



Institute for Energy Economics
and Financial Analysis

Can Credit Rating Assessments and Sustainability Coexist?

ESG integration in the credit world: moving beyond
short-term horizons

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Key Findings

Credit rating agencies do not make value judgement, but rather how ESG factors impact creditworthiness. Until then, companies that are negatively impacting the environment will continue to be highly rated. On the other hand, sustainable companies will not receive a rating uplift despite its decarbonization.

Disclosing or providing detailed ESG diagnosis is not the same as integrating ESG factors into credit ratings, since the former does not trigger a credit rating action.

Conventional Corporate Credit Assessment + ESG Risk system would provide transparency and calibrate ESG risks for debt investors.

The current credit rating model is short-sighted and not intuitive enough to provide an early warning signal ahead of a climate-related crisis.

An issuer that faces heightened ESG risks in the long-term, particularly climate-related risks, may experience an abrupt rating downgrade sooner than expected. This severely impacts bondholders and triggers potentially significant bond sell-offs.



Executive Summary

As environmental, social, and governance (ESG) factors become more prevalent in investments, credit rating agencies have sought to be more transparent about how these factors are considered in their traditional credit rating assessment and have come a long way in terms of their credit outlook on hydrocarbon related sectors. ESG considerations in credit ratings is not intended to measure a company's sustainability impact, but rather how credit relevant ESG risk can ultimately impact the ability of a company or entity to repay debt.

One tool developed to improve transparency is the ESG credit score, which aims to articulate or quantify ESG factors in credit rating analysis.

The way agencies have incorporated ESG into credit analysis has had no effect on their conventional credit assessment. These ESG credit scores do not cause a rating upgrade or downgrade. As a result, there have been no significant rating changes for all sectors globally since the ESG enhanced credit rating methodology.

If ESG considerations are deemed to have a credit risk or benefit but do not result in a tangible and timely credit rating change, what is the purpose of ESG considerations in credit ratings (or ESG credit score)?



The current “ESG-enhanced” rating framework is simply a repackaged concept of an already established credit assessment principle.

The current “ESG-enhanced” rating framework is simply a repackaged concept of an already established credit assessment principle. Under this framework, an entity's credit rating would remain the same but there is an additional ESG credit score component that helps disclose potential ESG risks that may impact a credit rating coupled with other prevalent credit factors.

This approach suggests that a company can have a weak ESG credit score, be carbon intensive, lack a clear carbon transition pathway and yet be assigned a high investment grade rating due to its high ability to repay its debt in the next three to five years.

The International Energy Agency Net Zero Emissions by 2050 Scenario estimates that around 70% of clean energy investment will take place over the next decade and this largely hinges on the widespread mobilization of low-cost debt. A credit rating is an important factor to consider when deciding on capital structure. The higher the credit rating, the more easily issuers can obtain funding and the lower the cost of debt.

As it stands, the current credit rating methodology is a disadvantage for companies that are pursuing a sustainable transition. Credit assessment needs to be improved, and entities that pursue sustainability initiatives should be incentivized by enhancing low-cost financing to accelerate the clean energy transition.

Notably, only credit relevant ESG factors that are visible, likely to materialize, and have a significant impact on creditworthiness in the short term (three to five years) are considered in the credit assessment. Whereas ESG risks, particularly environmental risks that are deemed to be uncertain long-term projections and difficult to quantify are not incorporated. While these risks are considered material, they have little impact on assigned credit ratings today due to its relatively short-term assessment.

Environmental risks, such as transition and physical risks, are more difficult to assess due to the longer time horizon, greater uncertainty, and the challenge to quantify these risks into potential financial losses. That said, these risks will continue to build up to become certain and material, affecting an entity's debt repayment capacity as the transition to a low-carbon economy accelerates and the negative effects of physical climate change become more apparent. As a result, bond portfolios are faced with increased downside risk over time.

For example, in 2019 S&P Global Ratings and Moody's Investors Service downgraded Pacific Gas and Electric Company (PG&E)'s rating due to its challenging environment, as it faced billions of dollars in liabilities related to wildfires (physical risk). Following a series of wildfires between 2015 and 2018, PG&E filed for bankruptcy on 29 January 2019. PG&E is widely considered to be the first "Climate Bankruptcy", and it is unlikely to be the last, as climate change exacerbates natural disasters, resulting in more frequent and intense wildfires, storms, and flooding.

This underscores that what is currently deemed uncertain risk could result in a multi-notch downgrade and, eventually, bankruptcy, which can severely impact bondholders. Consequently, there could be more abrupt rating changes on the horizon under the existing credit rating mechanism.

Just as businesses and risk managers are expected to think beyond short-termism, so should credit rating agencies. In particular, credit assessment practices must evolve to ensure that the ratings system, too, is sustainable. The credit rating system should be more resilient to ESG-related shocks, particularly the impact of climate change. A credit rating evaluation would benefit from including long-term risks and/or opportunities to provide early signals.

ESG integration is now a critical component of the investment process. As a result, the conventional rating methodology requires an overhaul to include long-term risk and produce a tangible outcome on credit rating due to ESG factors. This report provides possible new models for how ESG can be better integrated in credit rating assessments. These include instituting a standalone ESG risk assessment, a double rating analysis or plausible sensitivity analysis.

While there is no quick fix to address these challenges given the complexity around credit evaluation, environmental and social issues are gaining traction and deserve more attention. As such, the suggested models aim to explore the possibility of creditworthiness and sustainability coexisting in a credit rating assessment.

ESG Factors Are Not Directly Integrated Into Traditional Credit Rating Methodology

In 2022, a targeted consultation on environmental, social and governance (ESG) ratings and sustainability factors in credit markets in the European Union (EU) found that a majority of respondents believe that the current EU disclosure guidelines and market trends are insufficient to provide market understanding of how ESG factors influence credit ratings. Most users also believe that information about the extent to which credit rating agencies incorporate sustainability factors in their methodologies or the rating process is not adequately disclosed.¹

As ESG factors have grown in importance in financial markets, integrating them in conventional credit rating assessments is a critical step towards a more sustainable financial system.



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But just how integrated are ESG factors in credit ratings?

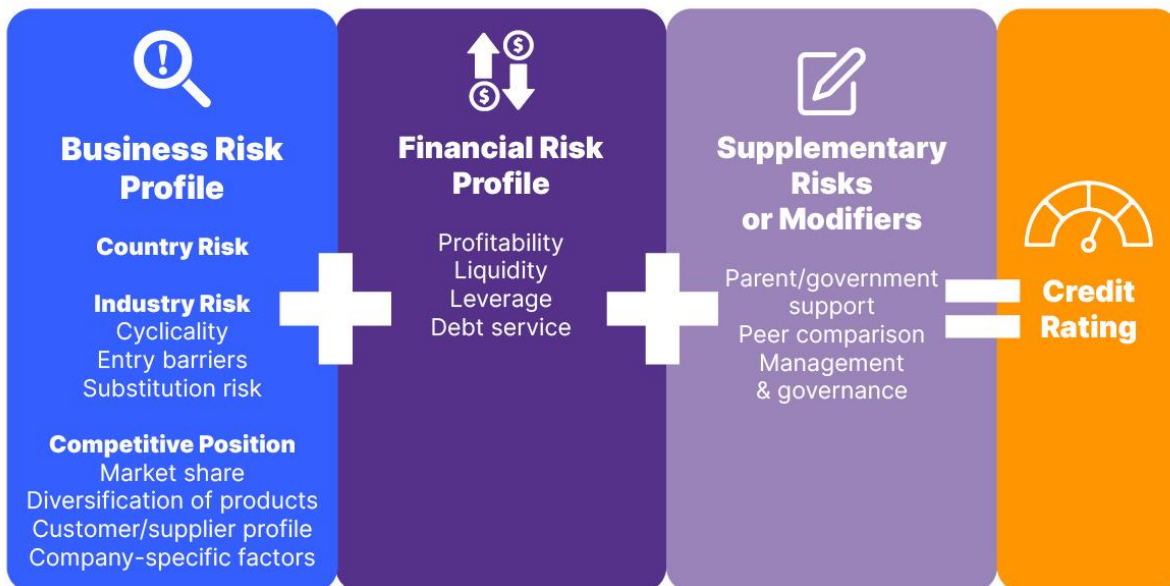
Conventional credit rating methodology

The distinguishing feature of a conventional credit rating is that it only evaluates an entity's creditworthiness or its ability to repay its debt. It does not measure a company's ESG performance or sustainability. A conventional corporate credit rating methodology evaluates a credit risk profile by analyzing three main pillars — business, financial and supplementary credit-related risks (Figure 1).

These three analytic factors are a blend of quantitative and qualitative evaluations that assess an entity's ability to repay its debt. A high credit rating indicates that the issuer is likely to repay the bond in full, whereas a low credit rating indicates that the issuer may default or miss scheduled payments. Credit ratings are therefore critical to bond investors' decision-making.

¹ European Commission. [Summary Report – EU Targeted Consultation](#). August 2022. Page 4.

Figure 1: Conventional Corporate Credit Rating Methodology



**Equation: Business Risk Profile + Financial Risk + Supplementary Risks
(Rating change by a few notches) = Final Credit Rating**

Source: Various corporate credit rating methodologies and IEEFA analysis

Evolution of Credit Rating Agencies

Giving credit where credit is due

Rating agencies have come a long way in addressing credit risk for fossil fuel-related debt issuers and sectors.

IEEFA's credit outlook research from 2004 to 2015 found that Moody's, Fitch Ratings and S&P viewed the coal industry as credit positive, including the commissioning of coal plants, increased production, reserves, and capacity for hydrocarbon resources.

In recent years, however, IEEFA has observed a change in their outlook. Presently, rating agencies consider that the coal industry is in a long-term decline due to social and political pressures arising from the drive to reduce greenhouse gases. Natural gas investments and continued reliance on hydrocarbons are also seen as long-term credit risks.

Table 1: Credit outlook evolution: an overview from early 2000s to 2022

Year	Sector	Region	Credit Agency	Fossil fuel-related businesses were viewed as credit-positive
2004-2008	Utilities	U.S.	Moody's	Edison International had well-positioned coal-fired generating assets driving its business.
		Asia		Asian electric utilities aimed to optimize fuel mix by relying less on oil and using more coal .
	Oil and Gas	U.S.	Fitch	Burlington Resources strengthened its credit profile through increased natural gas production , strong commodity prices, and a stable cost structure.
		Asia	Moody's	Petronas was well positioned through expanding its liquefied natural gas (LNG) processing facilities .
2009-2015	Utilities	U.S.	Moody's	The U.S. coal industry outlook was stable, owing primarily to strong contracted thermal coal positions .
		Asia		Korea Electric Power Corporation's financial profile was expected to improve as new coal plants were commissioned.
	Oil and Gas	Europe	S&P	Polish Oil and Gas Company's long-term risk profile would likely benefit from its strategy of diversification and continued investment in its gas infrastructure .
		Asia	Moody's	China National Petroleum Corporation discovered a natural gas reservoir that would evolve into proven reserves and production.
Year	Sector	Region	Credit Agency	Gradual shift to seeing fossil fuel as (long-term) credit risk
2016-2018	Utilities	Asia	Moody's	Coal-oriented power companies faced increasing exposure to carbon transition risk.
			Fitch	Coal-fired projects exposed to the merchant market might terminate early due to rising competition from renewable projects.
	Oil and Gas	Global	Moody's	Material exposures to LNG projects would all face the greatest risk of stranded assets .
			S&P	The most significant risk was the pace of energy transition away from carbon-based fuels.
2020-2022	Utilities	U.S.	Moody's	The U.S. coal industry had been in a long-term decline as social and political pressure to reduce greenhouse gases cut demand for coal.
		Asia		Thermal power would remain critical, but business risks associated with coal and gas would continue to rise.
	Oil and Gas	U.S.	S&P	Oil majors were downgraded due to climate change and weak earnings.
		Asia	Moody's	Continued reliance on hydrocarbons was a long-term credit negative .

Businesses related to fossil fuel are increasingly regarded as credit risks, and notable examples include the following:

- In September 2020, an in-depth analysis by Moody's on regulated electric and gas utilities in North America¹ recognized that shifting environmental agendas toward low-carbon transition increased long-term credit risk for natural gas investments. The long-term nature of the assets as well as ESG considerations such as emissions levels, reputational risk, financial policies and the cost of capital over a multi-decade horizon were expected to heighten credit risk.
- In February 2021, S&P downgraded Exxon Mobil Corp one notch from AA to AA- after revising its industry risk assessment, which reflected "growing risks from energy transition due to climate change and carbon emissions, weak industry profitability and greater expected volatility in hydrocarbon fundamentals."¹ For the same reasons, S&P also lowered the credit ratings of Chevron Corp. and ConocoPhillips.
- In 2021, S&P issued a credit update for Taiwan-based Formosa,¹ stating that delays in the company's Louisiana petrochemical project had been beneficial, and that canceling the project would be better than laying out significant cash for a high-risk investment. S&P also said Formosa would find it increasingly difficult to pursue projects in the chemical commodity field due to rising global pressure to reduce carbon emissions and pollution, which Formosa Petrochemical had experienced in the U.S.

These examples demonstrate how the perspectives of rating agencies on evaluating fossil fuel-related businesses have evolved over the last two decades. What was once considered credit positive is now viewed as a potential credit risk.

Having come a long way, rating agencies have a long way more to go

Credit rating agencies are starting to consider climate-related risks, but more tangible rating action is needed.

Evaluations are still largely based on current events revolving around policy changes and market forces. This may be adequate for short-term investors and credit assessments of three to five years. However, the system does not work well for investors that are taking a long-term view, as higher emission costs and risks of stranded assets, refinancing, physical events and transition become increasingly evident.

Credit rating assessment should integrate sufficient analysis of future earnings scenarios or anticipated impact to cash flows from a climate risk perspective.

ESG considerations in credit analysis

ESG factors are not new to credit assessments. According to Fitch, ESG considerations have been themes of credit analysis for many years, but until recently have not drawn specific attention.²

Importantly, only credit relevant ESG considerations that are visible, likely to materialize and have a significant impact on creditworthiness in the short term (three to five years) are evaluated in the credit assessment. ESG factors, particularly environmental factors that are considered to be uncertain long-term projections and difficult to quantify, are not incorporated. While ratings are forward looking, the assessment places more emphasis on shorter-term and financially material factors (see ‘Mismatch of ESG factors and credit ratings time horizon’ for further details).

Credit rating agencies increasingly view risk through an ESG lens in an effort to assess an entity’s creditworthiness. However, the way agencies have incorporated ESG into credit analysis has had no effect on their conventional credit assessments.

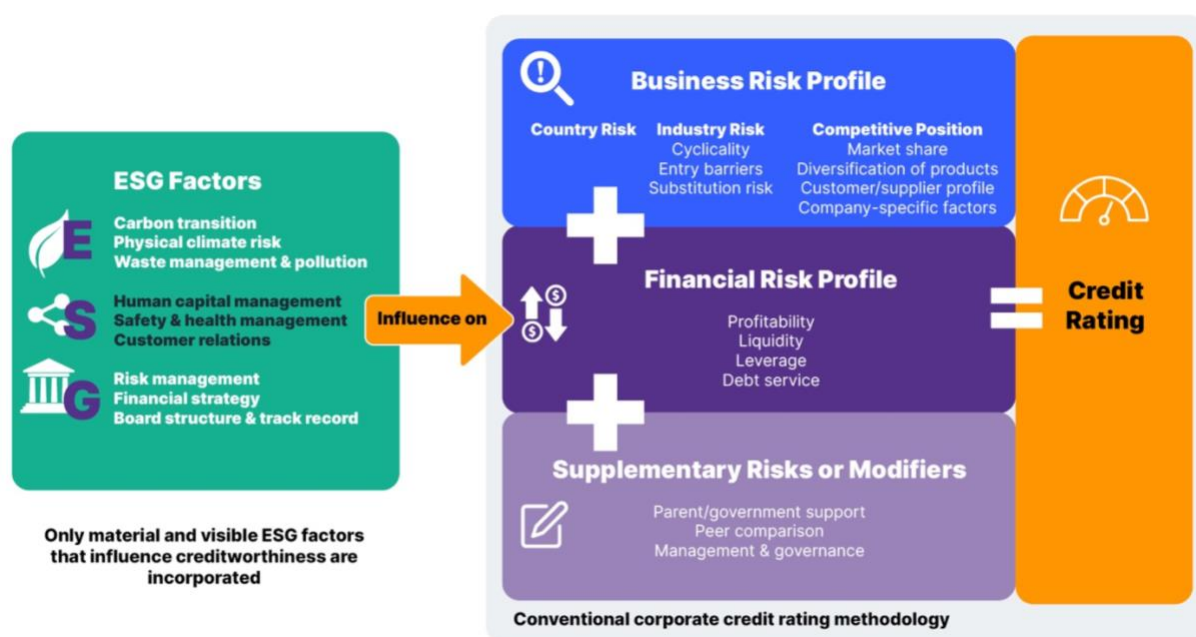


ESG factors are not directly integrated into traditional credit rating methodology. Rating agencies have simply provided additional disclosure and transparency of material and relevant ESG factors that could have an influence on the credit rating assigned.

That is, ESG factors are not directly integrated into traditional credit rating methodology. Rating agencies have simply provided additional disclosure and transparency of material and relevant ESG factors that could have an influence on the credit rating assigned (Figure 2).

² Fitch. [The intersection of ESG and Credit Risk](#). August 2021.

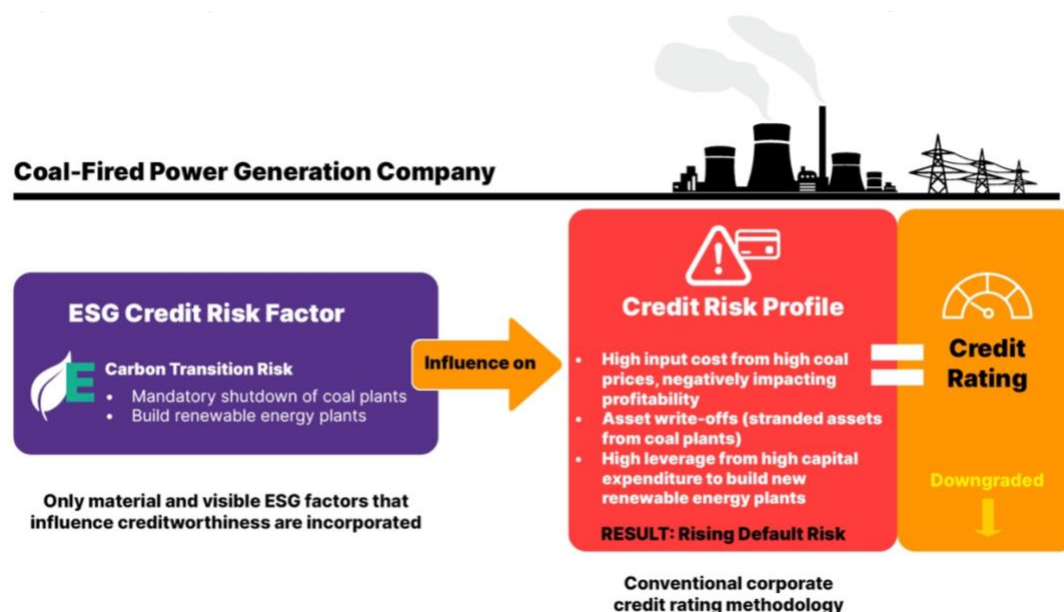
Figure 2: ESG Consideration in Credit Rating Methodology



Source: Various corporate credit rating methodologies and IEEFA analysis

For example, environmental risk, particularly carbon transition risk, could have an impact on a coal-fired power company's creditworthiness (Figure 3). The creditworthiness could be affected by transition policy risk, which occurs when mandated coal plant shutdowns are implemented before the end of their operational lifetimes, causing these assets to become stranded and suffer from premature write-offs. It could also be influenced by technological risk in the form of high capital expenditure from the construction of renewable energy plants to replace coal-powered plants.

Figure 3: Example of Environmental Risk Influence on Credit Rating



Source: IEEFA's analysis

In the absence of mitigating factors, this carbon transition risk would reasonably be expected to have a negative impact on the company's credit risk profile, specifically its "headline" financial metrics, warranting a credit rating downgrade. This would lead to a rise in default risk.

This approach provides a detailed and transparent ESG diagnosis on how these factors could potentially impact a final credit outcome. Despite these developments or ESG credit scores, however, there have been no significant rating changes for all sectors globally since the consideration of ESG factors in credit rating methodology.³

S&P has also explicitly stated that "ESG credit indicators cannot cause upgrades or downgrades. ESG credit indicators provide additional transparency on what's already incorporated into our credit rating analysis."⁴

If rating agencies had overhauled their conventional credit assessments by integrating ESG factors as a central component in addition to business, financial and supplementary risks, it would likely have prompted several rating changes simultaneously across sectors and regions, disrupting rating stability.

In essence, disclosing or providing detailed ESG diagnosis is not the same as integrating ESG factors into credit ratings since the former does not trigger a credit rating action.

³ Fortnightly. [How Moody's Rates ESG](#). November 2021.

⁴ S&P. [Understanding S&P Global Ratings' ESG Credit Indicators](#). May 2022.

A Weak ESG Credit Score Does Not Always Translate Into a Weak Credit Rating

ESG credit scores were developed to provide additional disclosure and transparency of material and relevant ESG risks that could influence credit ratings (see Appendix A, Table A2 for ESG credit scores by rating agencies).

The current “ESG-enhanced” rating framework is a repackaged concept of the long-established conventional credit assessment principles. In other words, bond investors will not be able to adequately assess an issuer’s ESG risk or long-term credit risk based on the credit rating alone — they will need these ESG credit scores to somehow gauge ESG exposure on credit ratings. This approach provides an ESG diagnosis but it has no impact on the final credit rating assigned from the conventional credit rating assessment.

A weaker ESG credit score should conceptually result in a weaker credit rating. However, this is not always the case.



A weaker ESG credit score should conceptually result in a weaker credit rating. However, this is not always the case.

The ESG credit score and credit ratings may not be directly related. Entities with a low credit rating (non-investment/high yield grade) might have a favorable ESG credit score, and vice versa. This is due to the fact that other major credit factors, such as profitability, liquidity, and company fundamentals that are not captured by ESG subfactors, can mitigate ESG risk exposure.

If a company has a “very negative” ESG credit (E-5, S-5, and G-5) score, the expectation is that it would have a relatively low credit rating, such as non-investment grade. However, mitigating factors such as government support, strong revenue from high fossil fuel prices, and fledgling regulatory policies towards a low-carbon economy may counter these risks, awarding a company with a high credit rating because it is still able to service its debt in the next three to five years.

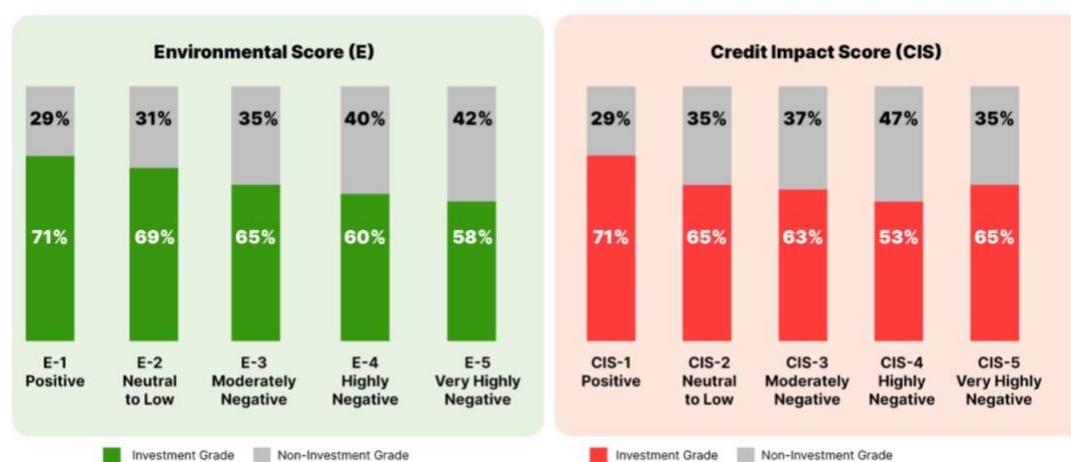
IEEFA examined the concentration of investment and non-investment grade ratings based on Moody’s environmental score and ESG credit score for 721 companies in the oil and gas, utilities, automotive manufacturers, and coal mining industries to better understand the relationship between an ESG credit score and credit rating (see Appendix A, Table A1 for a breakdown of each industry, and Table A3 for credit rating scales by agency).

Based on IEEFA’s analysis, approximately 60% of issuers with high credit ratings (investment grade) are highly exposed to environmental issues (E-4 and E-5) that could pose significant credit risk. These entities may have demonstrated key mitigants such as strong cash flow and a liquidity buffer,

which Moody's believes would mitigate these environmental risks resulting in little or no impact on credit "headline" metrics.

Entities with a credit impact score of '4' (CIS-4) and '5' (CIS-5) are perceived to have ESG characteristics that have a negative and material impact on their current rating. This could influence a rating change over time when these ESG exposures become more certain, such as the implementation of new regulations or key events that could fundamentally affect a company's underlying business operations.

Figure 4: Environmental Issuer Profile Score and Credit Impact Score



Source: Moody's and IEEFA's analysis. As of September 2022. Note: See Appendix A, Figure A1 for Social and Governance IPS Scores.

Volkswagen Aktiengesellschaft (Volkswagen) is a good example. Moody's has retained the company's A3 rating since irregularities in tests to measure CO₂ and fuel consumption levels in diesel vehicles uncovered defeat devices were installed in certain models that could detect when cars were being tested and therefore improve results.⁵ As well as the reputational damage to the company, in 2020 Volkswagen said the diesel scandal had cost it close to US\$32 billion in fines and settlements.⁶

As of December 2022, Moody's assigned Volkswagen a "highly negative" E, S, and G score with a credit impact score of '4' (CIS-4), indicating that its ESG attributes have a discernible negative impact on the current rating. Volkswagen is extremely vulnerable to environmental concerns related to carbon transition risks from stronger environmental regulations and the move towards low and zero emission vehicles. This is consistent with the automotive industry's overall risks.⁷

⁵ Moody's. [Rating Action: Moody's downgrades Volkswagen's ratings to A3/P-2; negative outlook](#). November 2015.

⁶ Reuters. [Volkswagen says diesel scandal has cost it 31.3 billion euros](#). 17 March 2020.

⁷ Moody's. [Environmental Heat Map: Updates to scores for certain sectors](#). October 2021.

Table 2: Volkswagen AG's Credit Rating by Agency, 2022

Category	Volkswagen AG		
	Moody's	S&P*	FITCH
Credit Rating	A3	AA-	A-
Overall ESG Score	CIS-4	n.a	3
Impact on Credit Rating	Highly Negative	Moderately Negative/Neutral	Minimally relevant
E Score	E – 4 Highly Negative	E – 3 Moderately Negative	n.a.
S Score	S – 4 Highly Negative	S – 2 Neutral	n.a.
G Score	G – 4 Highly Negative	G – 3 Moderately Negative	n.a.

Source: Respective rating agencies. *Based on 2021 ESG Credit Indicator Report Cart: Autos

While Moody's has indicated that Volkswagen has "highly negative" exposure to ESG factors, S&P has a slightly more conservative view indicating that ESG has a moderately negative or neutral consideration in their credit rating analysis.

Fitch assigned Volkswagen an ESG relevance score of '4' for GHG Emissions & Air Quality due to stringent emission regulation and a score of '4' for Governance Structure due to weaknesses such as a lack of independence and diversity at the supervisory board level, potential conflicts of interest with board members, and a 20% blocking minority in voting resolutions. However, the agency has disclosed that Volkswagen has the highest level of ESG credit relevance of '3', indicating that these ESG issues are only minimally relevant to the credit rating.⁸ In May 2022, Fitch had upgraded Volkswagen's rating to "A-", from "BBB+" with a stable outlook.

Because of the various interpretations of ESG credit scores, comparing the views of ESG as interpreted by respective agencies is difficult. Such mixed outcomes may make it difficult for companies to improve their ESG performance in relation to credit, and difficult for investors to make well-informed decisions.

Volkswagen has successfully maintained its investment grade rating despite these material risks. While its operations have a relatively negative ESG exposure, it still has greater access to financing and lower borrowing costs because these issues do not currently affect its creditworthiness.

While the three agencies provide detailed ESG credit scores to bond investors, these scores have no direct bearing on a company's credit rating, which are focused on the short term. A company with a weak ESG credit score can have high credit ratings. Hence, these scores and the final credit operate

⁸ Fitch Ratings. [Fitch Upgrades Volkswagen to 'A-'; Outlook Stable](#). May 2022

independently and do not clearly convey the impact of ESG attributes in assessing the issuer's ability to repay bondholders.

IEEFA considers that the current methodology does not drive debt financing to sustainable initiatives, and bondholders may continue to finance businesses that have fundamentally poor sustainability standards. If this “business as usual” credit framework is followed, real-world challenges such as climate change and social inequality will continue.

Can Creditworthiness and Sustainability Coexist?

Financial materiality is key

Credit rating agencies use credit factors to assess whether an entity (or borrower) will be able to repay its debts on time. They examine the borrower's credit characteristics and estimate the probability of default.

ESG factors commonly incorporate an entity's impact on the environment or society through its climate risk, energy consumption, labor standards and data protection, as well as the quality of its governance through corporate policies.

At the intersection of credit factors and ESG factors are ESG credit factors (Figure 5). S&P defines ESG credit factors as “those ESG factors that can materially influence the creditworthiness of a rated entity or issue and for which we have sufficient visibility and certainty to include in our credit rating analysis”.⁹ ESG credit factors are evaluated in the same way as credit factors.

Figure 5: The Intersection of ESG Factors and Credit Factors



Source: Adapted from S&P

⁹ S&P. [General Criteria: Environmental, Social, And Governance Principles In Credit Ratings](#). October 2021.

Credit rating agencies focus on ESG credit factors such as reducing carbon emissions through investments in carbon capture technology, which may result in higher capex, affecting creditworthiness. These factors should not be conflated with other ESG factors, such as efforts in recycling plastics and planting trees, which are considered insignificant and have no impact on an entity's ability to repay debt.

In practice, ESG factors have little material impact on a company's credit profile because they are typically non-financial in nature, and the timing of these factors to materialize is uncertain. Table 2 provides examples of ESG factors to illustrate how the same factor can have different credit and ESG implications.

Table 3: Example of ESG Factors in Terms of Credit and ESG Implications

ESG Factors	Description	Credit Implication	ESG Implication
Emissions, Effluents and Waste	Company legally disposes of toxic waste in forest	Neutral (potentially positive if savings are significant versus another disposal means)	Negative
Carbon & Greenhouse Gas Emissions	Company voluntarily reduces carbon footprint significantly. Implementation of carbon capture technologies.	Neutral (potentially negative if expensive)	Positive
Climate and Weather Risks	More volatile weather and rising sea levels erode company infrastructure	Negative (unless fully mitigated through insurance or other means such as building of sea walls)	Negative
Social Impact of product and services	Company gives away free products for less fortunate	Neutral (potentially negative if action results in significant foregone revenue)	Positive

Source: Morningstar

Financial materiality is an important test for determining whether a factor has an impact on credit.¹⁰ However, the presence of ESG credit factors does not always result in a financial impact. These factors may have a minor impact on the credit rating or they can be completely mitigated by other credit factors.

For example, China Huaneng Group Co (Huaneng), a state-owned entity and major Chinese power producer, has approximately 69%¹¹ of fossil fuel power (coal and gas) installed capacity in its generating mix as of 2020, resulting in a substantial exposure to carbon transition risk.

Moody's gave Huaneng a credit impact score of '3' (moderately negative) indicating that these ESG credit attributes are overall considered to have a limited impact on the current credit rating with greater potential for future negative impact over time.

¹⁰ Advisor's Edge. [Why sustainability factors may have little credit rating impact: DBRS](#). September 2021.

¹¹ China Huaneng Group Co. [Sustainability Report](#). 2021.

On the other hand, Fitch assigned Huaneng an ESG relevance score of ‘3’ (minimally relevant) indicating that the evaluated ESG attributes have very low impact or these risks are mitigated and result in no impact on the entity rating. S&P assigned the company an ESG credit indicator of E-4, S-2, G-1, which translates into a negative or neutral influence on its credit rating.

Notably, both S&P and Moody’s gave Huaneng an environmental score of ‘4’ (negative/highly negative). This was attributed to its vulnerability to carbon transition risk as a result of its significant coal-fired installed capacity in its generation mix. Other social, governance, and environmental factors were evaluated in deriving the ESG credit score.

Table 4: China Huaneng Group Co (Fossil Fuel Power Generation) Credit Rating and ESG Scores by Agency, 2022

China Huaneng Group Co			
Credit Rating	A2	A-	A
Overall ESG Score	CIS – 3	n.a	3
Impact on Credit Rating	Moderately Negative	Negative/Neutral	Minimally relevant
E Score	E – 4 Highly Negative	E – 4 Negative	n.a.
S Score	S – 3 Moderately Negative	S – 2 Neutral	n.a.
G Score	G – 3 Moderately Negative	G – 2 Neutral	n.a.

Source: Respective rating agencies. *Based on 2021 ESG Credit Indicator Report Card: Power Generators

Huaneng’s highly negative (or negative) environmental risk coupled with moderate social and governance risk exposure did not trigger a downgrade in rating or outlook. The impact of these risks is largely mitigated by a very high likelihood of extraordinary central government support due to the company’s high strategic importance in China as the country’s leading national electricity supplier.

As a result, Huaneng maintains an “A” credit rating range across providers. While the company¹² has diversified into other clean and renewable power (18%), its decarbonization strategy remains unclear and it is still primarily invested in fossil fuels. Therefore, a company can be carbon intensive, lack a clear carbon transition pathway and yet be assigned a high investment grade rating.

¹² South China Morning Post. [Chinese utilities’ ambitious renewable energy targets raise questions about costs, delivery](#). March 2021.

Consequently, bond investors will continue to fund such carbon-intensive companies due to their high investment grade rating, and decarbonization challenges will persist.



Bond investors will continue to fund such carbon-intensive companies due to their high investment grade rating, and decarbonization challenges will persist.

The creditworthiness of a firm is largely determined by its operational strategy. IEEFA considers that while credit quality is a complex subject to assess, ESG or sustainability factors do have an impact on an entity's creditworthiness. This view is further supported by a study that showed that higher ESG awareness is strongly and very significantly associated with better creditworthiness.¹³

A significant low carbon transition may not result in a rating change and vice versa

Another case study was carried out on Orsted A/S (Orsted, previously known as DONG Energy), which is at the stronger end of the decarbonization spectrum. Orsted is a renewable energy company based in Denmark and a world leader in offshore wind. As of 2021, it had installed approximately 84%¹⁴ of onshore and offshore wind capacity globally.

Table 5: Case Study – Orsted (Renewable Energy Power Generation) Credit Rating and ESG Scores by Agency, 2022

	Orsted A/S (Orsted)		
	Moody's	S&P*	FITCH
Credit Rating	Baa1	BBB+	BBB+
Overall ESG Score	CIS-3	n.a	3
Impact on Credit Rating	Moderately Negative	Positive/Neutral	Minimally relevant
E Score	E-2 Neutral to Low	E-1 Positive	n.a
S Score	S-3 Moderately Negative	S-2 Neutral	n.a
G Score	G-2 Neutral to Low	G-1 Positive	n.a

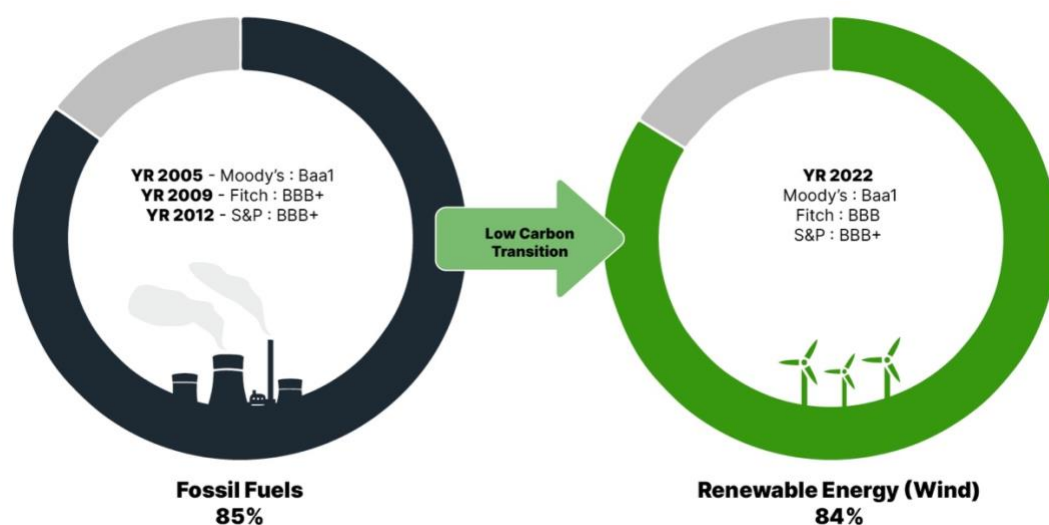
Source: Respective Rating Agencies. *Based on 2021 ESG Credit Indicator Report Cart: Power Generators

¹³ Wiley. *Be good to be wise: Environmental, Social, and Governance awareness as a potential credit risk mitigation factor*. 2022

¹⁴ Orsted. *Annual Report*. 2021.

In 2008, 85% of Orsted's business was fossil fuel related and it was considered to be a world leader in efficient coal-fired power generation.¹⁵ Moody's have assigned a long-term rating of "Baa1" to Orsted since May 2005 (Figure 6). It has maintained a "Baa1" (or "BBB") credit rating over the last decade,¹⁶ despite its transition from fossil fuels to renewable energy that reflects a sustainable business model.

Figure 6: Orsted's Low Carbon Transition Business Mix



Source: Bloomberg and IEEFA's analysis

Moody's assigned Orsted an environmental score of E-2 (neutral to low) indicating a limited exposure to environmental risk. This is underpinned by its heavy concentration in renewable power generation, which is best suited to a low transition economy. It also has a neutral to low (G-2) governance risk and moderately negative (S-3) social risk.

While the final credit ratings assigned to Orsted are predominantly the same across the three major rating providers, with all three in the "BBB" range, the ESG credit score across the rating providers are more divergent.

Moody's has assigned a credit impact score of '3' (CIS-3) indicating that ESG credit relevant attributes are overall considered to have a limited impact on the current credit rating with greater potential for future negative impact over time.

On the other hand, Fitch assigned an ESG relevance score of '3' indicating that the evaluated ESG attributes have very low impact or the risks are mitigated, resulting in no impact on the entity's rating.

¹⁵ KraneShares. [The Orsted Effect: Carbon Transformation Drives Re-Rating](#). August 2022.

¹⁶ Moody's. [Rating Action: Moody's affirms Ørsted's Baa1 rating; stable outlook](#). May 2022.

S&P assigned an ESG credit indicator of E-1, S-2, G-1, which translates as a positive or neutral influence on its credit rating.

Despite its commendable transition to renewable energy, Orsted has not been awarded an upgrade. Its stable (or unchanged) credit rating is underpinned by its solid financial and business profile that sustains its credit health.

Notably, Orsted's final credit rating is supported by a one notch uplift due to its affiliation with the Government of Denmark ("Aaa", stable), being a major shareholder, which implies that the company is highly likely to receive extraordinary government support in the event of financial distress.

What the case studies above show is that credit ratings do not change if a business model moves towards a low carbon transition economy until a company's creditworthiness is impacted. A company's operations may positively contribute to the environment and society but it does not necessarily translate into a positive credit impact unless it is financially material.

ESG factors, particularly climate change risks, could pose a substantial threat to a company's financial health in the long term. A company that transitions to a more sustainable operation, such as renewable energy power generation or electric vehicles, has the potential to create long-term value as it will be less susceptible to carbon transition risk. These initiatives can ultimately improve a company's credit health.



Credit ratings should have a measurable impact on or reflect these risks and opportunities, enabling bond investors to identify the leaders and laggards of companies transitioning to a low-carbon or sustainable economy.

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In the case of Huaneng and Orsted, it is clear that credit ratings do not account for a company's sustainability initiatives. Although Orsted decarbonized commendably, it only had a "BBB" credit rating whereas Huaneng, which is reliant on fossil fuels and vulnerable to high stranded asset risks, obtained an "A" rating.

Unfortunately, because of their investment grade rating, high emitting or unsustainable companies will continue to benefit unfairly from low borrowing costs and increased demand in the debt capital

market, while truly sustainable companies will fall behind. The current credit rating methodology does not incentivize or recognize entities that pursue sustainable initiatives.¹⁷

Shareholders are not the only ones who suffer when companies are not sustainable. Bondholders must also bear the brunt of the damage because a company's creditworthiness is directly related to how it operates. The governance structure of a company, its corporate behavior, and its impact on the environment and society all have an impact on how well it performs.¹⁸

“ Credit ratings are forward looking opinion that places emphasis on short-term (three to five years) assessments. This appears to be a shortcoming.

Credit ratings are forward looking opinion that places emphasis on short-term (three to five years) assessments. This appears to be a shortcoming. While the value proposition for a company's sustainable transition, particularly a low-carbon transition, may not be clear today or in the next three to five years, in the longer term such actions could result in added value to that company or its securities. It is important for credit ratings to consider long-term risk and/or opportunities.

The International Energy Agency (IEA) Net Zero Emissions by 2050 Scenario estimates that around 70% of clean energy investment over the next decade will need to be carried out by private developers, consumers and financiers to drive the world on a path to achieve net zero emissions by 2050.¹⁹ This largely hinges on the widespread mobilization of low-cost debt — for example, for new capital-intensive, utility-scale solar projects supported by long-term power purchase agreements.

As such, a credit rating is an important factor to consider when deciding on capital structure. The higher the credit rating, the more easily issuers can obtain funding and the lower the cost of debt.

Credit ratings should incentivize entities that pursue sustainability initiatives in order to drive sustainable debt investments through low-cost financing. Companies such as Orsted need better access to low-cost capital to improve and accelerate the clean energy transition.

On the flip side, credit assessments should also consider penalizing or downgrading companies that lack decarbonization strategies, particularly companies that have made pledges towards greener operations but continue to be fossil fuel focused. The risk of a rating downgrade can pressure issuers to take steps to mitigate ESG risks, particularly climate risk.

¹⁷ Responsible Investor. Investors who want to fast track sustainable fixed income should inundate credit rating agencies with methodology critiques. January 2020.

¹⁸ Fidelity International. The sleeping giant: Bond markets are critical in the fight against climate change. June 2022.

¹⁹ IEA. The cost of capital in clean energy transitions. 17 December 2021.

More Rating Changes Could Be on the Horizon

ESG factors are integrated through sector-specific criteria

Credit rating agencies capture ESG factors in credit ratings through the application of sector-specific criteria. These criteria act as a consistent starting point for a more granular assessment of ESG factors at an issuer level.²⁰

Rating agencies identify various industries and primary ESG risks, which can be transmitted across sectors. These industry-specific ESG risks are then further evaluated at the issuer level.

The degree of inherent exposure to the environmental risk and social risk categories such as carbon transition, physical climate risks, natural capital, health and safety as well as societal trends varies widely by sector. Sectors with heightened exposure to these risks face specific challenges.



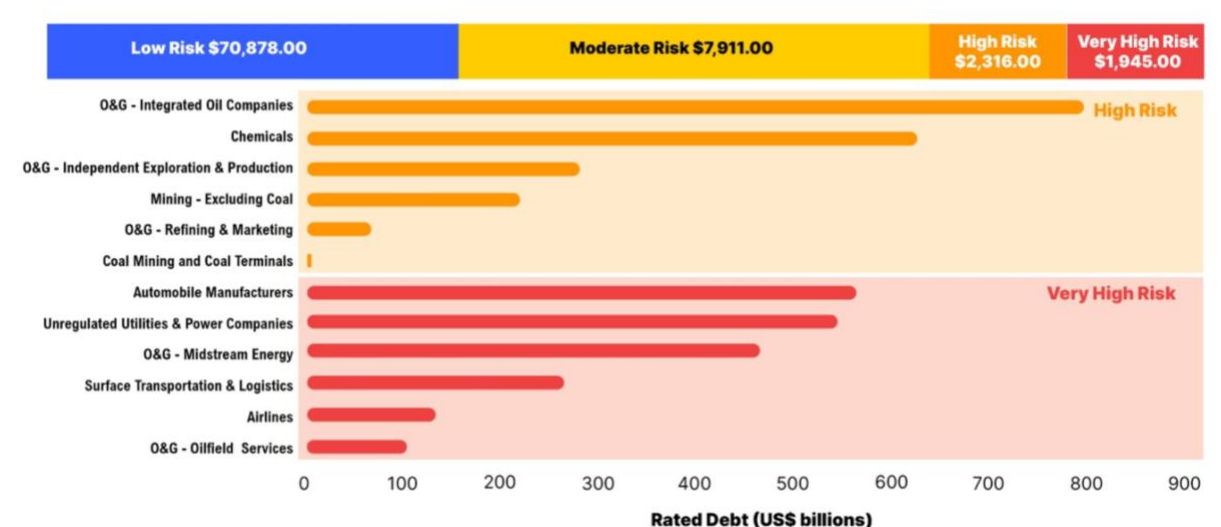
Sectors with very high or high environmental credit risk now account for 5.1% of total rated debt outstanding, up from 4.2% in 2020 and 3% in 2015.

According to a Moody's report published in October 2022, sectors with very high or high environmental credit risk now account for 5.1% of total rated debt outstanding, up from 4.2% in 2020 and 3% in 2015.²¹ This suggests that environmental factors are gaining traction and increasing pressure on issuers' credit profiles. It is also likely to persist and be more profound in the future. Among the sectors most vulnerable to environmental risks are oil and gas, regulated and unregulated electric utilities, automotive manufacturers, chemicals, steel, shipping, and airlines (Figure 7).

²⁰ Moody's. General Principles for Assessing Environmental, Social and Governance Risks. January 2019.

²¹ Moody's. Environmental heat map: Sixteen sectors with \$4.3 trillion in rated debt face heightened environmental credit risk. 31 October 2022.

Figure 7: Moody's Rated Debt of Sectors That Face Heightened Credit Risk From Environmental Considerations



Source: Moody's

These ESG risks, particularly climate-related risk, will continue to grow certain and material, affecting an entity's debt repayment capacity as the transition to a low-carbon economy accelerates globally and the negative effects of physical climate change become more apparent. Notably, some of these ESG risks can be mitigated due to other robust credit factors.

IEEFA commends some credit agencies' transparent and detailed disclosure of ESG risk based on their sectorial exposure. However, while these risks are considered material, they have little impact on the assigned credit rating today due to its relatively short-term assessment.

For example, in February 2021, Exxon Mobil Corporation, Chevron Corporation and ConocoPhillips all had their credit ratings downgraded by S&P Global Ratings.²² This followed an earlier warning that the oil and gas industry risked being downgraded due to climate change and weak earnings. The rating agency revised its oil and gas industry risk from "intermediate" to "moderately high".²³

The ratings decisions reflected "growing risks from energy transition due to climate change and carbon/GHG emissions, weak industry profitability and greater expected volatility in hydrocarbon fundamentals".²⁴

These companies would not have been downgraded if the vulnerability of the energy transition remained uncertain and had no significant impact on credit rating assessment in the next several years.

²² Bloomberg. U.S. [Oil Majors Downgraded by S&P on Climate Risk, Earnings](#). February 2021.

²³ The Guardian. [Rating agency S&P warns 13 oil and gas companies they risk downgrades as renewables pick up steam](#). January 2021.

²⁴ Bloomberg. U.S. [Oil Majors Downgraded by S&P on Climate Risk, Earnings](#). February 2021.

The oil and gas industry is a prime example of how environmental risk, such as the carbon transition, can become a threat over time as it can cause, among other things, high stranded asset risk exposure, weaker earnings and supply chain disruptions. This elevates sector-level default and can lead to a sector-wide rating downgrade.

When a company's credit rating is downgraded, it becomes more expensive to refinance current bonds or raise new debt. When viewed from a sector-wide perspective, the effects of these shifts are more pronounced because they could damage the market as large-scale company cashflows shrink, resulting in hefty financial losses.

Such sector-wide downgrades are entirely plausible. This is evident as S&P has also issued warnings to an additional 10 oil and gas companies as they note significant challenges and uncertainties due to the energy transition. S&P's move came after BlackRock stated that it might divest shares in big greenhouse gas emitters in support of limiting global heating to 1.5°C by 2050.²⁵

Mismatch of ESG factors and credit ratings time horizon

Credit ratings are forward-looking assessments of an issuer's creditworthiness that include both qualitative and quantitative financial forecasts. S&P forecasts typically cover a time horizon of up to two years for corporate entities with non-investment grades and no more than five years for entities with investment grades.²⁶

These financial projections cover the time period in which credit rating agencies believe they have a clear picture of an entity's potential financial performance.²⁷ For example, a company's revenue or cashflow stability in the next three years can be estimated with more certainty than a longer-term forecast assumption.

Credit material factors that influence debt repayment ability, such as country risk, industry risk, competitive position, and government support, are explicitly included in credit assessments.

ESG risks, particularly climate transition and physical risk are more difficult to assess due to the longer time horizon, greater uncertainty and the challenge to quantify these risks into possible financial losses. When assessing ESG risks as part of a credit assessment, credit rating agencies consider four key factors:²⁸

²⁵ The Guardian. [Rating agency S&P warns 13 oil and gas companies they risk downgrades as renewables pick up steam](#). January 2021.

²⁶ S&P. [How Does S&P Global Ratings Incorporate Environmental, Social, and Governance Risks Into its Ratings Analysis](#). November 2017.

²⁷ S&P. [General Criteria: Environmental, Social, And Governance Principles In Credit Ratings](#). October 2021.

²⁸ PRI. [Shifting Perceptions: ESG, Credit Risk and Ratings](#). January 2019.

- Visibility – How visible are ESG risks?
- Probability – How likely are ESG risks to materialize?
- Timing – How likely are ESG risks to reoccur?
- Severity – What is the impact of ESG factors on a bond issuer's creditworthiness?

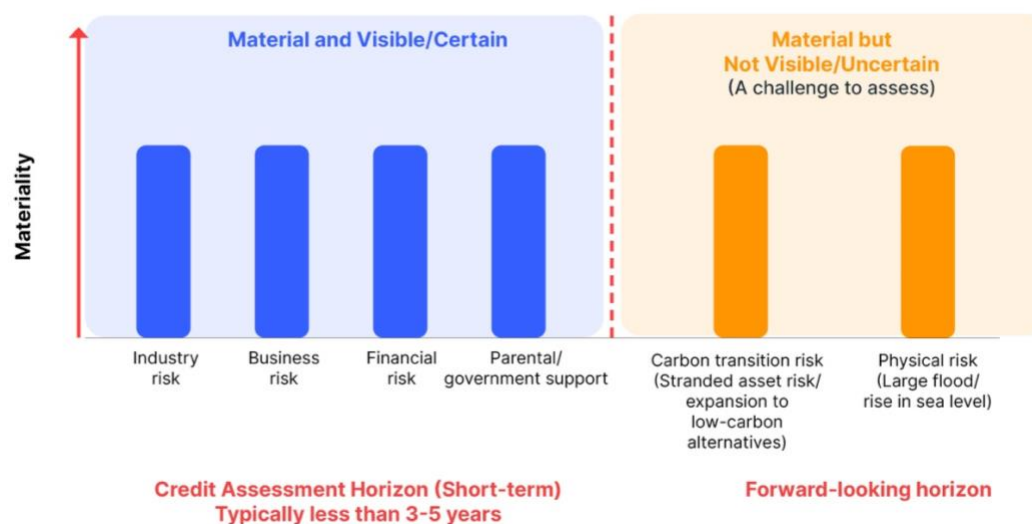
If ESG risks (or factors) are sufficiently certain, can be quantified, and severe enough to impact creditworthiness, they are factored into credit rating considerations.

However, the short time horizons of the current conventional rating methodology mean it is inadequate to accurately assess the financial materiality of ESG risks over a longer time horizon. While these risks are considered material, quantifying them is difficult.

To place this in context, the blue bar in Figure 8 represents short-term credit risks that are visible and quantifiable in the next three to five years such as industry risk, business risk, financial risk and supplementary risk (e.g. government/parental support).²⁹

The yellow bar represents ESG risk, in this particular example carbon transition risk and climate-related risks such as floods and sea-level rise. These risks are expected to intensify in the longer term. Given that these effects are expected to accumulate and manifest over the next few years, current rating decisions will typically place a greater emphasis on current developments (blue bar) rather than the uncertain forward-looking horizon (yellow bar).

Figure 8: Long-term Time Horizon Assessment in Credit Analysis



Source: IEEFA's analysis

²⁹ See Figure 1 above for further details.

A carbon emissions tax, for example, would be a visible enough climate transition risk to include in financial forecasts (financial risk) if an entity had to pay it and was unable to pass the cost on to its customers. Conversely, the potential future cost of an extreme weather event (physical risk) would not be included in financial projections due to the uncertainty of the timing and impact of that event. As a result, these factors currently have no effect on the “headline” credit assessment.

Uncertain forward-looking risks are only considered when they become visible and certain, which may be too late. In IEEFA’s view, a “wait for a crisis to act” approach to assessing ESG risks remains a concern, particularly risks related to climate change.

A telling example of climate-related impacts on credit ratings is S&P and Moody’s downgrading the credit rating of the Pacific Gas and Electric Company (PG&E),³⁰ a large and regulated electric and gas utility operating solely within California. The downgrades were attributed to the company’s challenging environment as it faced billions of dollars in liabilities related to a series of wildfires (physical risk) between 2015 and 2018.

Notably, PG&E had become increasingly reliant on extraordinary intervention by legislators and regulators to avoid financial collapse. However, that did not occur in a timely or sufficient manner to address these adverse impacts.

On 29 January 2019, PG&E filed for bankruptcy protection. This case is widely regarded as the first “Climate Bankruptcy” and it will likely not be the last, as climate change exacerbates natural disasters, leading to more frequent and intense wildfires, storms, and flooding. This highlights how what is currently deemed uncertain risk could result in a multi-notch downgrade and, ultimately, bankruptcy, which can have a severe impact on bondholders.

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ESG incorporation is now a pivotal part of an investment process. As such, the conventional credit rating methodology needs an overhaul so it is able to include long-term risk. ESG credit factors may not be material to a company’s credit rating now, but integrating these risks, particularly those related to climate change, could quickly become essential in assessing an entity’s creditworthiness.

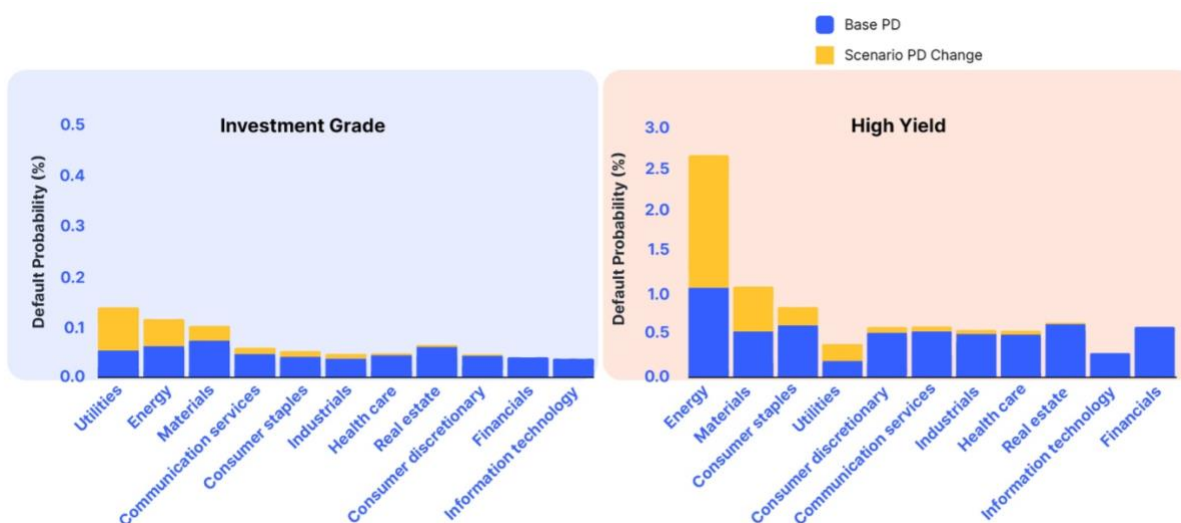
³⁰ Reuters. [Moody’s lowers PG&E’s credit rating to junk, joins S&P](#). January 2019.

More downgrades ahead from climate change risks

Climate change exposes bond investors not only to physical risk but also to transition risk with the shift towards a low-carbon economy. Corporate entities susceptible to risks arising from climate change can be exposed to a rising default risk.

This view is further strengthened by a quantitative study conducted by MSCI³¹ that examines climate change impact on credit risk. It is a model-based analysis that explores transition risk based on three Network for Greening the Financial System (NGFS) scenarios: “Net Zero 2050”, “Below 2°C” and “Nationally Determined Contributions” on a large sample of bond issuers in U.S. dollar and euro denominated bonds.

Figure 9: Transition-Risk Impact on Sectors’ Five-Year Default Probabilities



Source: MSCI. Abbreviation: PD, probability of default.

The study found that default probabilities would slightly increase on average. Importantly, under the “Net Zero 2050” scenario, around 16% of investment-grade issuers could experience a migration to high yield (non-investment grade) and an additional 27% of high-yield issuers could be downgraded, adding downward pressure on portfolio returns.

This study sheds light on the potential influence of transition risk on the likelihood of default and corporate borrowers’ creditworthiness. The risk for bond investors is significant. The uncertainty about climate regulations and potential lack of decarbonization road map only adds to the negative risk in a bond portfolio.

³¹ MSCI. [How Climate Change Could Impact Credit Risk](#). October 2021.

Credit rating agencies are not oblivious to material ESG risks or climate change impacts as they have clearly outlined in several public reports. They note these impacts are material to creditworthiness but not until its “real threats” materialize on the credit metrics.

So, when these ESG risks becomes “real”, are bond investors ready for lower portfolio return as issuers are abruptly downgraded or slip into default?

The current credit rating model is short-sighted and not intuitive enough to provide an early warning signal ahead of a climate-related crisis. In short, the current approach is outdated. An issuer that faces heightened ESG risks, particularly climate-related risk, in the long term may experience an abrupt rating change sooner than expected. Such companies may not suit investors who take the long-term view, so even those that do not focus on ESG matters can be exposed to downside risk.

“ To avoid the possibility of significant bond sell-offs following a rating downgrade,³² the credit rating assessment must be administered in a way that accounts for a company’s sustainability initiatives and physical risk.

To avoid the possibility of significant bond sell-offs following a rating downgrade,³³ the credit rating assessment must be administered in a way that accounts for a company’s sustainability initiatives and physical risk. The credit rating system should be more resilient to ESG-related shocks, particularly climate impact. A credit rating evaluation would benefit from including long-term risks and/or opportunities to provide early signals.

Proposed Models for Integrating ESG and Credit Rating Assessments

Investors are increasingly moving away from short-term perspectives of risks and returns and focusing on a longer-term sustainability perspective in investment performances. Just as businesses and risk managers are expected to think beyond short-termism, so should credit rating agencies. In particular, credit assessment practices must evolve to ensure that the ratings system, too, is sustainable. However, this challenges the conventional perception of a credit assessment.

ESG credit scores such as the ESG relevance score (Fitch), ESG credit indicators (S&P) and credit impact score (Moody’s) provide a description of how the ESG factors have relevance to and/or impact on the final credit rating. The scores, however, do not have a direct link to the credit rating and the tangible outcome of these ESG factors on the credit rating remains ambiguous.

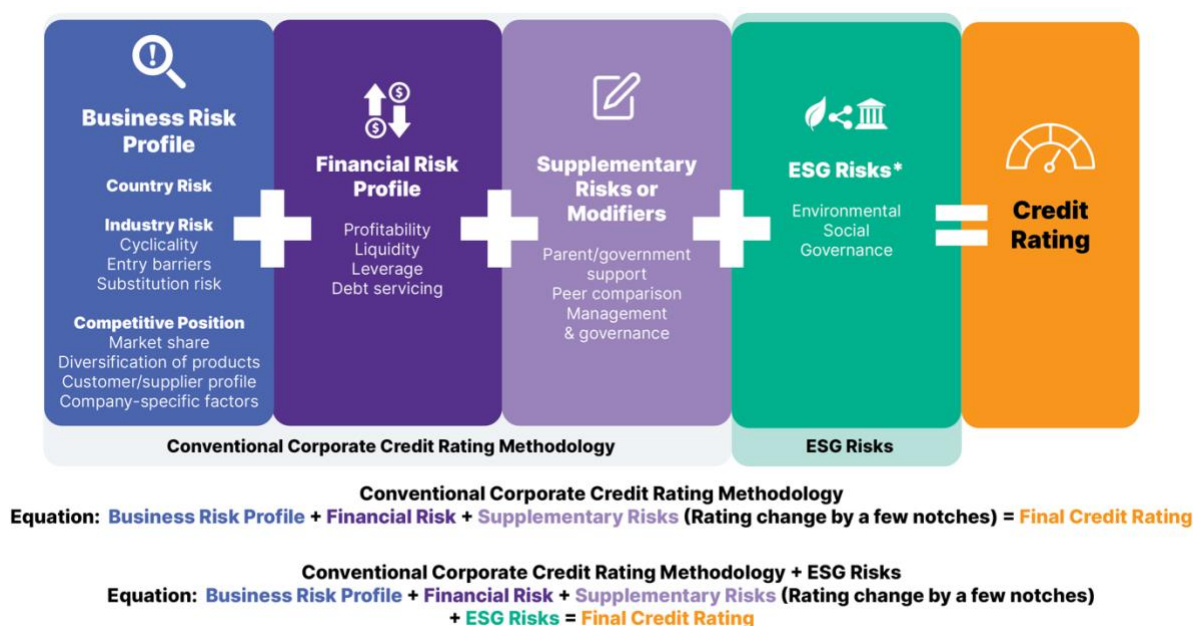
³² Zacks. [What does massive bond sell-off mean to me?](#)

³³ Zacks. [What does massive bond sell-off mean to me?](#)

Conventional corporate credit rating methodologies commonly include business, financial, and supplementary risks. Based on IEEFA's research, credit rating methodology does not include a separate review of ESG factors. Currently, these factors are reflected implicitly through the industry and company specific attributes of the rated issuer or transaction.

According to the World Bank, a majority of investors believe that ESG risks are not effectively represented in credit ratings and that rating agencies should explicitly weight ESG factors in their credit frameworks.³⁴ As environmental and social issues heighten, these issues will impact creditworthiness.³⁵

Figure 10: Proposed Credit Assessment Model



Source: IEEFA analysis. * Alternatively, only for environment (E) and social (S) as governance (G) may be incorporated under supplementary risks or modifiers.

A complete overhaul of the conventional rating system would need time and effort given its complexity. As such, a standalone ESG risks assessment (or climate risks assessment) should be incorporated into the existing rating system.

IEEFA recognizes that environmental and social factors are a little more complex to quantify in the near term for them to impact creditworthiness. While there is no simple fix, the credit rating system

³⁴ World Bank Group. *Credit Worthy: ESG Factors and Sovereign Credit Ratings*. 2022.

³⁵ Bloomberg. *Rising Credit Risks Pose Huge Challenge for the Worst Polluters*. November 2022.

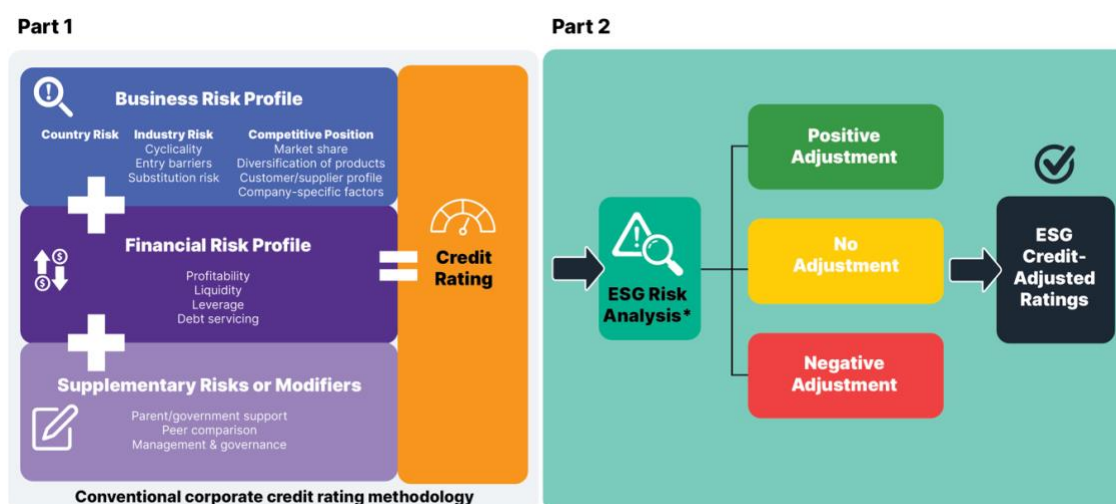
can be improved through qualitative scoring of environmental and social impacts on long-term creditworthiness — just as agencies have done in the ‘governance’ assessment of companies.

This approach would simply be an additional consideration of ESG risk in the current rating system. In other words, it would be an updated Conventional Corporate Credit Assessment + ESG Risk system. In IEEFA’s view, this proposed enhancement would provide transparency and reflect ESG factors as a growing risk for debt investors to calibrate expected probability of default based on ESG considerations.

Scope Ratings³⁶ is one of the rating agencies that have included a standalone ESG risk assessment in its sovereign credit rating methodology. While sovereign rating is structurally different from corporate ratings, the conceptual illustration above mirrors a similar approach.

Another consideration would be a double rating proposition. This is a similar approach to that published by the Research Bureau of the People’s Bank of China in establishing China’s green rating system.³⁷

Figure 11: Proposed Double Rating Model



Source: IEEFA analysis. * Alternatively, only for environment (E) and social (S) as governance (G) may be incorporated under supplementary risks or modifiers.

Given the widespread use of conventional rating assessments and the relatively early stages of ESG integration, IEEFA proposes that the rating agencies implement double rating as a piloting and transitional measure by providing the market with an ESG credit-adjusted rating (or climate adjusted), in addition to the conventional ratings of the same issuer.

³⁶ Scope Ratings. [Sovereign Rating Methodology](#). September 2022.

³⁷ The People’s Bank of China. [Establishing China’s Green Financial System](#). 2015.

Figure 11, Part 1 represents the status quo of the three main building blocks of a conventional credit rating methodology which results in a final credit rating. Figure 11, Part 2 represents an ESG credit-adjusted rating which is an ESG risk overlay of the credit rating outcome in Part 1. It incorporates an ESG risk assessment as a separate component and it provides a tangible outcome on credit ratings.

For example, a company with a “BBB” rating based on the conventional credit assessment (Part 1) could subsequently receive an upgrade or an ESG credit-adjusted rating of “A” owing to its substantial decarbonization strategy and relatively robust social and governance attributes.

These ESG risks must be material and on a large enough scale to induce a rating change towards a positive or negative adjustment. Although some ESG factors, such as climate risk, may not be relevant to the current rating, the ESG credit-adjusted assessment could include a forward-looking horizon and include estimations of potential financial losses.

As a result, the final ESG credit-adjusted ratings would have a direct link to the credit rating awarded in Part 1, with a forward-looking horizon incorporated that does not overhaul the conventional rating assessment and therefore does not impact the current rating stability.

The European Securities and Markets Authority (ESMA) concluded that it would not be advisable to amend the credit rating agency regulation to more explicitly mandate the consideration of sustainability characteristics in credit assessments.³⁸ The proposed consideration of having a standalone ESG risks assessment and double rating would almost certainly necessitate the development of a complementary report or a separate section of the current credit rating report and public release.

Given that these ideas are primarily targeted at assessing an entity’s respective ESG performance in addition to creditworthiness, it would be appropriate for rating agencies to report it separately rather than merging it. Thus, two reports with two different objectives would safeguard potential conflict of interest.

IEEFA also recognizes that such an approach could be viewed as a standalone or specific product to assess sustainability in conjunction with creditworthiness. It should be noted that if these proposals become a product, regulatory oversight will be required to ensure the integrity and reliability of those products, as it relates to financial risk.

Rating agencies could take a more granular approach to ESG consideration and disclosure by including scenario analysis or “what if”³⁹ to address long-term trends and risk trajectories in their credit reports and public releases.

For an example, a power company located on the coast with healthy credit metrics might be assigned a “AA” credit rating indicating high ability to meet its financial obligations. A specific

³⁸ ESMA. [Technical Advice](#). July 2019.

³⁹ PRI. [From disconnect to action areas](#). January 2019.

sensitivity analysis, such as the likelihood of a certain proportion of its facilities being impacted by a flood and how this impact could translate into a credit rating change could be conducted. Examples of plausible scenarios: “20% of facilities are damaged”, “50% of facilities are damaged” and “75% of facilities are damaged”. This would require measuring the impact of physical climate risk on the company’s overall financial performance.

Table 6: Example of Scenario Analysis Model

Present Approach by CRAs		Recommended Enhancement	
EGS Credit Score	Current Rating	Scenario Analysis Primary Risk: Physical Risk	Estimated Rating from ESG factors Overlay
3 Minimally Relevant	AA	20% of facilities are damaged	No changes in rating
		50% of facilities are damaged	A
		75% of facilities are damaged	BB

Source: IEEFA Analysis.

So, if a flood occurs and damages 75% of this company’s facilities, the rating could be downgraded to “BB”, from “AA”. Such estimates of scenario analysis are not new to credit risk. However, scenario analysis has limitations in terms of determining plausibility, the number of scenarios and comparability.⁴⁰ While this is one method for conducting a scenario analysis, there are numerous other plausible methods to consider when performing and disclosing such an analysis.

A scenario analysis that demonstrates the tangible impact of the most severe and/or primary risk on a credit rating of an issuer should be transparently disclosed. By disclosing alternatives that could significantly alter the basis for “business as usual credit ratings”, bond investors can incorporate and estimate the extent of credit rating change based on key ESG considerations into their investment strategies.

Aside from all of these conceptual and technical considerations, reaching an agreement on what defines a long-term horizon is critical. As noted earlier, the credit rating assessment horizon is focused on the short to medium term, but in order to avoid a knee-jerk reaction of bond sell-off due to a credit rating downgrade the horizon needs to be expanded. However, what is considered long term (10 years, 15 years, 30 years)? Only after establishing a long-term time frame can credit risk and modelling assessment be centered on it.

⁴⁰ PRI. [From disconnect to action areas](#). January 2019.

Conclusion

ESG considerations in credit ratings is not new. It has been embedded in the conventional corporate rating system. The approach credit rating agencies have taken to develop ESG sector framework disclosures and ESG credit scores is commendable.

However, ESG credit scores are not directly linked to credit ratings, meaning a weak ESG credit score does not necessarily result in a weak rating. On the one hand, this approach to ESG ratings provides detailed and transparent ESG diagnosis on how these factors “could or potentially” impact a final credit outcome. On the other hand, an ESG credit score or rating system does not drive debt financing towards sustainable initiatives and bond holders may continue to finance businesses with fundamentally poor ESG standards.

Rating agencies do not make a judgement on an entity’s or issuer’s ESG performance or corporate sustainable value but rather how an ESG factor impacts creditworthiness. Therefore, companies that are negatively impacting the environment could continue to be highly rated, while sustainable companies that have accelerated decarbonization and have potentially created more financial long-term value could be underrated.

As the financial system evolves towards a sustainable financial system, the role of credit ratings in the market becomes more important in measuring creditworthiness. The existing approach, however, emphasizes current developments (or short-term risks) while downplaying significant long-term risks such as environmental, particularly climate-related, and social risks. As a result, bond portfolios are faced with increased downside risk over time.

Given the complexity around credit evaluation, there is no easy fix to the current ratings system. But as environmental and social issues gain traction, and more investors believe that ESG risks are not adequately represented in credit ratings, there is room for improvement.

Incorporating forward looking time horizons and sustainability factors and additional transparency to reflect ESG factors as a growing risk for debt investors is one way forward. As this report shows, this could be achieved through standalone ESG risks assessments, or a double rating and plausible sensitivity analysis.

As ESG and sustainability becomes an increasing theme in investments, there is a need to direct debt capital towards sustainable projects. The suggested considerations proposed in this report aim to explore the possibility of creditworthiness and sustainability coexisting in a credit rating assessment.

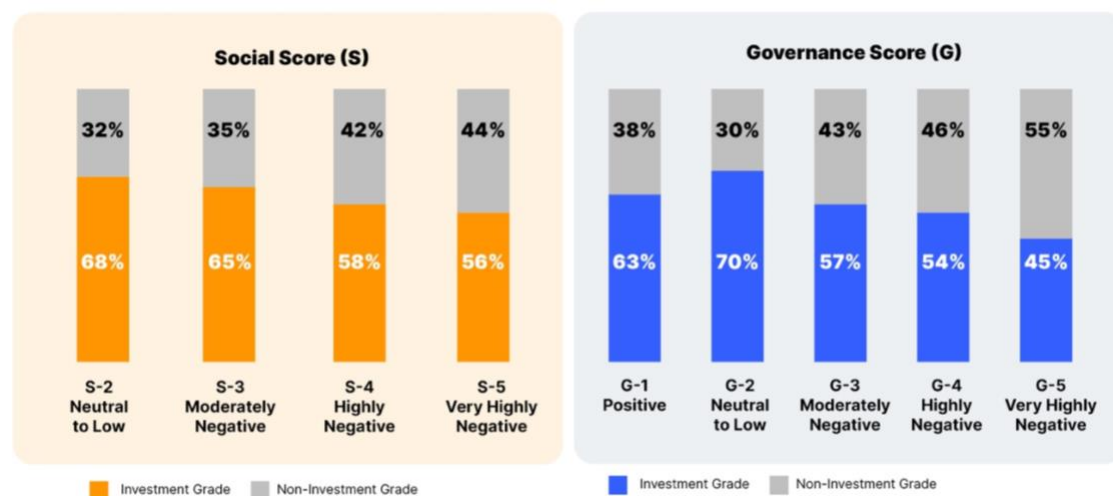
Appendix A

Table A1: Data Profile

Selected Sectors	Number of Companies
Automobile Manufacturers	22
Coal Mining and Coal Terminals	20
Oil & Gas – Independent Exploration & Production	87
Oil & Gas – Integrated Oil Companies	23
Oil & Gas – Midstream Energy	121
Oil & Gas – Oilfield Services	39
Oil & Gas – Refining & Marketing	25
Power Generation Projects	69
Regulated and Self-Regulated Utilities with Generation	184
Unregulated Utilities and Power Companies	131
Total	721

Source: Moody's and author's compilation

Figure A1: Moody's Social and Governance IPS Scores



Source: Moody's and IEEFA's analysis.

Table A2: Summary of ESG Credit Score Methodology by Selected Credit Rating Agencies

Rating Providers	S&P Global ESG Credit Indicators	Moody's Investors ESG IPS and CIS Score	FITCH Ratings ESG Relevance Scores
Key Approach	<ul style="list-style-type: none"> • Focuses purely on fundamental credit analysis. The development of ESG credit score is aimed at addressing ESG consideration at a relevant and material impact in the context of only measuring creditworthiness. • It incorporates all material and credit relevant ESG consideration at sector specific level and in form other consideration [when ESG factor are not explicitly described in the sector specific methodology]. • It does not impact the conventional credit rating assessment. 		
Sector Specific	Yes	Yes	Yes
Scale	1–5 Positive to Very Negative	1–5 Positive to Very Highly Negative	1–5 Irrelevant to Relevant
Influence on credit rating analysis	Yes	Yes	Yes, but not clear if its positive or negative
Input Score	No	Yes – Issuer Profile Score (IPS) – Indicates the respective E, S and G exposures of an issuer or transaction that is expressed in 5-point scale. It is the inputs to the rating.	No
Output	ESG Credit Indicators – It is an individual E, S and G credit indicator score ranging from 1 to 5. A score of 1 indicates for each factor can have a positive influence on credit rating while a score of 5 indicates a very negative influence on the credit rating.	Credit Impact Score (CIS) – It is an output of the rating process that shows the impact of ESG consideration of the issuer or transaction which are expressed on a five-point scale A score of CIS-1 indicates material positive impact on the rating while a score of CIS-5 indicates the assigned credit rating would be lower if there is an absence of ESG risk exposure	ESG Relevance Score – It is an individual E, S and G relevance scores range from 1 to 5 A score of 1 indicates that ESG factor have no credit impact or are irrelevant to the sector while a score of 5 indicate that ESG risk is either a rating driver or a key rating driver to the credit decision

Source: Based on respective credit rating agencies and IEEFA's analysis

Table A3: Credit Rating Scales by Agencies

Moody's	S&P	FITCH	Baseline and main rating scale*	IG/NIG
Aaa	AAA	AAA	AAA	Investment Grade (IG)
Aa1	AA+	AA+	AA	
Aa2	AA	AA		
Aa3	AA-	AA-		
A1	A+	A+	A	
A2	A	A		
A3	A-	A-		
Baa1	BBB+	BBB+	BBB	
Baa2	BBB	BBB		
Baa3	BBB-	BBB-		
Ba1	BB+	BB+	BB	Non-Investment Grade (NIG) or Speculative Grade/High Yield
Ba2	BB	BB		
Ba3	BB-	BB-		
B1	B+	B+	B	
B2	B	B		
B3	B-	B-		
Caa1	CCC+	CCC	CC	
Caa2	CCC			
Caa3	CCC-			
Ca	CC C	CC	C	
C	D	D	D	

Source: Author's compilation and *interpretation.

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