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Are ESG Best Practices Being Recognised in Mining Valuations?

SAIMM
THE SOUTHERN AFRICAN INSTITUTE OF MINING AND METALLURGY

Stewart Nupen and Nicki Ivory, October 2025

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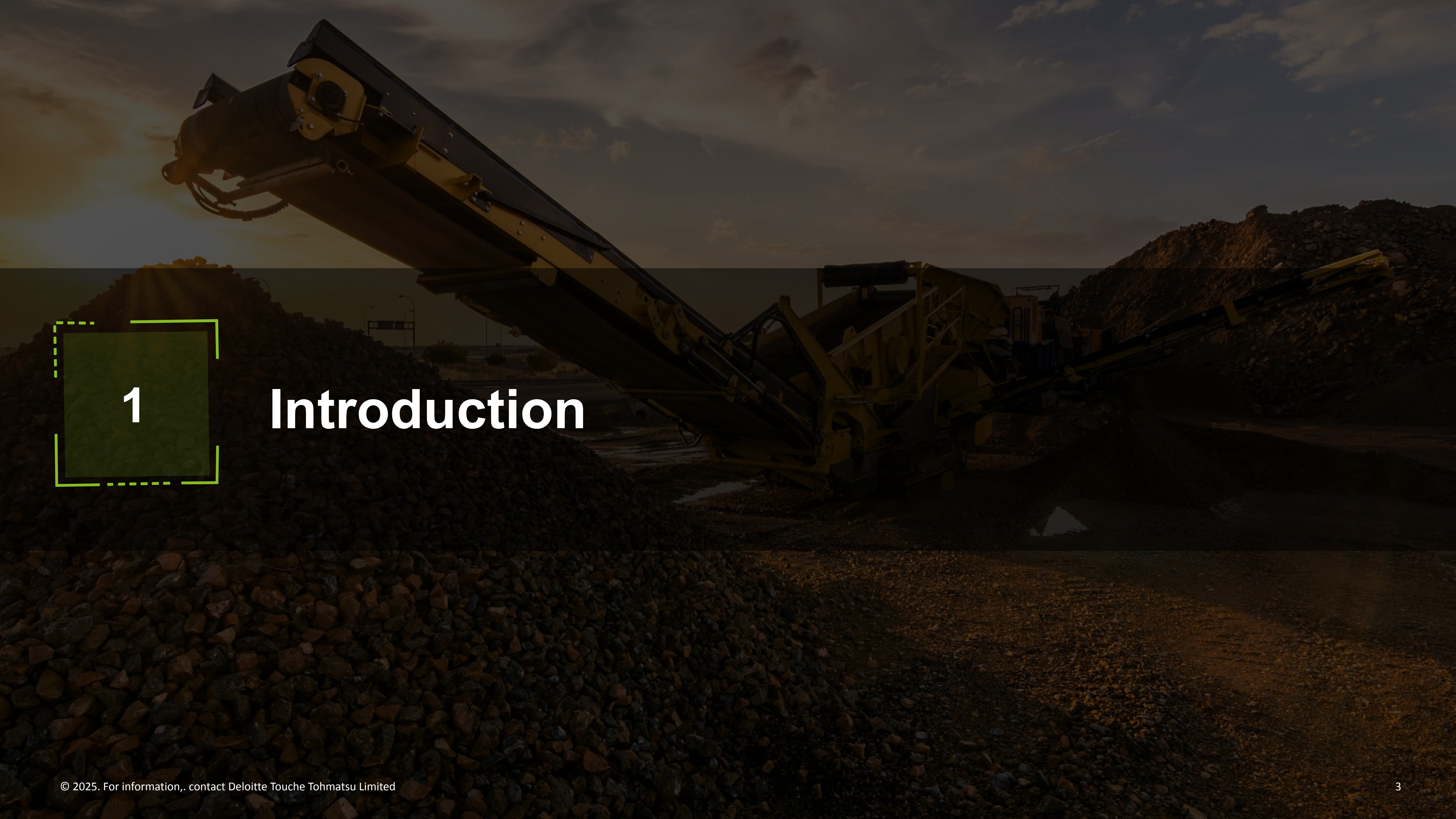
Outline



1 Introduction

Introduction (1/3)

Hypothesis: ESG best practices currently do not command a noticeable “green premium” on commodity prices, but they do contribute to lower risk premiums and thus somewhat reduced discount rates in valuations

Objectives

01 Assess whether mining companies that adopt ESG best practices experience a valuation uplift compared to those that do not.

02 Explore how ESG factors are incorporated into both Discounted Cash Flow (DCF) and multiple-based valuation approaches, considering their influence on revenue projections and risk assessments.

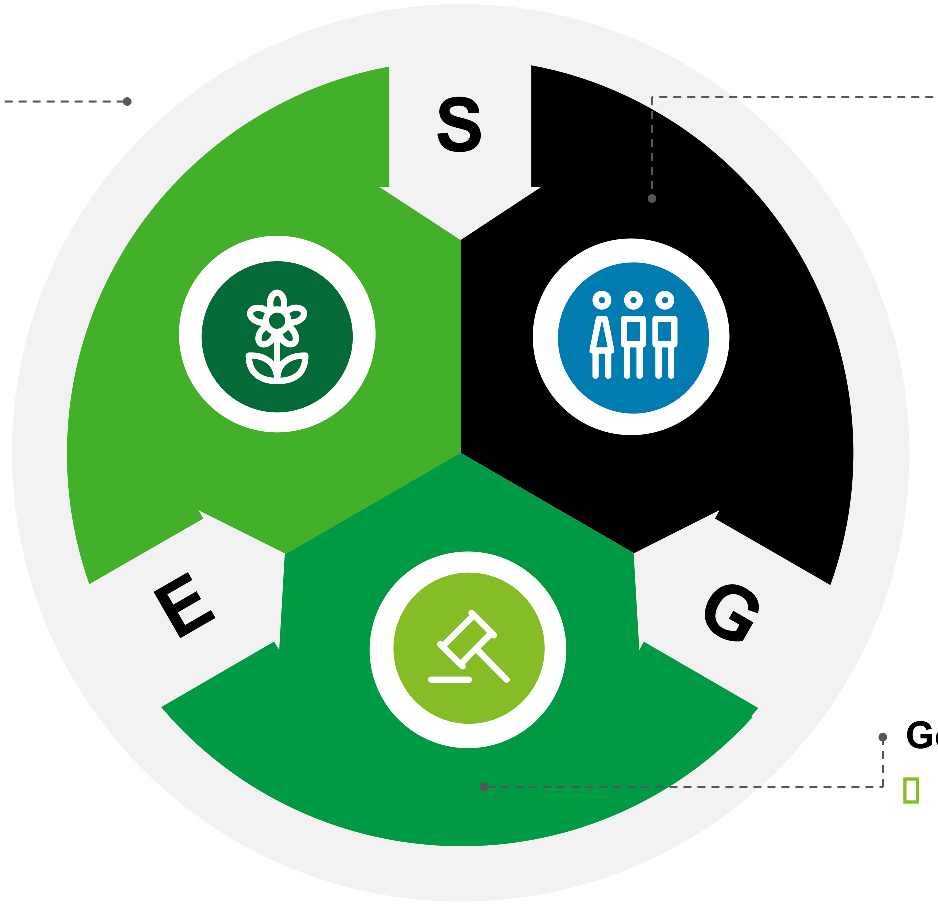
03 Present global case studies to test the hypothesis that ESG best practices are not yet reflected in commodity pricing through green premiums, are partially embedded in discount rates as a recognition of ESG-related risks and may drive future valuation divergence due to evolving global regulations such as the EU’s carbon border adjustment mechanism.

Introduction (2/3)

ESG best practices are a commitment to ethical governance, community engagement, and environmental stewardship that collectively foster safer, more responsible, and sustainable operations

Environmental

- **Sustainable Resource Use:** minimise land disturbance and optimise water and energy consumption.
- **Pollution Control:** reduce emissions and manage waste responsibly.
- **Biodiversity & Nature:** preserve and enhance ecosystems and natural habitats affected by operations.
- **Land Rehabilitation:** restore land during and post-operations to ensure ecological integrity and community value.
- **Climate Action:** align operations with carbon reduction targets and invest in renewable energy.



Social

- **Community Engagement:** foster transparent relationships with local communities and recognised and respect indigenous rights.
- **Workforce Wellbeing:** recognise and respect workforce diversity, equity, culture, and values.
- **Local Development:** support local employment, education, and infrastructure initiatives.

Governance

- **Ethical Conduct & Compliance:** ensure responsible, transparent governance with accountability to stakeholders, integrating sustainability, human rights, risk management, stakeholder engagement, and continuous improvement into corporate strategy.

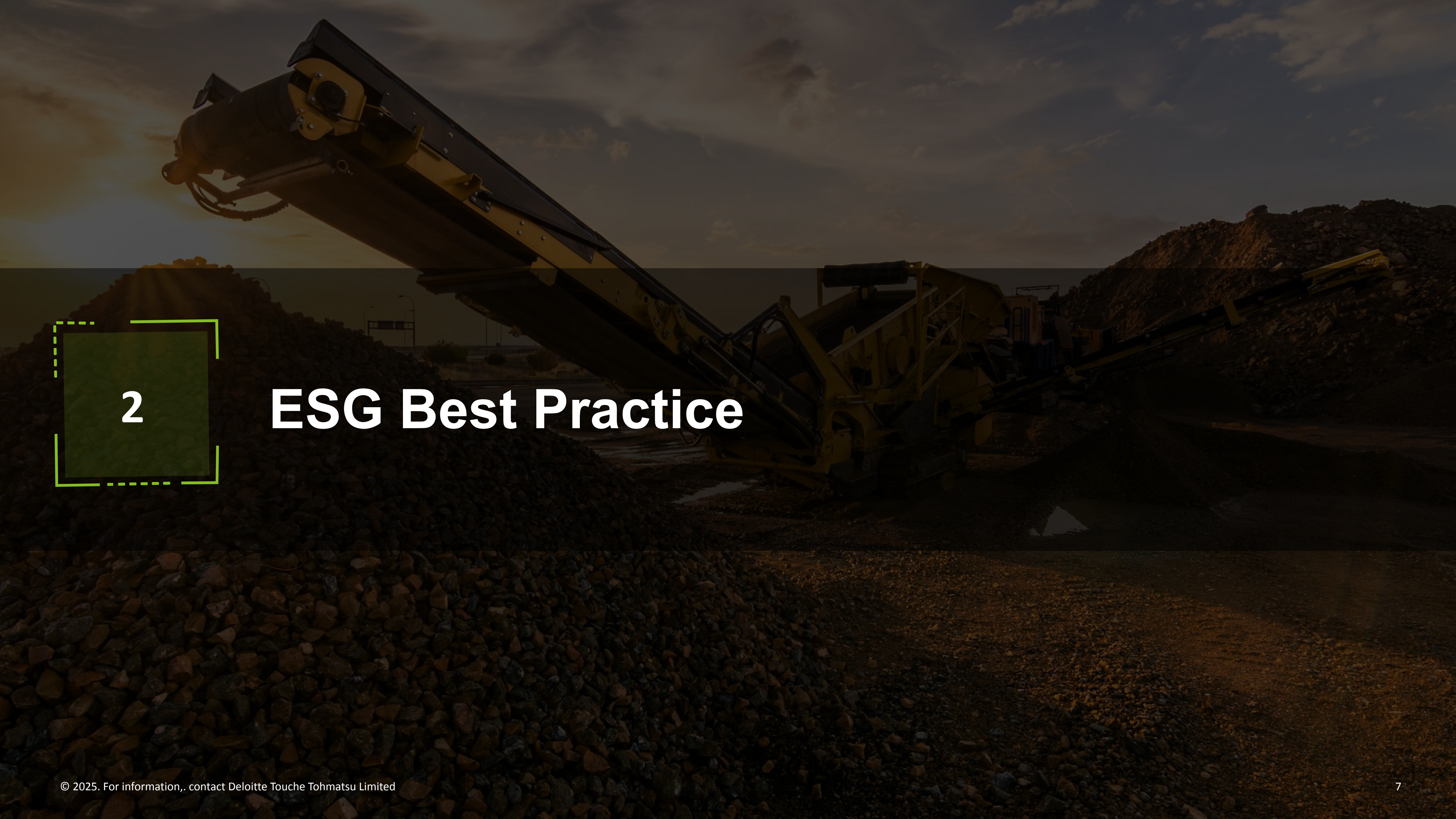
Introduction (3/3)

ESG principles are not just ethical imperatives but strategic levers that influence valuation, risk management, and stakeholder trust in the mining sector

ESG and nature-positive practices are becoming core business drivers[1]

Investor expectations	Strong ESG credentials are more attractive to investors and lenders. ESG ratings from agencies like MSCI and Sustainalytics influence investment decisions, and many financial institutions now require ESG disclosures as a condition for funding[2].
M&A	Companies with strong governance attract long-term institutional investors, increasing demand for shares and potentially boosting market value.
Social license	ESG is increasingly becoming necessary for trust retention and access to social licence.
Long-term value creation	ESG integration strengthens access to global markets, enhances supply chain resilience and aligns business practices with evolving stakeholder expectations and regulatory standard.
Operational efficiency & cost savings	ESG initiatives drive cost savings through both operations and closure. Companies that proactively consider ESG standards can avoid costly fines, unplanned shutdowns, and licence revocations.

Sources: 1. Deloitte Tracking the Trends 2025; 2. https://www.rcgt.com/en/insights/expert-advice/esg-mining-industry/



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ESG Best Practice

ESG Best Practice

What does best practice look like?

Investor& community expectations

ESG Best practice in mining means exceeding investor expectations through socially credible, compliant actions that protect reputation and secure the social licence to operate.

Quantification of ESG-related financial risks and opportunities

Leading mining companies quantify ESG-related risks and opportunities by integrating ESG into financial frameworks, linking metrics to performance to guide strategic decisions.

Alignment with global ESG Reporting Standards

Top-performing mining firms ensure ESG transparency and credibility by aligning disclosures with global standards like GRI, ISSB, and TNFD.

Adherence to industry specific ESG principles

Mining companies demonstrating ESG best practice adopt sector-specific standards like the ICMM Principles and CIM guidelines to embed sustainability into ethical conduct, technical reporting, and resource

Application of double materiality[1]

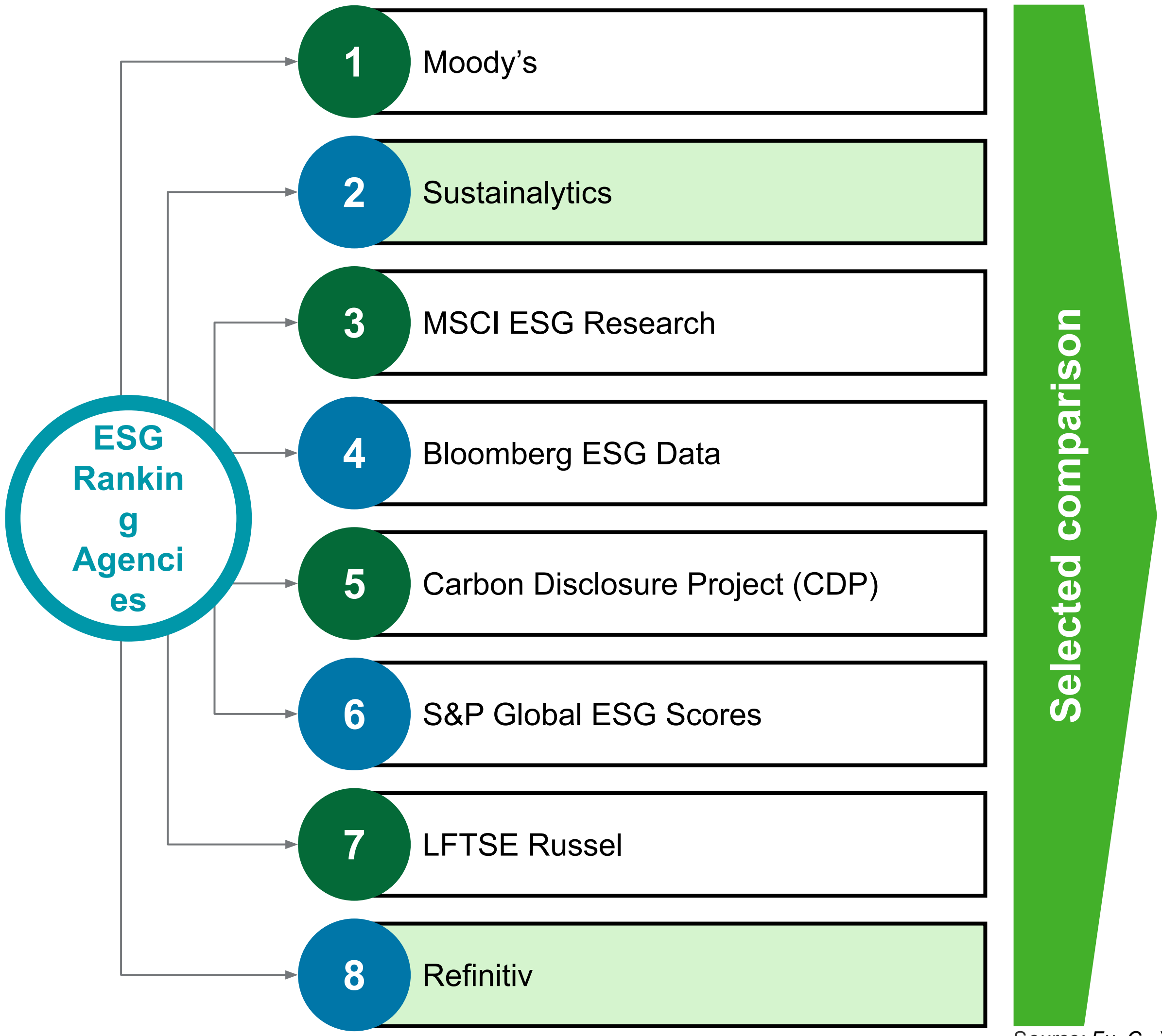
ESG best practice assessments in mining apply double materiality to evaluate both financial impacts and societal/environmental effects, enabling holistic risk analysis and value creation.

Transparency in ESG means publishing clear, forward-looking communications like sustainability reports and impact assessments with measurable targets that support investor and public engagement.

Sources: Deloitte Tracking the Trends 2025

ESG Best Practice | ESG Performance Rating

ESG best practice performance ratings vary across agencies, as each applies its own set of criteria and weighting



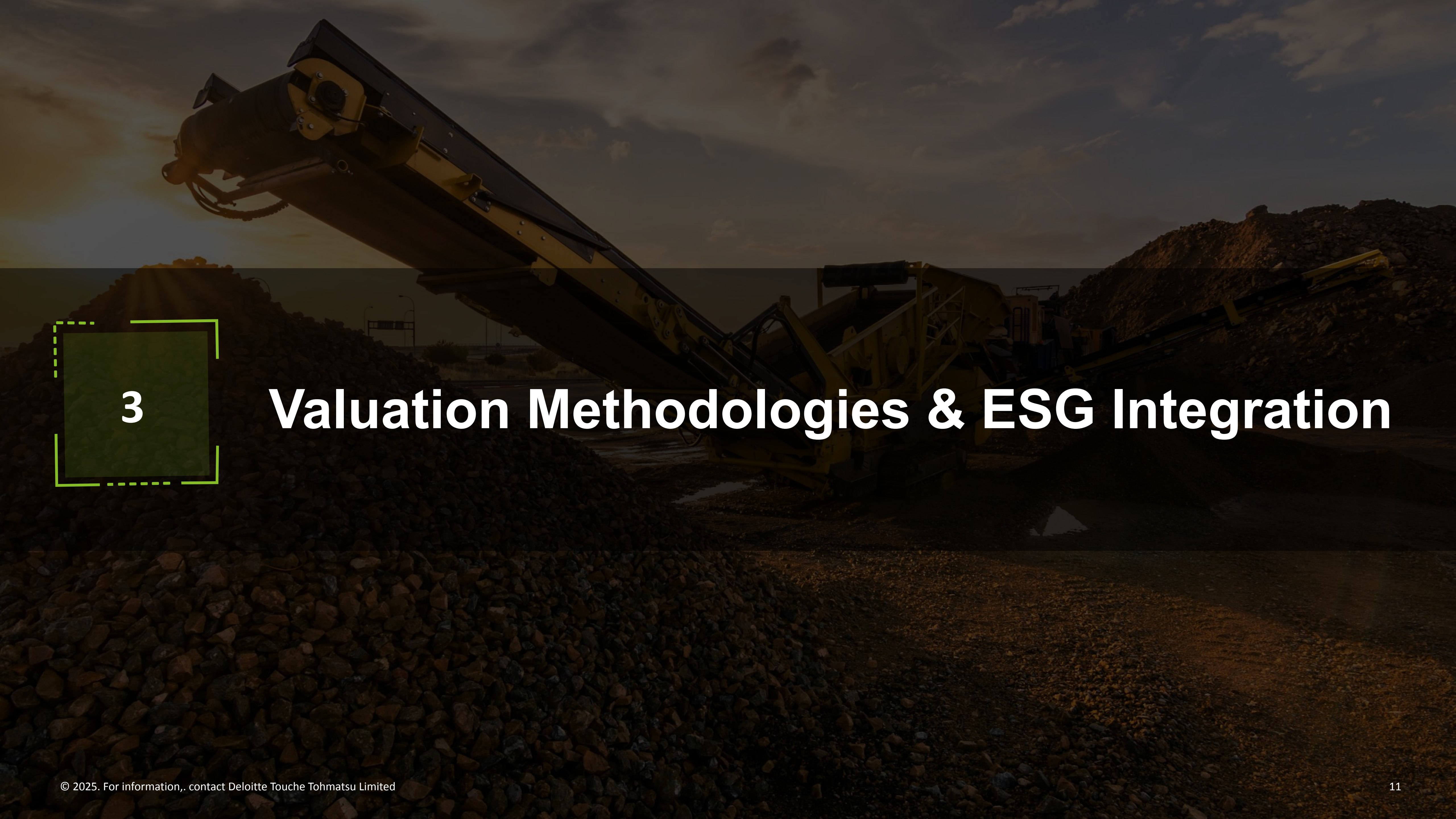
Criteria	Sustainalytics (ESG Risk Rating)	Refinitiv (ESG Score)
Focus	Emphasizes how well companies manage ESG risks relative to their industry exposure	Evaluates ESG performance and transparency compared to peers
Scoring Range	Uses a unit-free scale from 0 (negligible risk) to 40+ (severe risk)	Scores companies from 0 to 100 based on performance and disclosure quality
Audience	Targets investors seeking insights into financially material ESG risks	Serves investors interested in relative ESG performance
Industry context	Incorporates both industry-level ESG issues and company-specific factors	Focuses on how companies perform within their industry peer group

Source: Fu, C., Yu, C., Guo, M. and Zhang, L., 2024. ESG rating and financial risk of mining industry companies. Resources Policy, 88, p.104308.

ESG Best Practice | Top ESG Rated Companies

A company rated highly by one agency may receive a markedly lower score from another, highlighting the lack of standardisation in ESG evaluation frameworks

	Fortescue Metals Group (Australia)	**Anglo American** (UK/South Africa)	**BHP** (Australia/Global)	**Gold Fields** (South Africa)	**Hindustan Zinc** (India)
Rating agency	Global Data ESG Scorecard	GlobalData 2024	MJI ESG Index 2024	GlobalData 2024	S&P Global CSA 2024
Ranking	Top “Leader” ESG rating (5/5)	Top ESG Adopter	High ESG Performer	5/5 “Leader” ESG scores	Top 1% Globally
Best practices noted	Aggressive climate strategy: Pledged **Net Zero by 2030** (brought forward from 2040) and investing heavily in **green hydrogen** and **renewable energy** for operations.	Pioneering use of **renewable power** at mines, extensive **community development** and **biodiversity initiatives**. Aiming for carbon-neutral operations by 2040.	**Emissions reduction & safety**: Achieved ~40% cut in CO_2 emissions from 2021 to 2023 (largest among peers) by switching to **renewable power**.	**Community and safety focus**: Maintains consistently low injury rates and invests >20% of profits into **socio-economic development** in host communities.	Achieved a 14% reduction in **greenhouse gas emission** intensity since 2020 and is 3.3 × **water positive**
Valuation / performance impact	The ESG strategy has boosted its appeal to energy-transition-focused investors, driving **strong institutional interest**.	The initiative saved $80m through renewables and boosted valuation via **lower capital costs**.	Its AA rating and ESG appeal support **low borrowing costs** and **strong valuations** amid market volatility.	Its strong ESG profile attracts **stable gold investors**, lowering **project discount rates** and boosting **P/NAV**.	HZL enjoys **lower risk premiums** and premium valuations thanks to its dominant ESG position in the global metals market.



3 Valuation Methodologies & ESG Integration

Valuation Methodologies & ESG Integration

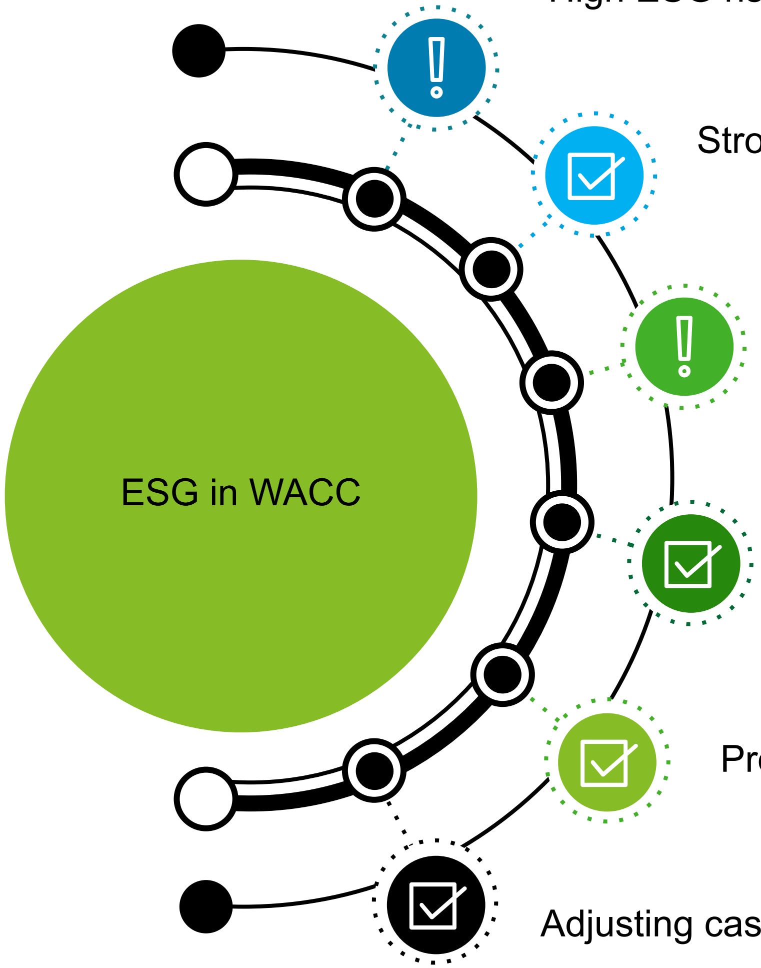
Income Approach | ESG factors impact production volume, operating cost, capital cost, working capital and sensitivity analysis of DCF parameters

DCF parameter	**Revenue**	**Operating Costs (OpEx)**	**Capital Expenditures (CapEx)**	**Working Capital and Provisions**	**Sensitivity Analysis: risk-adjusted**
ESG integration / impact	Production volume and price	Compliance with environmental regulations & social factors	ESG-related capital outlays	One-time costs or provisions	ESG risk matrix
	Low volumes due to environmental/ social modifying factors	Non-compliance increase ongoing expenses & high energy use costs	Adding mitigation investments to capex costs	Cash outflows for liabilities	Quantifying materiality of ESG issues
	Strong sustainability performance can unlock price premiums or new markets	Carbon tax or emissions penalties add a direct cost per tonne of CO_2 emitted	Pollution control equipment, tailings dam upgrades and decarbonisation efforts	Environmental fines, lawsuit settlements, or cleanup provisions	Analysts assign a probability and impact (in monetary terms) for ESG risks
	Persistent community opposition may lead to permit renewals or expansions being denied	Social: community development & safety procedures costs	Renewable power infrastructure, or water recycling systems	Major environmental disasters; high mine closure costs/remediation provisions	
	Failure to meet ESG standards may lead to exclusion from tenders or procurement lists of major buyers	Cobalt producers obligated to invest in uranium removal technology from product	Strong ESG performance can secure and even extend asset life		
	Investing in recycling and reuse can create new revenue streams. This can also hedge against commodity price volatility	ESG-driven initiatives such as energy efficiency, water conservation, and waste reduction can lower operating costs	Poor ESG performance can lead to increased insurance premiums and higher borrowing costs		

Sources: 1. https://valugenius.in/blog/esg-metrics-integration-in-business-valuation-quantifying-sustainability-premiums/ **2.** *https://findingfire.substack.com/p/copy-dirty-profits-why-coal-stocks .* **3.** *https://greenfinancelac.org/resources/news/sqm-announces-us700-million-green-bond-issue/ , 4. https://www.mining.com/worst-drought-in-years-pushes-anglo-to-sign-water-deal-with-codelco/ ;* **5.**
https://www.rcgt.com/en/insights/expert-advice/esg-mining-industry/ ; 6. https://www.bain.com/insights/mining-for-the-future-to-deliver-on-an-esg-agenda/

Valuation Methodologies & ESG Integration

Income Approach | ESG factors also impact the cost of capital



High ESG risk increases beta and cost of equity.

Strong ESG lowers beta volatility and equity cost.

ESG factors affect credit risk and cost of debt.

- *After its 2019 dam disaster, Fitch and S&P quickly downgraded Vale's debt, and yields on its bonds jumped from 4.6% to 5.7% translating to a higher cost of debt in the WACC.*

Poor ESG ratings can raise discount rate by 1–2%.

- *In Norsk Hydro valuation study, analysts applied a 0.25% downward adjustment to it's WACC to account for its relatively strong ESG performance.*

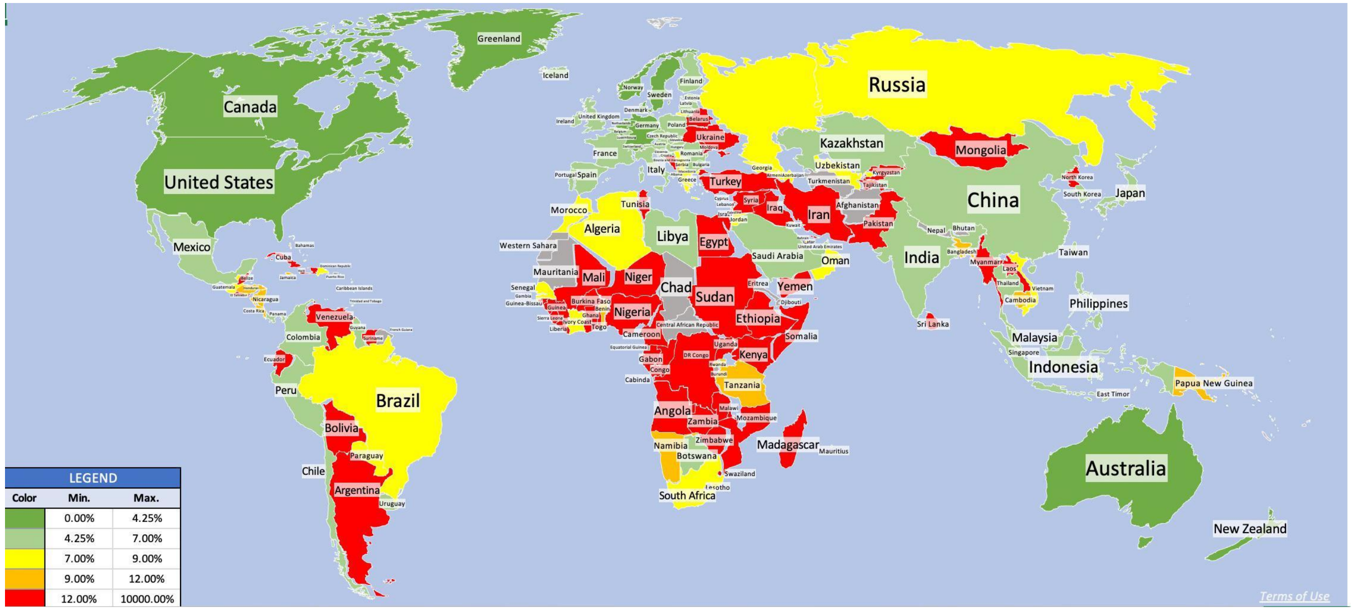
Proactive ESG can justify a lower discount rate.

Adjusting cash flows vs adjusting the discount rate are partially substitutes.

*Sources: 1. https://valugenius.in/blog/esg-metrics-integration-in-business-valuation-quantifying-sustainability-premiums/ **2.** https://findingfire.substack.com/p/copy-dirty-profits-why-coal-stocks . **3.** https://greenfinancelac.org/resources/news/sqm-announces-us700-million-green-bond-issue/ , 4. https://www.mining.com/worst-drought-in-years-pushes-anglo-to-sign-water-deal-with-codelco/*

Valuation Methodologies & ESG Integration

Income Approach | ESG factors are not incorporated in the Country Risk Premiums



"You might know, by now, of my views on ESG, which I have described as an empty acronym, born in sanctimony, nurtured in hypocrisy and sold with sophistry."

Political Structure

- Democracies may create regulatory instability
- Authoritarrian regimes can lead to sudden, disruptive shifts

Corruption

- Acts as a hidden tax, reducing profitability
- Ethical firms may be at a disadvantage

War & Violence

- Raises operational and insurance costs
- Threatens business continuity and safety

Legal & Property Rights

- Strong legal systems increase business value
- Weak enforcement rreduces investor protection

- Damodaran's Country Risk assessment excludes ESG or sustainability dimensions, which aligns with his known views on ESG.
- This model is widely used in valuation, making it unlikely that ESG factors will be added at the country level.
- Practitioners should be aware that ESG is not currently part of Country Risk assessments.
- **Could poor ESG practices make a country more vulnerable to future ESG-related risks, such as climate change?**

Valuation Methodologies & ESG Integration

Market Approach | ESG factors impact trading and transaction multiples (companies with higher ESG scores tend to trade at more favorable valuation multiples)

COMPANY	REGION	ESG SCORE	EV/EBITDA	P/NAV	EV/RESOURCE
BHP	Australia/Global	A (Leader)	~6.5x	~1.0x	
Rio Tinto	UK/Australia	A (Leader)	~5.0x – 5.5x	~0.9x	
Anglo American	UK/SA	AA (Leader)	~5.5x – 6.0x	~1.0x	
Fortescue Metals Group	Australia	BBB (Avg)	~4.5x – 5.0x	~0.8x – 0.9x	
First Quantum Minerals	Canada	BB (Below Avg.)	~5.0x – 6.0x	~0.8x	
Vale S.A.	Brazil	BB (Below Avg.)	~4.5x (post-incident)		e Fe res.
Sibanye-Stillwater	South Africa	B (Lagging)	~3.5x – 4.0x		u + PGM res.
Gold Fields	South Africa	BBB (Avg)			

The market assigns a P/NAV below 1.0× due to ESG risks: Anglo American divested from Thungela (coal) in 2021 and its plc's P/NAV stabilized at ~1×NAV , a turnaround from ~0.3× NAV

Vale's stock plummeted and EV/EBITDA fell following tailings dam collapse. As iron ore prices rose later, it traded at a discount to peers like Rio Tinto or BHP.

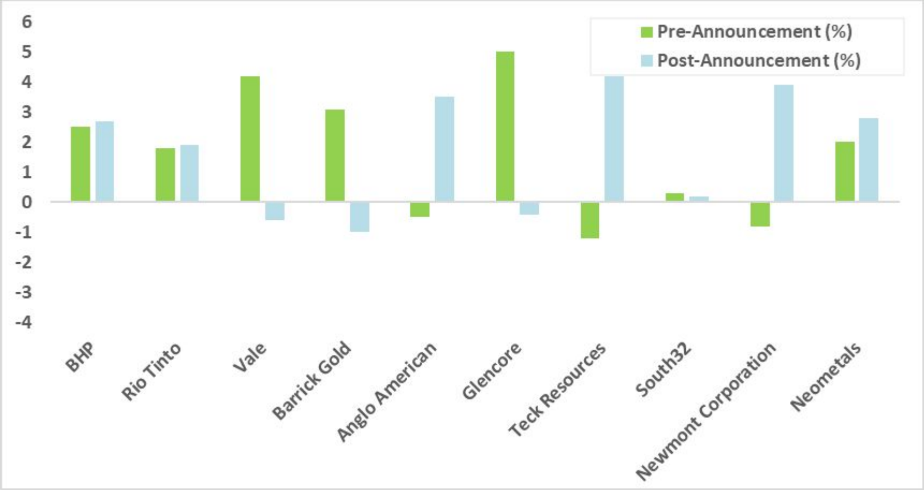
Sources: 1. https://www.imval.org/uploads/presentation/2021-05-13/Slides/IMVAL_May2021_Smith-Slides.pdf2 **. ,** *2 https://www.imval.org/uploads/present… Slides.pdf* **, 3** *https://www.wallstreetoasis.com/resources/skills/valuation/mining-asset-valuation-techniques , 4 https://www.pwc.com/gx/en/news-room/press-releases/2021/mine-2021-report.html , 5 https://www.crugroup.com/en/communities/thought-leadership/2023/trouble-ahead-for-coal-miners-as-esg-and-finance-challenges-grow/ ; Morgan Stanley Capital International (MSCI)*

4 Evidence & Contextual Insights

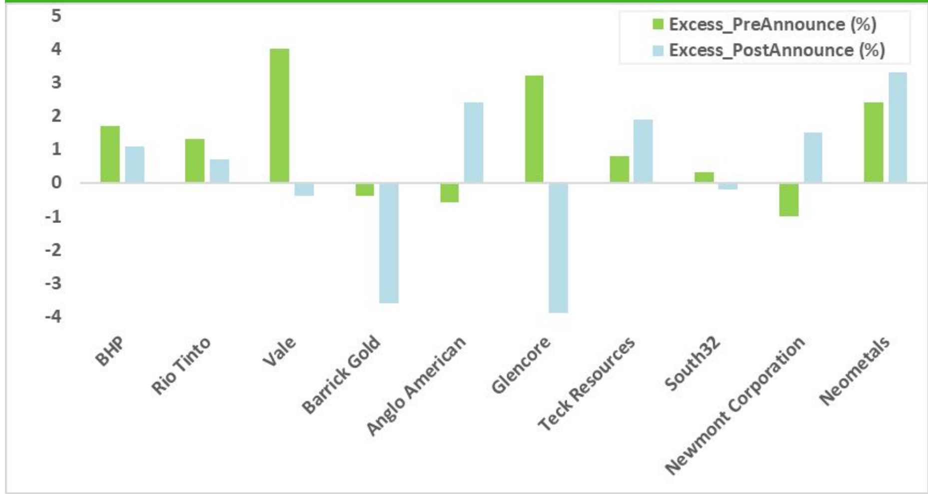
Evidence & Contextual Insights

Market reactions vary widely, and excess return analysis indicates that investor response may be more nuanced or influenced by broader factors beyond sustainability pledges

Share price valuation



Share price relative to market



2019 – BHP's Net-Zero Pledge

BHP announces plans to achieve net-zero emissions by 2050, allocating **US$400 million** towards this goal.

2020 – Rio Tinto Joins In

Rio Tinto commits to net-zero by 2050, with a **US$1 billion** climate investment programme over five years.

2021 – Anglo American Ups the Ambition

Anglo American sets a target for carbon-neutral operations by 2040, aiming to halve scope 3 emissions by the same year.

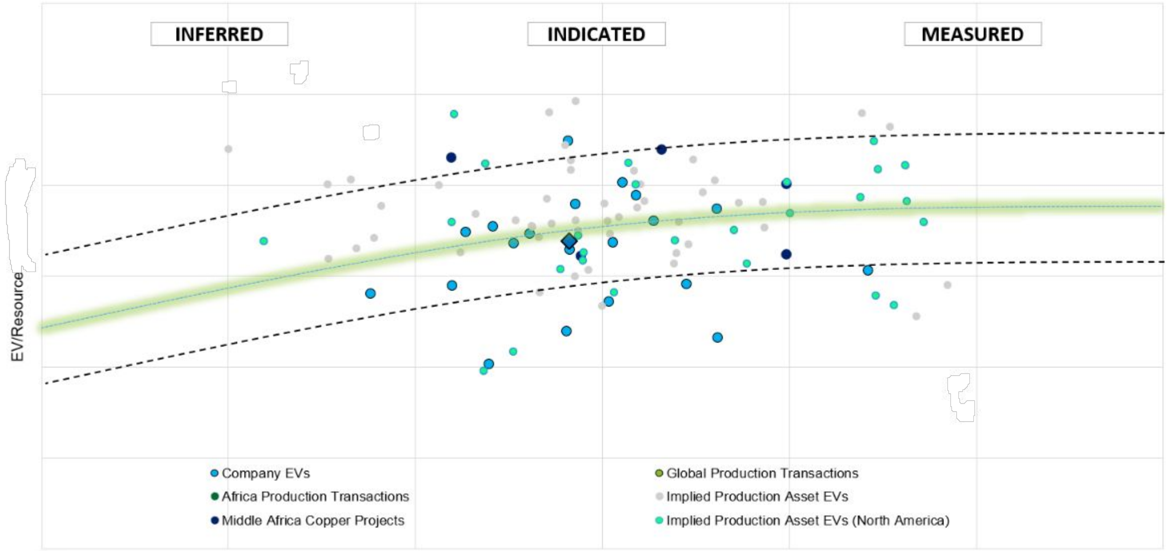
A comparative analysis of share price performance three months before and after major net-zero commitment announcements reveals a mixed impact across mining companies:

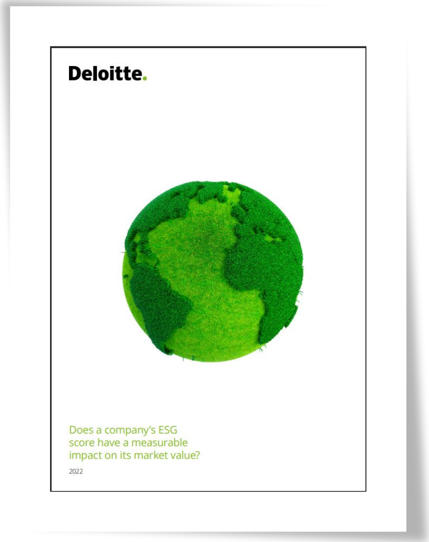
- **Positive post-announcement performance:** Anglo American, Newmont, and Teck Resources saw share price gains following their net-zero pledges
- **Strong pre-announcement rallies, followed by muted or negative performance:** Glencore and Vale experienced notable gains leading up to their announcements, but failed to sustain momentum afterward.
- **Muted or negative post-announcement performance:** Barrick Gold and South32 showed little to no positive movement, with some decline after their commitments.

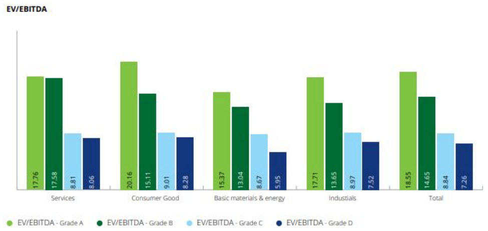
Significant net-zero commitments may have limited influence on short-term share price movements.

Evidence & Contextual Insight

ESG scores can influence valuation multiples, but mining practitioners must carefully assess whether ESG-driven premiums apply, especially given the sector’s unique technical constraints







- ESG performance may influence company valuations if share price performance correlates with ESG scores.
- Higher ESG scores could translate into valuation premiums—reflected in elevated EV/tonne metrics in both listed comparables and transaction analyses.
- Valuation practitioners should consider whether the asset or company being assessed is similarly affected by its ESG profile. Evidence supporting this includes:
  - **Deloitte Switzerland (2022)**: Found a statistically significant link between ESG scores and EV/EBITDA multiples across sectors—even after controlling for other business factors. This was based on multiple linear regression analysis across a range of sectors, including services, consumer, basic materials and industrials.
  - **MSCI ESG Ratings and Cost of Capital study (2024)**: Mining companies with high ESG scores had a lower average cost of capital (6.16%) compared to those with low scores (6.55%).
- While some research has been inconclusive, the trend suggests ESG’s influence on valuation is likely to grow.

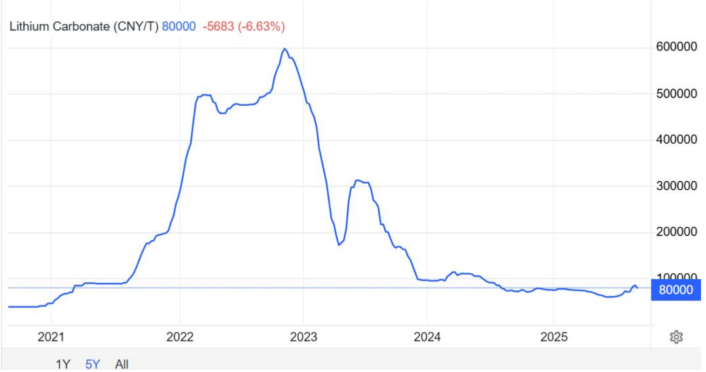
Isolating ESG-driven premiums in mining is complex due to technical factors like orebody quality and geography.

Evidence & Contextual Insights

Government-backed price supports and financing mechanisms are reshaping the investment landscape for critical minerals, offering a blueprint that could extend to decarbonisation and broader ESG initiatives

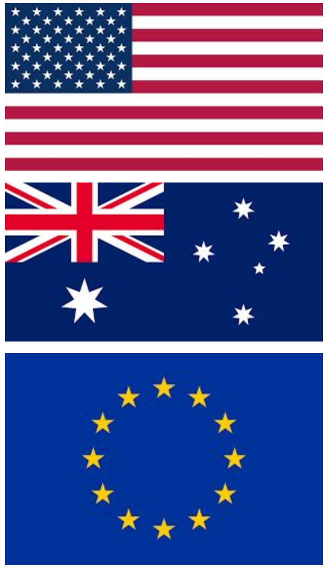
- The global race to secure critical mineral supply chains has faced limited private investment due to **high capital costs**, **long development timelines**, and **volatile pricing**—exacerbated by China's market dominance.
- To address these challenges, governments are adopting long-term strategies that reduce financial risk and incentivise development:
  - **Price Guarantees**: MP Materials receives a minimum of $110/kg for NdPr, shielding it from market downturns. U.S. officials suggest this model could be replicated more broadly.
  - **Strategic Reserves**: Australia’s A$1.2 billion Critical Minerals Strategic Reserve (April 2025) aims to secure supply for itself and allies.
  - **Preferential Financing**: Low-interest loans and guarantees are helping de-risk investments in new mines and refineries.
  - **EU’s CRMA**: Strategic Projects benefit from fast-tracked permitting and public loan guarantees, lowering interest rates and encouraging private lending..
- These interventions have reduced price downside and the cost of capital—positively impacting project valuations.

Will we see similar trends to support decarbonisation and other ESG factors?



MP MATERIALS

Lynas Rare Earths

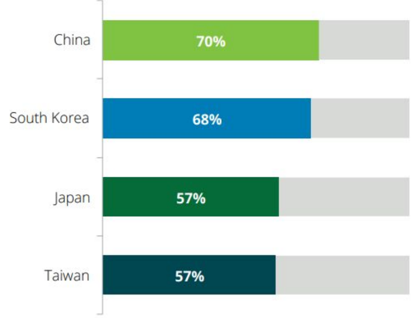


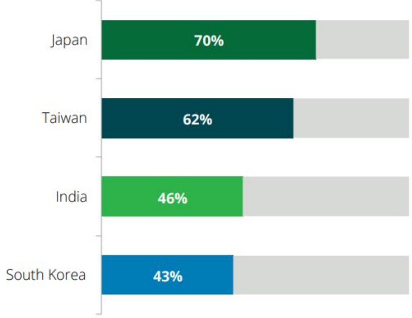
Evidence & Contextual Insights

The steel industry’s decarbonisation is gaining momentum, but regional disparities in policy and incentives pose challenges

- key insights from the Deloitte and WWF publication on steel industry decarbonisation:
    - **Steel’s Emissions Impact:** The steel industry contributes approximately 7–9% of global greenhouse gas emissions.
    - **Global Decarbonisation Pace:** Regulatory frameworks and incentives are starting to drive change, but progress is uneven across regions.
    - **Asia’s Challenge:**
        - Steelmakers in Asia face **limited incentives** to decarbonise.
        - Without targeted policy shifts, **green steel may not be commercially viable before 2040.**
        - **Carbon pricing and CBAM policies** in APAC are less aggressive than in Europe.
    - **Policy Outlook:** Future changes in carbon mechanisms could in**crease pressure on Asian producers** to decarbonise.
    - **Australia’s Role:**
        - Through its exports of iron ore and metallurgical coal, Australia is **indirectly responsible for 23% of global steel emissions.**
        - Australia could potentially be **competitive in green hydrogen, including Hydrogen-based Direct Reduced Iron (DRI)** for export to Asia. While still some time away from commercialization, **there are promising signs including Government support for emerging green steel pilots**

Will South Africa see similar momentum in green steel?
What needs to change for green steel to be commercially viable?
Will CBAM and carbon pricing drive a price premium for green steel and impact valuations?





Evidence & Contextual Insights

ESG strategies in other industries enhance financial performance through revenue growth, cost savings, risk mitigation and improved investor perception

Coffee Industry: Starbucks

01

- **ESG Actions**: Ethical sourcing, fair-trade coffee, LEED-certified stores, farmer support.
- **Impact**: Despite skepticism during the 2008 crisis, Starbucks invested $70M in ESG.
- **Financial Outcome**: Share price rose **651%** over 10 years vs. **162%** for McDonald's [1].
- **Valuation Signal**: ESG boosted **resilience and consumer trust**, leading to **lower discount rates** and **higher investor confidence**.

Cocoa Industry: DaVinci Gourmet

02

- **ESG Actions**: Shifted to 100% **Rainforest Alliance Certified** cocoa.
- **Consumer Behavior**: Willingness to pay **20% more** for sustainable chocolate drinks.
- **Valuation Signal: Modest** revenue uplift, but gains in **brand reputation**, **risk reduction**, and **lower cost of capital**[2].

Clothing Industry: Case Studies from NYU Stern

03

- **ESG Strategies**: Circularity, sustainable materials, employee well-being.
- **Savings:** $1.6m/year from low-carbon distribution; $34m from employee well-being [3] .
- **Valuation Signal**: ESG led to higher productivity, lower operational risk, and **discount rate improvements**.

Sources:[1] ESG & Value-creation: How starbucks beat the market (no date) RPS. [2] Making chocolate a force for good: The case for sustainable cocoa in Foodservice (no date) Kerry. [3] (No date a) The business case for Sustainable Apparel. [4] MP materials deal marks a significant shift in US rare earths policy - center on global energy policy at Columbia University Sipa: CGEP % (2025) Center on Global Energy Policy at Columbia University SIPA | CGEP

5 Conclusion

Conclusion

The adoption of ESG best practices is not just a regulatory or ethical obligation but a strategic imperative for mining companies

ESG Best Practices Influence Valuation via Risk Reduction and Price Premiums

Green premium pricing is not yet a widespread or standardised market practice due to factors like a lack of consistent benchmark data and varying willingness to pay among sectors and companies. However, some companies (such as Alcoa) have factored the green price premiums into their commodity pricing.

Valuation Multiples Vary by ESG Performance and Jurisdiction

Mining companies with higher ESG scores tend to trade at better EV/EBITDA and P/NAV multiples. However, these premiums are not uniform across jurisdictions. For instance, lithium projects in Australia fetch higher EV/resource multiples than similar projects in South America due to ESG-related risks like water scarcity and community conflict. This underscores the need to adjust valuation multiples based on ESG context and regional risk.

Primacy of the Orebody Still Dominates ESG Considerations, But practical ESG Constraints are Becoming Important

Despite growing ESG awareness, the quality and location of the orebody remain the primary drivers of valuation. However, practical ESG-related constraints such as access to key natural inputs like water are becoming decisive in determining whether projects can be successfully developed. Practitioners must balance ESG assessments with geological and jurisdictional realities, ensuring that environmental dependencies are not overlooked in the pursuit of technical excellence.

Outlook: ESG Will Become Central to Valuation Methodologies

As regulatory frameworks (e.g., EU's CBAM) and investor expectations evolve, ESG will play a more prominent role in valuation. Government-backed price supports and financing mechanisms for critical minerals suggest that similar models could emerge for decarbonisation and broader ESG initiatives, potentially reshaping valuation dynamics.

Recommendations for Practitioners

- Practitioners should treat ESG factors as quantifiable inputs in valuation models by adjusting discount rates and conducting scenario-based sensitivity analyses that reflect ESG-related risks and opportunities.
- Practitioners should adjust market multiples for ESG-related country risks, especially in weak governance regions.