we calculate the Remediation Score, we can adjust the controversy deduction to reflect the company's corrective efforts. Assume that the company has taken the following remediation actions:

- Issued a good public statement acknowledging the issue → Score: 6
- Implemented strict carbon reduction tracking → Score: 6
- Undergoing moderate third-party audit for carbon claims → Score: 5

Remediation Score average= (6+6+5)/3=5.67

ADS= -2.5 × (1- 5.67/10) = -2.5 × .433= -1.08

Deduction will be 1.08 instead of 2.5. So, the total management score will now be: 6.5 – 1.08 = 5.42

3.6 Modification #6

Current Text	Recommended Text
3.4.5 Determining Governance Scores (Page 24) *Key Metrics* Key Metrics are the foundational unit of the governance assessment. Each Key Metric evaluates a specific aspect of a company's governance risk profile and provides a simple pass/fail evaluation. When the metric result is a "fail" evaluation, the Key Metric is "flagged." Some Key Metrics are relevant only to companies with specific governance characteristics stemming from ownership type, management structure or other factors. *Key Metric Points* For each Key Metric, MSCI ESG Research calculates a points value that is used in the calculation of the Key Issue and Theme Scores. The Key Metric Points are converted into a Score Contribution, which is published. A higher Score Contribution generally signals more-significant governance risk.	**3.4.5 Determining Governance Scores (Page 24)** *Key Metrics* Key Metrics are the foundational unit of the governance assessment. Each Key Metric evaluates a specific aspect of a company's governance risk profile and provides a simple pass/fail evaluation. When the metric result is a "fail" evaluation, the Key Metric is "flagged." Some Key Metrics are relevant only to companies with specific governance characteristics stemming from ownership type, management structure or other factors. *Key Metric Points* For each Key Metric, MSCI ESG Research calculates a points value that is used in the calculation of the Key Issue and Theme Scores. The Key Metric Points are converted into a Score Contribution, which is published. A higher Score Contribution generally signals more-significant governance risk.

Key Issues Each Key Metric is assigned a Category and organized into Key Issues. Each Key Issue represents a broad area of governance risk. For each Key Issue, an absolute score is provided. Key Issue Scores range from 0 to 10, with lower scores indicating more severe risk. *Corporate Governance and Corporate Behavior Theme Scores* The Key Metric points across all Key Issues are used to calculate the Theme Scores. Theme Scores range from 0 to 10, with lower scores indicating more severe risk. *Governance Pillar Score* **The Governance Pillar Score is an absolute assessment of a company's overall governance that uses a universally applied 0-10 scale.** A similar approach is taken to the calculation of the Theme Scores, except that the Key Metric points assigned across all Key Issues in all Themes are used to calculate the Pillar Score.	*Key Issues* Each Key Metric is assigned a Category and organized into Key Issues. Each Key Issue represents a broad area of governance risk. For each Key Issue, an absolute score is provided. Key Issue Scores range from 0 to 10, with lower scores indicating more severe risk. *Corporate Governance and Corporate Behavior Theme Scores* The Key Metric points across all Key Issues are used to calculate the Theme Scores. Theme Scores range from 0 to 10, with lower scores indicating more severe risk. *Governance Pillar Score* **The Governance Pillar Score is an absolute assessment of a company's overall governance that uses a universally applied 0-10 scale which may be too punitive, which will be changed for companies making gradual improvements**. A similar approach is taken to the calculation of the Theme Scores, except that the Key Metric points assigned across all Key Issues in all Themes are used to calculate the Pillar Score.

Enhancements and Supporting Rationale

The current methodology of using a deduction-based scoring model, which starts with a perfect score of 10 and applies deductions based on failures in Key Metrics, has some drawbacks. While it offers a clear and easy-to-understand structure, it could be perceived as too punitive, particularly for companies that are in the process of improving their governance practices. This structure may benefit from adjustments that recognize gradual improvements alongside current performance.

For example, a company might be is in the process of improving its board independence or audit processes. Under the current system, these efforts might not be adequately recognized, and the company would be penalized as though it has not made any improvements. This could create an unfair assessment, as the model treats partial progress as a total failure, which can be discouraging for companies actively working on improving their governance structures. This issue is particularly concerning for companies that are gradually addressing governance shortcomings, as they may feel disincentivized from continuing their efforts if they do not immediately achieve the desired standards.

To address this issue, it can be beneficial to adopt a more flexible, improvement-oriented approach. Instead of purely penalizing companies for failing to meet specific Key Metrics, the methodology could reward companies for making progress in key governance areas. For example, a company that is actively working to improve board diversity or strengthen its audit processes could receive incremental score improvements based on their efforts. This would create a more supportive framework that encourages continuous improvement and sends a positive message to companies that are committed to enhancing their governance over time.

Example-

Let’s assume a company is evaluated on three governance Key Metrics:

1. Board Independence
2. Audit Committee Oversight
3. Transparency

MSCI’s Current Method (Deduction-based)

- Each metric is pass/fail.
- Each failure deducts 2 points from a starting score of 10.
- The company fails 2 out of 3 metrics

Score=10−(2 failed metrics×2 points each)=10−4=6

Proposed Improvement-Oriented Model

Instead of pass/fail, rate progress for each metric:

- 0 = No effort
- 5 = Partial effort / In progress
- 10 = Fully compliant

Key Metric	Current Status	Score (out of 10)
Board Independence	In progress	5
Audit Committee Oversight	No Effort	0
Transparency	Fully compliant	10

Average Score = (5 + 0 + 10) / 3 = 5.0

Then apply a bonus of up to +1.0 for active improvement signals.

Final Governance Score = 5.0 + 0.5 = 5.5

In next period, with more improvements the points will go up.

3.7 Modification #7

From reengineering modification #3

Current Text	Recommended Text
3.5.1 Determining Environmental and Social Key Issue Scores – risks (Page 25) For Key Issues that assess risks, the Risk Exposure Score and Risk Management Score are combined such that a higher level of exposure requires a higher level of demonstrated management capability in order to achieve the same overall Key Issue Score (see Exhibit 12). The scoring model has the following additional features: • In order to avoid situations in which a company would receive a very high overall Key Issue Score solely as a result of low exposure to that Key Issue, the model requires a minimum management threshold in order to achieve an overall Key Issue Score greater than 5 (see zone where Exposure score is 0-2 in Exhibit 12). • Furthermore, at very high levels of exposure, the maximum possible Key Issue Score a company can achieve is lower than 10, indicating that regardless of a company's actions or programs to mitigate risk, a certain level of risk persists.	3.5.1 Determining Environmental and Social Key Issue Scores – risks (Page 25) For Key Issues that assess risks, the Risk Exposure Score and Risk Management Score are combined such that a higher level of exposure requires a higher level of demonstrated management capability in order to achieve the same overall Key Issue Score (see Exhibit 12). The scoring model has the following additional features: • In order to avoid situations in which a company would receive a very high overall Key Issue Score solely as a result of low exposure to that Key Issue, the model requires a minimum management threshold in order to achieve an overall Key Issue Score greater than 5 (see zone where Exposure score is 0-2 in Exhibit 12). • Furthermore, at very high levels of exposure, the maximum possible Key Issue Score a company can achieve is lower than 10, indicating that regardless of a company's actions or programs to mitigate risk, a certain level of risk persists.

3.5.2 Determining Environmental and Social Key Issue Scores – opportunities (Page 26) For Key Issues that measure opportunity (Opportunities in Clean Tech, Opportunities in Green Building, Opportunities in Renewable Energy, Opportunities in Nutrition & Health, Access to Finance, Access to Health Care, Access to Communications), the model for combining the Exposure Score and Management Score differs. Exposure indicates the relevance of this opportunity to a given company based on its current business and geographic segments. A high level of exposure permits a wider range of outcomes, whereas a low level of exposure constrains the score closer to a value of 5 (see Exhibit 13 below).	3.5.2 Determining Environmental and Social Key Issue Scores – opportunities (Page 26) For Key Issues that measure opportunity (Opportunities in Clean Tech, Opportunities in Green Building, Opportunities in Renewable Energy, Opportunities in Nutrition & Health, Access to Finance, Access to Health Care, Access to Communications), the model for combining the Exposure Score and Management Score differs. Exposure indicates the relevance of this opportunity to a given company based on its current business and geographic segments. A high level of exposure permits a wider range of outcomes, whereas a low level of exposure constrains the score closer to a value of 5 (see Exhibit 13 below). **To integrate risk and opportunities in the ESG framework, we can adjust the Key Issue Score (KI Score) equation to reflect the interconnected nature of ESG factors. The goal is to capture how mitigating one risk (poor labor practices) can create opportunities (better environmental practices, improved efficiency) following the equation-** **KI Score= (Exposure × (.5+Management/20))+(Risk mitigation**

	factor × (0.5-Exposure/20) + Cross Pillar adjustment **where:** 1. **Exposure: Exposure score (0 to 10) representing the level of risk or opportunity.** 2. **Management: Management score (0 to 10) evaluating how well the company handles risks or opportunities.** 3. **Risk Mitigation Factor: A dynamic factor that adjusts for the mitigation of risks which can convert risks into opportunities. This could be a factor like resource-efficient technology adoption, improved labor standards, or innovation. The range is between 0-1.** 4. **Cross-Pillar Adjustment: A factor to capture interdependencies between different ESG pillars (how improving labor standards (Social) can reduce environmental degradation (Environmental)). The range is between 0-1.**

Enhancements and Supporting Rationale

The enhancements and supporting rationale of this modification #7 is from the enhancements and supporting rationale of reengineering #3.

Example- Consider a company operating in renewable energy that is exposed to resource scarcity such as lack of wind or sunshine (Environmental risk) but has developed resource-efficient technology (Opportunity).

Score details of the company:

- Exposure Score (Environmental risk) = 8 (high exposure to resource scarcity).
- Management Score = 7 (strong management of resource-efficient technologies).
- Risk Mitigation Factor = 0.7 (suggests that the company has strong efforts in place to mitigate resource scarcity by implementing resource-efficient technologies)
- Cross-Pillar Adjustment = 0.5 (since effective management of this risk creates an opportunity to improve environmental sustainability and enhance reputation, hence the adjustment points to a moderate interdependence between environmental risk mitigation and opportunity creation).

KI Score= (Exposure × (.5+Management/20))+(Risk mitigation factor × (0.5-Exposure/20) + Cross Pillar adjustment

= 8 × (.5+7/20))+ (.7 × (.5-8/20) + .5

=7.37=7.4

3.8 Modification #8

From page 6 of MSCI document

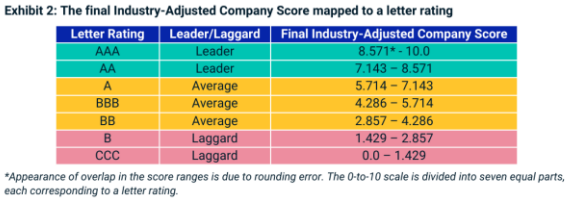

Exhibit 2: The final Industry-Adjusted Company Score mapped to a letter rating

Letter Rating	Leader/Laggard	Final Industry-Adjusted Company Score
AAA	Leader	8.571* - 10.0
AA	Leader	7.143 – 8.571
A	Average	5.714 – 7.143
BBB	Average	4.286 – 5.714
BB	Average	2.857 – 4.286
B	Laggard	1.429 – 2.857
CCC	Laggard	0.0 – 1.429

*Appearance of overlap in the score ranges is due to rounding error. The 0-to-10 scale is divided into seven equal parts, each corresponding to a letter rating.

While the table claims that the 0–10 scale is divided into seven equal parts (each approximately 1.429 wide), the percentage change between each range is not the same. For example:

- From 1.429 to 2.857, the change is 100% ((2.857 – 1.429) / 1.429 × 100)
- From 2.857 to 4.286, the change is only 50% (i.e., (4.286 – 2.857) / 2.857 × 100)

Letter Rating	**Change**	**Range**	**Perceentage increase**	**Leader/Laggard**
CCC	**0.0-1**	**1**		**Laggard**
B	**1.0-2.25**	**1.25**	**25%**	**Laggard**
BB	**2.25-3.81**	**1.56**	**25%**	**Average**
A	**3.81-5.77**	**1.95**	**25%**	**Average**
AA	**5.76-8.21**	**2.44**	**25%**	**Leader**
AAA	**8.21-10.0**	**1.79**	**Adjusted capped**	**Leader**

A percentage of 25% was used to illustrate consistent percentage growth between rating bands, in contrast to the inconsistent growth shown in equal-width ranges of the original table. The original table implies equal division of the 0–10 scale, but when analyzed from a percentage change perspective, it becomes clear that a fixed interval of 1.429 results in diminishing percentage differences as scores increase. In contrast, the table above presents a model based on uniform 25% increases, making transitions between letter ratings more consistent and meaningful in relative terms.

4.CALCULATION USING MSCI METHODOLOGY VS. PROPOSED METHODOLOGY: A COMPARATIVE VIEW

4.1 MSCI Original Methodology

In this example, we evaluate a beverage company's Environmental, Social, and Governance (ESG) performance using the original MSCI methodology. A new key issue—Deforestation—is introduced, prompting a redistribution of weights across existing environmental key issues. Although the goal was to include a new risk, the proportional adjustment method reduced the weight of Water Management, even though it's one of the most important issues for a beverage company.

New Key Issue: Deforestation added with a uniform weight of 20%

Proportional method

In the table below, the proportional adjustment method is used to redistribute the weights of existing key issues after introducing a new key issue, *Deforestation*, with a fixed weight of 20%. The original weights of the three existing issues—Water Management, Packaging Waste, and Supply Chain Labor Standards—were 40%, 30%, and 30%, respectively. To make room for the new key issue while keeping the total at 100%, the added 20% is evenly deducted from the three existing weights.

Key Issue	**Original Weight**	**Adjusted Weight**	**Formula**
Water Management	40%	33.33%	40 − (20 ÷ 3)
Packaging Waste	30%	23.33%	30 − (20 ÷ 3)
Supply Chain Labor Standards	30%	23.33%	30 − (20 ÷ 3)
Deforestation (new)	–	20.00%	Assigned

Problem: Water Management weight was reduced even though it is the most critical issue for the industry.

According to the MSCI ESG Ratings methodology, the Key Issue Score is calculated using the following formula:

Key Issue Score Formula (from MSCI): (0.5+Exposure/20)×Management+(0.5−Exposure /20)×5.0

To compute the Key Issue Score, two key components must be determined first: the Exposure Score and the Management Score. The Exposure Score reflects the company's level of risk or opportunity associated with a specific key issue, while the Management Score evaluates the company's ability to manage or mitigate that issue through strategies, initiatives, and performance outcomes. These two scores are then combined using the formula above to generate a weighted average, which balances the company's exposure to a given risk with its demonstrated management capacity. The next step involves calculating each of these scores individually before applying the formula to derive the final Key Issue Score.

Exposure Score

In the next table we will set the exposure score- Water Management receives the highest exposure score of 9, indicating that it is the most critical issue for the company—typically the case in industries like beverages or agriculture, where water usage is directly tied to operations. Packaging Waste is assigned a score of 7, reflecting a moderately high level of exposure, likely due to its impact on environmental waste and regulatory scrutiny. Supply Chain Labor Standards receives a mid-range score of 5, suggesting average exposure, often dependent on the extent of supplier dependence and geographic sourcing. Finally, Deforestation, with a score of 4, is considered a relatively lower exposure area for this company

Lets Assume-

Key Issue	Raw exposure score based on weight
Water management	9
Packaging waste	7
Supply Chain labor Standard	5
Deforrestation	4

Management Score

To evaluate a company's ability to manage a specific ESG key issue, MSCI assesses its Management Score, which is based on three core components: strategy, initiatives, and performance. In this example, the company scores 7 for its strategic alignment, 6 for its initiatives 5 for performance The average of these three components yields an initial Management Score of 6.0.

- Strategy Score = 7
- Initiative Score = 6
- Performance Score = 5

The average of these three components : $(7 + 6 + 5)/3 = 6.0$

However, MSCI also accounts for controversies—significant incidents or events that may negatively reflect on a company's ESG practices. In this case, a controversy deduction of -2.5 is applied due to such an event.

Final Management Score=6.0−2.5=3.5

We will use this management score for each key issue.

Key Issue Score Calculation-

1.For Water Management-

Exposure Score: (9*.33)*1.5=4.45 [1.5 comes from current text of methodology development #4. The exposure score can increase/decrease by up to 50%, based on the geographic mix of assets or revenue]

Management Score:3.5

Key Issue Score=(0.5+4.45/20)* 3.5+(0.5−4.45/20)×5.0 =3.91

2.For Packaging Waste

Exposure Score: (7*.233)*1.5=2.45

Management Score: 3.5

Key Issue Score=(0.5+2.45/20)* 3.5+(0.5−2.45/20)×5.0 =4.07

3.For Supply Labor

Exposure: (5*.233)*1.5=1.75

Management Score: 3.5

Key Issue Score=(0.5+1.75/20)* 3.5+(0.5−1.75/20)×5.0 =4.12

4. For Deforrestation

Exposure Score= (4*.20)*1.5=1.2

Management Score: 3.5

Key Issue Score=(0.5+1.2/20)* 3.5+(0.5−1.2/20)×5.0 =4.16

Now combining all the key issue scores, we obtain the following table.

Key Issue	**Key Issue Score**	**Weight (%)**	**Decimal Weight**
Water Management	3.91	33%	0.33
Packaging Waste	4.07	23.3%	0.233
Supply Chain Labor Standards	4.12	23.3%	0.233
Deforestation	4.16	20%	0.20

Pillar Score=(3.91×0.33)+(4.07×0.233)+(4.12×0.233)+(4.16×0.20)=4.03

To calculate the Final Industry ESG Score, we begin by aggregating the scores from the three primary ESG pillars—Environmental, Social, and Governance—each weighted according to its importance in the overall rating.

The Social pillar is assumed to have a score of 6.00, also contributing 30%. The Governance pillar, assumed to be 6.50, holds a heavier influence, contributing 40% to the final rating. This reflects MSCI's standard approach of assigning greater weight to governance factors.

Pillar	**Score**	**Weight**
Environmental	4.03	30%
Social	6.00 *(assumed)*	30%
Governance	6.50 *(assumed)*	40%

Final Industry Score= (0.3 × Environmental) + (0.3 × Social) + (0.4 × Governance)

=(0.3×4.03)+(0.3×6.00)+(0.4×6.50)=5.61

This final industry score of 5.61 corresponds on MSCI's scale to a **Letter Rating (from Exhibit 2 of MSCI document): BBB (Average)**

4.2 Proposed Methodology

Our proposed approach, we reassess the ESG performance of a beverage company by integrating improvements drawn from modifications #1, #4, and #5. We introduce a new redistribution approach that moves away from the traditional proportional method used by MSCI. Instead, we use an importance-based ranking system to determine how the weights of existing Key Issues should be adjusted when a new issue is introduced. This ensures that the most critical issues retain most of their original weight, while less critical ones absorb a greater portion of the redistribution. The core of this method lies in the calculation of the Redistribution Index (Ri) for each existing Key Issue. Ri reflects the relative adjustment weight based on how important each issue i. The resulting equation for the Redistribution Index (Ri) is:

$Ri = (\frac{(\mathrm{N-Ii+1})\text{^}2}{\sum_{j=1}^{N}(\mathrm{N-Ij+1})\text{^}2})$ x 100 [from Modification #1]

To apply the Redistribution Index (Ri) in our methodology, we incorporate it into the following equation adapted from Modification #1, to calculate the new adjusted weight (NWi) for each existing Key Issue:

NWi=Wi−(Ri/S×A) [from Modification #1]

Key Issue	Original Weight (%)	Importance Rank	Redistribution Factor
Water Management (Most Critical)	40%	1 (High)	3
Packaging Waste (Moderate)	30%	2 (Medium)	2
Supply Chain Labor Standards (Least Critical)	30%	3 (Low)	1

To illustrate how the Redistribution Index (Ri) is calculated and applied, consider an example with three existing Key Issues, each ranked by importance. The total number of issues (N) is 3, and the importance ranking is assigned such that a lower rank indicates higher importance. Using the squared inverse rank method, we first calculate the denominator of the Ri formula, which is the sum of squared adjusted ranks for all issues:

$\sum_{j=1}^{N}(N - Ij + 1)$= $(3-1+1)^2+(3-2+1)^2+(3-3+1)^2=14$

From this calculated denominator, we calculate the redistribution index for each key issue.

R1= $\{(3-3+1)^2/14\}\times100= (1^2/14)\times100=7.1\%$

R2=$(2^2/14)\times100=28.6\%$

R3 =$(3^2/14)\times100=64.3\%$

Key Issue	Adjusted Weight
Water Management	38.58% (40−{(7.1/100)×20})
Packaging Waste	24.28% (30−{(28.6/100)×20})
Supply Chain Labor Standards	17.14% (30−{(64.3/100)×20})
Deforestation (new)	20%

To calculate the Key Issue Score under our proposed methodology, we follow two steps:

1. Exposure Score Calculation – Based on country revenue distribution, country-specific risks (CRisk), and industry risk (IRisk), we compute a weighted geographic multiplier (WGM) to adjust the base exposure score (BEScore) for each key issue.
2. Management Score Adjustment – We evaluate the company's strategy, initiatives, and performance. If there is a controversy, we reduce the management score. However, we apply a fairer adjustment by factoring in remediation efforts (public acknowledgments or audits) to calculate an Adjusted Deduction

1.For Water Management:

Exposure score calculation

From Methodology development #4

Suppose a company earns 70% of its revenue from France and 30% from India. In this case, the country-specific risk in France is moderate, with a risk score of 40, while in India it is higher, with a risk score of 70. The overall industry risk is also high, with a score of 80. These values are used to adjust the company's exposure score more accurately by factoring in both where the company operates and the level of risk in each region.

CRisk France:40, CRisk India:70

Industry Risk (IRisk) = 80

To better reflect the context-specific risks companies face based on their geographic operations, we introduce the use of the Geographic Multiplier (GM) and the Weighted Geographic Multiplier (WGM). The Geographic Multiplier (GM) is calculated for each country using the formula:

GM France=1 + (40×80/10000)=1.32 [GM=Geographic Multiplier]

GM India = 1 + (70×80/10000) = 1.56

To combine multiple regions into a single score, we compute the Weighted Geographic Multiplier (WGM):

WGM= (1.32×0.7) + (1.56×0.3) = 1.392 [WGM=Weighted Geographic Multiplier]

After determining the Weighted Geographic Multiplier (WGM), the next step is to calculate the final exposure score for a specific key issue—in this case, Water Management. This involves two main steps:

We will find out the Business Exposure Score (BEScore). This reflects the company's exposure to the key issue before geographic risk is applied. It is computed by multiplying the base industry risk score for the issue with the adjusted weight of that issue.

The BEScore is then multiplied by the WGM to factor in the added risk from operating in higher-risk geographies. The final Exposure Score (EScore) is capped at 10, in line with MSCI's scoring range.

BEScore (Water management) =9.0×0.3858=3.4722

EScore: min (10, BEScore*WGM) =min(10,3.4722×1.392)=4.83

The final exposure score for the Water Management key issue is 4.83

Management score calculation

We assess the company's ESG management practices across three categories-Strategy**,** Initiatives**,** and Performance, using specific indicators and their corresponding scores. These scores are presented below.

Category	**Indicators & Scores**	**Category Score**
Strategy	Clear climate strategy → Score: 8	8
Initiatives	recycling → Score: 6, cleaning → Score: 5	(6 + 5) / 2 = 5.5
Performance	Year-over-year water waste reduction → Score: 6	6

Total Management Score=(8+5.5+6)/3=19.5/3=6.5

Assume the company has a severe controversy deduction of -2.5, the same deduction used for MSCI original methodology. Hence,

Final Management Score (MSCI)= 6.5 - 2.5 = 4.0

Instead of applying a fixed penalty for controversies as in the MSCI method, our approach adjusts the deduction based on the company’s remediation efforts. This ensures that companies taking meaningful corrective actions are scored more fairly.

Suppose the management score reflects this company’s proactive actions such as a high-profile media release (strategy), launch of new initiatives (initiatives), and a moderate third-party audit (performance), indicating a strong ESG response, as given below.

Remediation Efforts	**Score**
Public acknowledgment of issue (media release)	6
Launched new initiative	6
Third-party audit for sustainability claims	5

Now we will calculate the remediation score which we got from modification #5.

Remediation Score (RS)=(6+6+5)/3=5.67

We apply this score in our proposed formula to calculate the Adjusted Deduction (ADS), which reduces the penalty based on the company's remediation efforts:

Adjusted Deduction Score (ADS)=PDS×(1−RS/10)

ADS=2.5×(1−5.67/10)= 1.08

Final Management score= 6.5-1.08=5.42

Hence, the water management Key Issue Score is given by:

Water management Key Issue Score=(0.5+4.83/20)* 5.42+(0.5−4.83/20)×5.0 =5.311

Following the same methodology used for calculating the exposure score and management score, we will determine the scores for the remaining key issues.

2.For Packaging Waste:

BEScore =7.0×0.2428=1.6996

EScore: min (10, BEScore*WGM)=min(10,1.6996×1.392)=2.36

Thus is the final exposure score for the packaging key issue is 2.36

For Management Score we take same value as before which is 5.42

Packaging Waste Key Issue Score=(0.5+2.36/20)* 5.42+(0.5−2.36/20)×5.0 =5.25

3.For Supply labor:

BEScore =5.0×0.1714=.857

EScore: min (10, BEScore*WGM)=min(10,.857×1.392)=1.19

Thus is the final exposure score for the packaging key issue is 1.19.

Supply Labor Key Issue Score=(0.5+1.19/20)* 5.42+(0.5−1.19/20)×5.0 =5.24

4.For deforestation:

BEScore =4.0×0.20=.8

EScore: min (10, BEScore*WGM)=min(10,.8×1.392)=1.113

Thus is the final exposure score for the deforestation key issue is 1.113

Deforestation Key Issue Score=(0.5+1.113/20)* 5.42+(0.5−1.113/20)×5.0 =5.23

Now combining all these key issue scores, we obtain the following table-

Key Issue	Weight (%)	Weight (Decimal)	Key Issue Score
Water Management	38.58%	0.3858	5.31
Packaging Waste	24.28%	0.2428	5.25
Supply Chain Labor Standards	17.14%	0.1714	5.24
Deforestation	20.00%	0.20	5.23

Environmental Pillar Score=(5.31×0.3858)+(5.25×0.2428)+(5.24×0.1714)+(5.23×0.20)= 5.27

To calculate the Final Industry ESG Score, we begin by aggregating the scores from the three primary ESG pillars—Environmental, Social, and Governance—each weighted according to its importance in the overall rating.

The Social pillar is assumed to have a score of 6.00, also contributing 30%. The Governance pillar, assumed to be 6.50, holds a heavier influence, contributing 40% to the final rating. This reflects MSCI's standard approach of assigning greater weight to governance factors.

Pillar	Score	Weight
Environmental	5.27	30%
Social	6.00 (assumed)	30%
Governance	6.50 (assumed)	40%

Hence, Final Industry Score=(0.3×Environmental)+(0.3×Social)+(0.4×Governance)

=(0.3×5.27)+(0.3×6.00)+(0.4×6.50)=5.98

The final industry score of 5.98 corresponds to a **Letter Rating on our proposed scale: AA (Leader)**

4.3 Comparison of Original and Proposed Methodologies

The MSCI ESG Ratings framework is a strong and well-established system for evaluating how companies perform on Environmental, Social, and Governance (ESG) factors. Our proposed approach builds on this foundation. We were inspired by MSCI's method and added a few updates that could help make the evaluation more detailed and future-focused.

For example, in the case of a beverage company, the MSCI method gave a score of 5.61, which equals a BBB (Average) rating. With our modified method, the score came out to 5.98, leading to a higher AA (Leader) rating. This doesn't mean our model is more generous—it simply looks at a few more aspects of a company's performance and improvement over time.

One key difference is how weights are adjusted when a new issue, like deforestation, is added. MSCI spreads the change evenly across all issues. But in our method, we use something called a Redistribution Index that adjusts weights based on how important each issue is to that specific industry. So, for a beverage company, water management stays highly important in the final score.We also added a Geographic Multiplier to better reflect where the company operates. It looks at the share of revenue from different countries and the ESG risks in those places, which helps provide a clearer view of real-world exposure.

Another update is how we handle ESG controversies. MSCI applies a flat penalty, but we introduced a Remediation Score to consider how well a company responds to problems—like starting new initiatives, acknowledging the issue publicly, or bringing in third-party audits. This way, companies working to improve get credit for their efforts.

In short, our version keeps MSCI's structure as a base and adds new layers that:

- Give more weight to the most relevant issues for the industry
- Consider the company's global operations and local risks
- Recognize real progress when companies try to fix problems
- Offer a more complete and fairer picture of ESG performance

5.CONCLUSION

As global business environments become more interconnected and supply chains grow increasingly complex, there is an opportunity to further strengthen existing ESG frameworks such as MSCI's by expanding their focus. While current ESG models have played a vital role in advancing sustainability, ethical business conduct, and financial responsibility, the growing complexity of global operations presents new dimensions that can benefit from deeper analysis.

This work proposes enhancements to the MSCI ESG methodology by introducing a dedicated Supply Chain pillar**,** incorporating tiered supplier assessments, enabling cross-pillar scoring, and applying dynamic weighting based on industry and geography. These additions are designed to complement the existing structure and provide a more comprehensive view of how supply chain dynamics influence a company's ESG profile.

Recognizing the interdependent nature of ESG risks and opportunities, especially those related to lower-tier suppliers can add valuable depth to sustainability assessments. These refinements aim to bring greater transparency and accountability, while helping companies and investors better understand operational risks, regulatory exposures, and reputational considerations.

Incorporating these updates leads to a more granular, context-aware, and forward-looking ESG evaluation, one that reflects the realities of today's global supply networks. By building on the foundation of established methodologies, this evolution supports better-informed decisions, encourages responsible practices throughout the supply chain, and reinforces ESG's role as a powerful tool for long-term value creation in an ever-changing world.

5.1 Recommendations

Environmental, Social, and Governance (ESG) frameworks are widely used to evaluate how companies handle sustainability, ethical practices, and long-term financial risks. These frameworks help investors, regulators, and other stakeholders see how well a company manages issues related to the environment, social responsibility, and corporate governance. However, while ESG is a useful tool, it often doesn't give enough attention to the role of supply chains—one of the biggest sources of both risk and impact for many companies. To fix this, we suggest updating the ESG framework to include a fourth pillar: Supply Chain. This new model, called ESSG (Environmental,

Social, Supply Chain, and Governance), highlights the importance of supply chain practices and recognizes them as a key part of a company's overall sustainability and risk management strategy.

Adding a separate Supply Chain pillar would help companies better understand what's happening throughout all levels of their suppliers, not just the first tier. It would also allow for more detailed analysis of industry-specific challenges, like sourcing materials, managing logistics, and following regulations in areas such as manufacturing or retail. This pillar would also give proper credit to efforts that improve supply chain transparency—like using blockchain for tracking, promoting ethical sourcing, and working closely with suppliers. Most importantly, it would help uncover how different types of risks are connected—for example, how poor labor practices can often go together with environmental damage like illegal deforestation, especially when suppliers are not well monitored.

Furthermore, instead of evaluating Environmental, Social, and Governance factors separately, companies should adopt a scoring system that looks at how these areas interact with one another. This kind of cross-pillar approach would help in several important ways. First, it would better identify compounding risks—for example, weak governance might lead to both poor labor conditions and environmental damage. Second, it would reward efforts that create benefits across multiple areas, like how improving supplier labor standards might also reduce environmental violations. Finally, it would allow for more realistic, scenario-based evaluations by analyzing how different ESG risks connect and influence each other, rather than viewing them as unrelated issues.

To make ESG evaluations more reliable and relevant, the scoring system should adjust based on the industry and location of a company's operations. For example, governance should carry more weight in highly regulated industries like finance or healthcare, where rules are strict and oversight is critical. On the other hand, in sectors like manufacturing or mining, more emphasis should be placed on environmental or supply chain risks, which are more pressing in those fields. Similarly, geographic exposure scores should not only reflect the general risk level of a region but also consider how well a company is managing those risks. Companies that take proactive steps—like investing in safer practices or engaging local communities-should be recognized, while those doing little in high-risk areas should receive lower scores.

Another important future recommendation is to link ESG risks and opportunities more explicitly, especially in the context of tiered supplier networks. ESG factors often do not operate in isolation-

they are interdependent and can either compound risks or create new opportunities. For example, a company's strong environmental practices may not only reduce regulatory risks but also lead to innovation and cost savings through more efficient resource use. On the other hand, poor social practices in lower-tier suppliers, such as forced labor or unsafe working conditions, can intensify environmental risks like deforestation, pollution, or illegal mining. These complex interconnections are often underrepresented in current ESG models. To improve both the reliability and usefulness of ESG ratings, it is essential to assess how ESG issues influence one another and to evaluate the entire supply chain, including tier 2 and tier 3 suppliers. Integrating these layers and recognizing the combined effect of risks and opportunities would lead to more actionable insights, stronger accountability, and better long-term planning for companies and investors alike.

5.2 Areas for Future Research

There are several areas where future researchers can build on this improved ESG methodology. One area to explore is how companies improve over time. For example, by tracking how well they respond to controversies, we could see if strong remediation efforts lead to better performance or public trust in the long run. Researchers could also look-into using real-time data-like satellite images to detect deforestation or social media to spot labor issues-to make ESG scoring more responsive and accurate. Another important direction is mapping out how ESG risks spread through supply chains, especially from tier 2 and tier 3 suppliers who often go unnoticed but can cause major problems. It would also be useful to study whether companies rated higher under an improved methodology perform better in the stock market or attract more investors. Researchers might also want to consider how different groups like investors, consumers, or regulators care about different aspects of ESG, and build scoring systems that reflect such different priorities. Finally, tackling greenwashing where companies say they're sustainable but don't act in this direction could be a powerful research focus, especially using AI to compare what companies report versus what they really do. All these research directions offer meaningful ways to make ESG scoring more fair, useful, and grounded.

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