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Sustainability Indicators and Their Impact on the Bank Credit Risk Framework: Insights from Annual Monitoring

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Executive Summary

In recent years, ESG (environmental, social and governance) assessment has become a central element in credit risk management, driven by an ever-evolving European regulatory framework and increasing market and stakeholder pressures. In particular, supervisory authorities such as the ECB¹ and the EBA² require the integration of climate and environmental risks into creditworthiness assessment processes, recognising their potential impact on financial stability. Furthermore, there is evidence in the market of the integration of ESG parameters by significant banks within the RAF, ICAAP, Risk Reporting, AQR (single file review and single collateral review), AIRB and IFRS9 models, Risk Policy, Rating Attribution, and credit policies and strategies.

In this context, the present study aims, on the one hand, to provide a general overview of the relationship between sustainability and credit risk, with particular focus on a large sample of Italian companies; and on the other hand, to specifically analyse businesses located in the Veneto region, highlighting the sectoral and territorial specificities that influence the management of climate, environmental and natural risks at the local level.

The methodology adopted in this study involves integrating ESG indicators into traditional rating models for credit risk analysis concerning bank portfolios in the corporate segment. For the in-depth analysis of Veneto, advanced techniques are used to estimate exposure to both physical climate risks (such as floods and heatwaves) and transition risks linked to decarbonisation. In addition, two new indicators related to natural capital—"Impact" and "Dependency"—are introduced, which respectively measure the environmental impact of SMEs and their dependence on natural resources.

The purpose of this document is to reaffirm, in line with previous³ statements, the increasingly close relationship between sustainability and credit performance, while also providing an in-depth perspective on the evolution of Veneto-based companies in managing climate, environmental and natural risks.

¹ The ECB, among its supervisory priorities for the period 2025–2027, has included environmental and climate-related issues within "Priority 2", announcing that banks will be required to further strengthen their corporate strategies and risk management mechanisms related to these factors. (source: ECB – *Supervisory priorities 2025–27*)

² The EBA published in 2025 the final version of the "Guidelines on the management of environmental, social and governance (ESG) risks", which, according to proportionality criteria, establishes the inclusion of ESG risks in the criteria for the identification and measurement of risks and requires their integration into strategic, decision-making and risk assessment processes, particularly in relation to credit risk. (source: EBA/GL/2025/01 – 08/01/2025)

³ SPOKE 4 – D4.1.1 – Definition of ESG scores for SMEs through dedicated surveys and of augmented credit ratings including ESG factors – May 2024

1. The Integration of Sustainability Indicators into the Banks' Risk Framework

1.1 ESG Performance Assessment as a Driver in the Credit Process

The analysis of the relationship between ESG assessment and credit risk is increasingly taking centre stage in the decision-making processes of financial institutions. Data show that companies with stronger ESG profiles tend to exhibit significantly lower credit default rates ⁴ than the average, highlighting a positive correlation between sustainability and financial soundness. In particular, the integration of ESG scores into rating systems makes it possible to refine the ability to discriminate between risk profiles, supporting the allocation of credit towards more resilient and competitive entities, enabling the application of more appropriate risk-adjusted pricing, and allowing for accurate monitoring of portfolio credit risk for accounting, regulatory and management purposes. In this regard, Table 1 explores the relationship between the level of ESG adequacy and credit risk, the latter being measured by observing the default rate over the 12 months from December 2023. In line with the exercise carried out in the previous publication, and for the same credit score, it is confirmed that riskiness increases as the ESG adequacy level of counterparties decreases. In particular, for counterparties with a low or medium-low credit score, the default rate can be up to 70% higher when moving from a “high” ESG profile to a “low” one.

⁴ A company is considered to be in “default” when it shows a state of financial difficulty in the Eurisc system, consistent with the definition adopted by the financed institutions (the so-called “New Definition of Default”), namely “past-due”, “UTP” (Unlikely to Pay), or “Sofferenza” (Non-Performing Loan).

		CREDIT SCORE		
		Low Risk	Medium Risk	High Risk
SCORE ESG	High Adequacy	0,38%	2,20%	20,60%
	Medium Adequacy	0,69%	2,46%	19,33%
	Low Adequacy	0,66%	2,50%	19,63%

Table 1. Distribution of the default rate in the system by ESG score classes and Credit Bureau Score

Confirming the increasingly close relationship between risk and sustainability, Figure 1 analyses the link between ESG scores and default rates, excluding credit scores. The bar charts show, for each ESG class, the percentage change in the default rate compared to the overall average.

In 2024, companies with an ESG score of 1 (highest adequacy) recorded a default rate 25% lower than the average (an improvement compared to 2023⁵). Conversely, companies with an ESG score of 5 (lowest rating) showed, in 2024, a default rate 2.7% higher than the average, which is almost three times the increase observed in 2023.

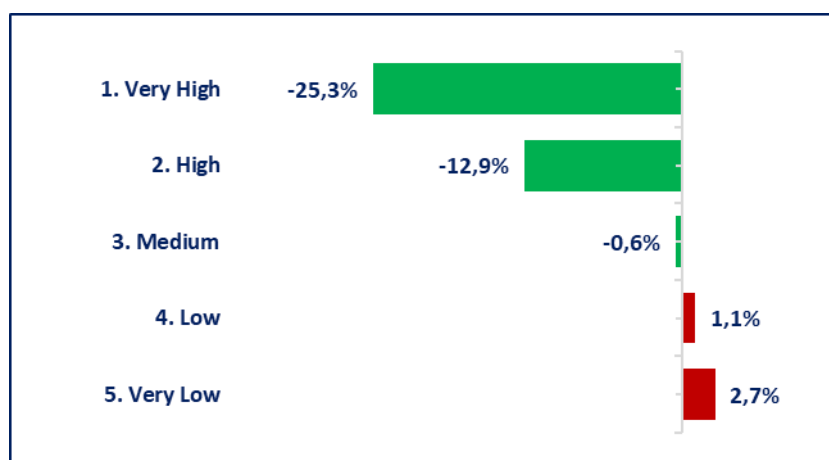


Figure 1. Change in the average default rate by ESG score class

Figure 2 revisits the same analysis, focusing on new loans, where it is evident that in 2024, loans with “very high” ESG adequacy recorded a default rate 31% lower than the average, showing an improvement compared to 2023. The “high” ESG class also displays a significant difference, with

⁵ SPOKE 4 - D4.1.1 - Definition of ESG scores for SMEs through dedicated surveys and of augmented credit ratings including ESG factors – May 2024.

a default rate 15% below the average. Conversely, loans with an ESG score of 5 (the lowest rating) registered in 2024 a default rate 3% higher than the average, although the increase is less marked than in the previous year.

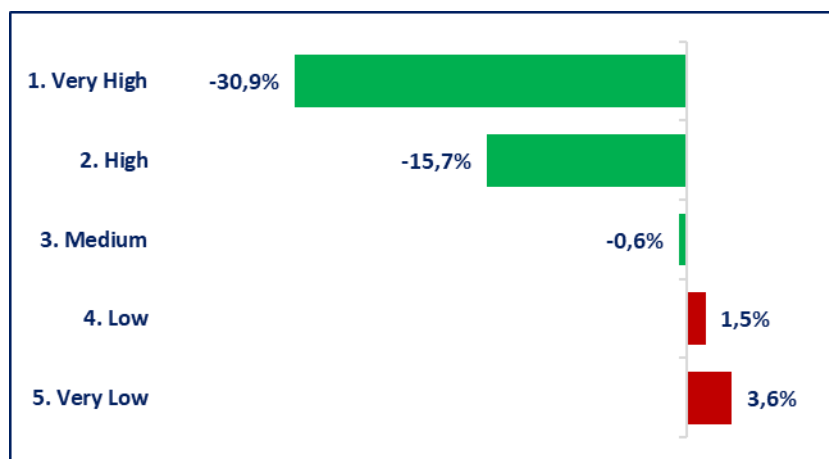


Figure 2. Change in the average default rate (for new loans requested during the year) by ESG score class

The positive relationship between sustainability and credit performance is therefore confirmed, with the most virtuous counterparties from an ESG perspective also proving, on average, to be less risky in terms of default risk.

1.2 The transition risk as a driver for creditworthiness assessment

Transition risk refers to the potential negative economic impact that a company may experience on its path towards a low-carbon economy, as a result of regulatory, technological, or market changes. This assessment is carried out using a model that considers future climate scenarios, the company's current level of emissions, its sector, and its economic and financial situation. The analysis is based on key indicators such as revenues, EBITDA, and investments, estimating how these might evolve up to 2050 under different transition scenarios.

Among the various environmental components, transition risk emerges as one of the main drivers for creditworthiness assessment. Companies that effectively manage the shift towards low-carbon business models show a lower incidence of default, whereas those more exposed to transition risks—linked to regulatory, technological, and market changes—prove to be more

financially vulnerable. In line with the previous paragraph's analysis, Table 2 explores the relationship between transition risk and credit risk, the latter again being measured by observing the default rate in the 12 months from December 2023. As already noted, there is a significant increase in the default rate when moving from "low" to "high" transition risk: the increase is particularly marked for counterparties with a "medium" Perform 2.0 score, where the default rate rises by over 60%.

		CREDIT SCORE		
		Low Risk	Medium Risk	High Risk
Transition Risk	Low Risk	0,60%	1,66%	14,75%
	Medium Risk	0,66%	2,38%	18,66%
	High Risk	0,69%	2,71%	21,34%

Table 2. Distribution of the default rate in the system by transition score classes and Credit Bureau Score classes

Confirming the increasingly close relationship between risk and sustainability, Figure 3 focuses on the connection between the average default rate and companies' transition risk scores in 2024. The incidence of defaults is approximately 8% higher than the average when transition risk is deemed "very high", while it is about 25% below the average for companies with "low" transition risk.

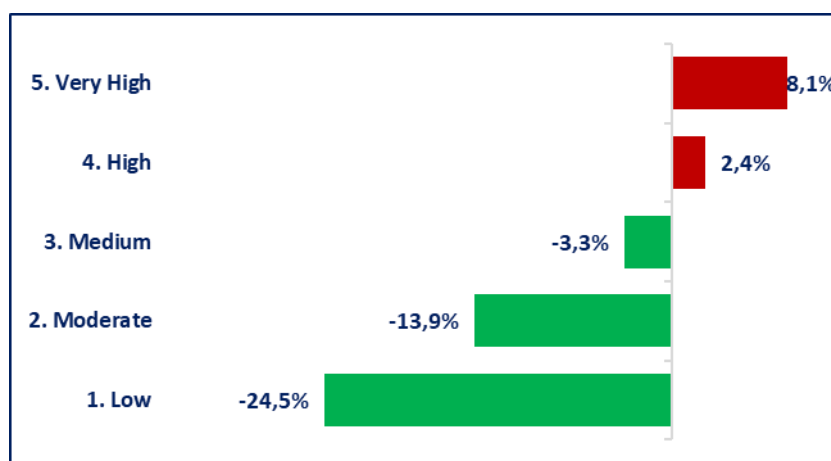


Figure 3. Change in the average default rate by transition score class

Figure 4 replicates the previous analysis, calculating the default frequency based on the number of loans granted. The findings from the preceding chart are confirmed, and appear even clearer and more straightforward.

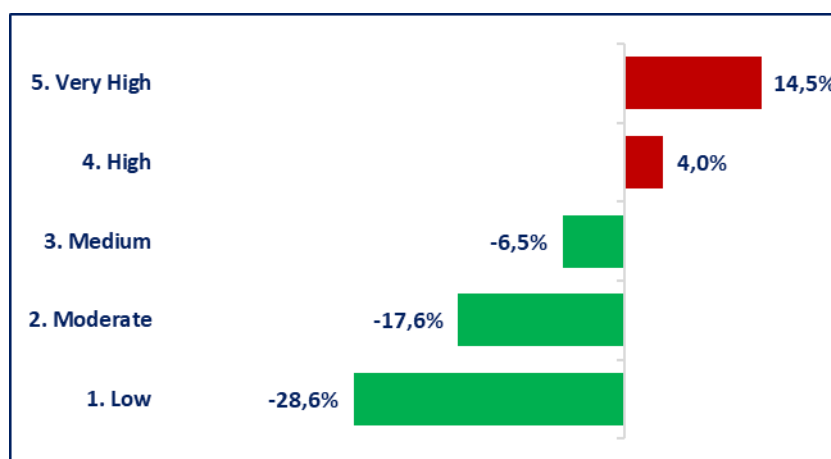


Figure 4. Change in the average default rate (by number of loans) by transition score class

The analyses increasingly confirm that the climate transition is not merely an environmental risk, but constitutes a structural and persistent factor in the financial assessment of companies and in determining their creditworthiness. The relationship between adaptive capacity and economic strength has grown stronger over time, reinforcing what has already emerged in previous observations.

In line with this evolution, financial institutions are systematically integrating the risks and opportunities associated with the transition into their credit frameworks, recognising that a company's ability to adapt to a low-carbon economy is not only an indicator of resilience, but also a forward-looking signal of long-term competitiveness and economic solidity.

2. The evolution of climate and environmental risks in the Veneto region

Starting from the European regulatory framework on ESG⁶, a specific in-depth analysis was carried out on climate, environmental, and natural risks, with the aim of understanding the current

⁶ In recent years, the EU has strengthened ESG transparency and regulation through: a common taxonomy (Reg. 2020/852), more detailed reporting obligations for companies (Dir. 2022/2464), integration of sustainability into company policies (Dir. 2024/1760), extension of mandatory ESG disclosures for banks

state of Italian SMEs regarding these issues and highlighting the various distinctive features that characterise them. Based on a sample stratified by sector, legal form, and turnover class—designed to reflect the reality of the Italian territory—companies from the Veneto region were selected in order to assess the evolution of physical, transition, and natural capital-related risks, offering an up-to-date overview of how SMEs are tackling sustainability challenges. The analysis focused in particular on enterprises located in the Veneto region, highlighting the sectoral and regional specificities that influence the management of climate and environmental risks in the local context.

As also shown in the previous study, Table 3 confirms that the most significant geographical areas—both in terms of number and exposure—continue to be Verona, Treviso, Padua, Venice, and Vicenza.

Geographical Area	Companies	Financial Exposure
Verona	21%	24%
Treviso	19%	19%
Padova	19%	18%
Venezia	16%	17%
Vicenza	16%	14%
Rovigo	5%	6%
Belluno	3%	2%

Table 3. Geographical area (in terms of numbers and financial exposure) of the companies analyzed

2.1 Physical risk

The assessment of physical risk, in line with the EBA guidelines, involves estimating the potential economic and financial impact on companies resulting from extreme, sudden, or gradual natural events related to climate change. High-resolution models are used to evaluate companies' exposure to different risk factors, considering both acute events (such as floods, storms, heatwaves) and chronic risks (such as erosion or water stress). Seismic risk is also included;

(Del. Reg. 2022/2453), new requirements for ESG rating providers (Reg. 2024/3005), and enhanced prudential supervision of ESG risk (initiatives by the ECB, Bank of Italy, EBA).

although it does not fall within the climate and environmental risk categories, it is particularly relevant in Italy and warrants continuous monitoring.

Figure 5 shows the distribution of physical risk by number of companies and exposure, confirming a stable situation in the region over time and a substantial concentration in the medium risk class. Compared to the Italian market as a whole, companies in the Veneto region are less affected by high physical risk, with a greater concentration in the central class.

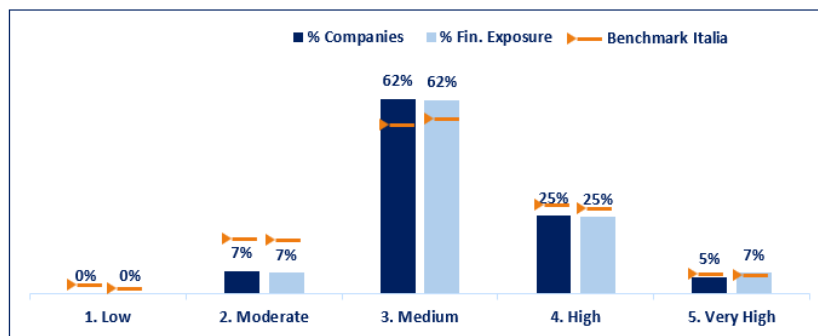


Figure 5. Distribution of physical risk over the number of companies and financial exposure values

Figure 6 on the other hand, shows the average physical risk score by province, with Belluno and Rovigo still emerging as the most impacted areas, each with an average score of around 4 (high-risk category). In particular, the Belluno area is at high seismic risk, while the region as a whole faces general risks related to floods, heavy rainfall, and rising sea levels (especially in the coastal area of Venice).

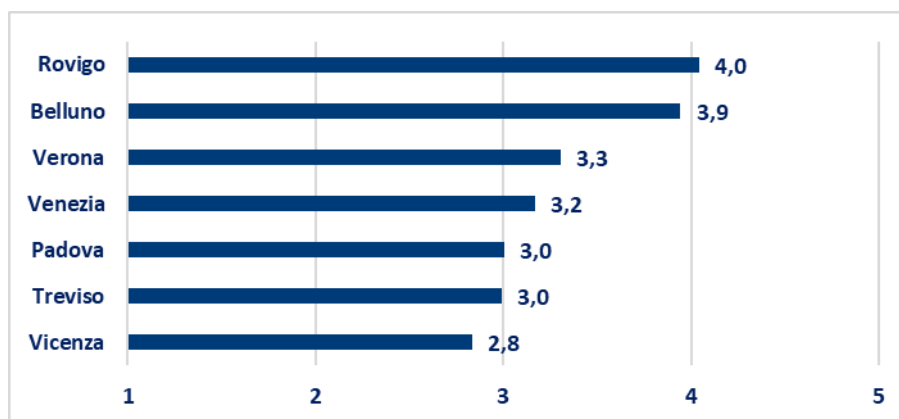


Figure 6. Distribution of the average physical risk score by province

2.2 Transition risk

Figure 7 illustrates the distribution of transition risk by number of companies and exposure, highlighting a prevalence of SMEs and exposures within the lower impact classes (1, 2, 3). Companies in the Veneto region display similar characteristics to the wider Italian market regarding transition risk, with a slightly lower presence in the higher impact classes (4, 5). Compared to the analysis presented in the previous publication, a moderate improvement is observed, attributable to the decrease in SMEs positioned in the high transition risk class. This trend suggests that an increasing number of companies are successfully managing the transition towards low-emission business models.

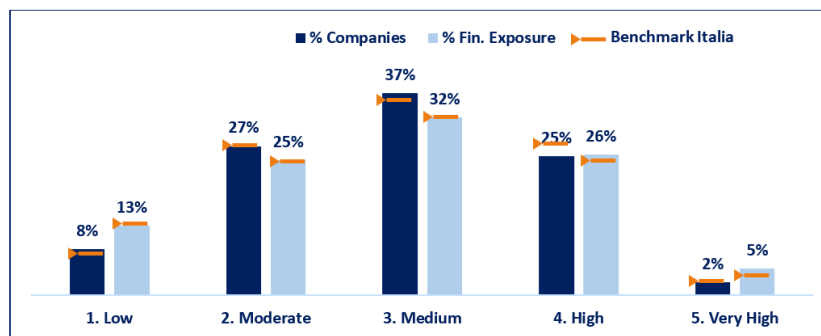


Figure 7. Distribution of transition risk over the number of companies and the exposure value

Confirming this slight positive trend, Figure 8 shows that the average transition score has slightly improved for the most affected sectors identified in the previous study. Notable progress has been observed, particularly in the motor vehicle trade sector, mainly due to investments in clean technologies, the adoption of sustainable practices, and compliance with new regulations⁷. Sectors that remain most exposed to transition risk, with an average score around 4 (high-risk class), include agriculture—affected by the costs of replacing chemical products; transport and logistics—facing rising energy prices and the need for sustainability investments; and the food industry, influenced by the variability of raw materials and changes in dietary habits.

⁷ For the motor vehicle trade sector, the relevant regulation is Regulation (EU) 2023/851, which establishes a ban on the sale of internal combustion engines starting from January 2035.

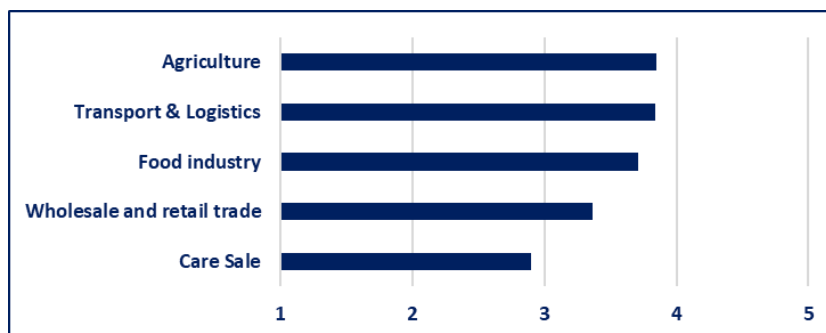


Figure 8. Distribution of the average transition risk score by sector

2.3 Natural risk

Supervisory authorities and central banks are recognising that the degradation of natural ecosystems, alongside climate risks, poses a systemic threat to financial stability. In response, banks are being required to integrate natural capital risks into their governance and risk management processes, assessing their materiality and impact on corporate assets.

In this context, CRIF has developed two indicators: "Impact" and "Dependency". The "Impact" measures how much company activities negatively affect nature and the environment, considering aspects such as pollution, water use, waste management and loss of biodiversity. The "Dependency" indicator assesses how exposed companies are to environmental risks resulting from their dependence on natural resources and ecosystem services, such as biodiversity, atmosphere, soil and water.

The following paragraphs provide a brief summary of the main findings for the Veneto region, evaluating how companies are acting and responding to the issue of "new" natural risks.

2.3.1 The assessment of "Impact"

The "Impact" component developed by CRIF is designed to evaluate how much a company's activities may have negative effects on the environment and nature. This assessment is based on the integration of numerous information sources, both international and proprietary, and takes into account aspects such as pollution, water use, waste management, and loss of biodiversity.

Figure 9 shows the distribution of the number of companies and their related credit exposure across different impact score classes. Around 62% of companies exhibit a low or moderate impact, while only about 17% display a high or very high impact. Companies in the Veneto region demonstrate characteristics similar to those observed in the Italian market in terms of environmental impact, with a prevalence in the lower impact classes.

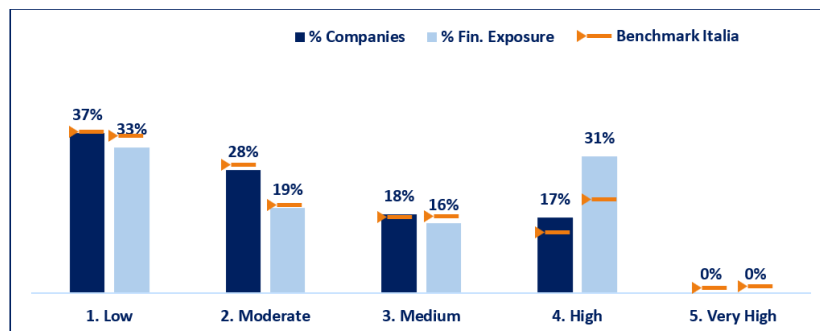


Figure 9. Distribution of the Impact score by number of companies and by share of loans granted to SMEs

The business sector has a significant influence on this indicator, as shown in Figure 10, which presents the distribution of the average environmental impact score for sectors that individually account for over 5% of the sample analysed in the Veneto region. In particular, the Agriculture sector stands out as the only one characterised by a high impact on natural resources. This finding highlights the need to implement targeted policies aimed at promoting sustainable practices within the agricultural sector, in line with the objectives of environmental protection and biodiversity conservation in the Veneto region. Conversely, sectors such as services (leisure and real estate), being based on human capital rather than resource exploitation, display a low to medium environmental impact.

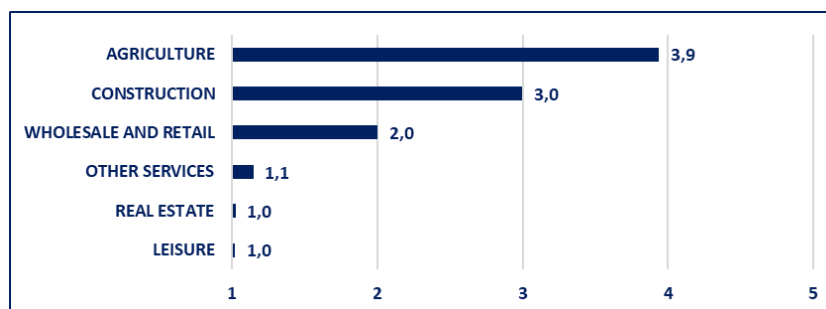


Figure 10. Distribution of the average Impact for sectors with a weight greater than 5% in the sample for Veneto

The figures below provide a detailed analysis of the trends in Impact score KPIs for the two sectors identified as having the greatest impact in the previous analysis: agriculture and construction. The analysis reveals that the agricultural sector affects biodiversity due to the intensive use of resources, causes pollution through excessive use of nitrogen and phosphate fertilisers as well as heavy metals from fossil fuel combustion, and increases water consumption as a result of intensive irrigation. The construction sector, on the other hand, stands out for the significant impact it has on waste production, while it has a low incidence on the remaining KPIs.

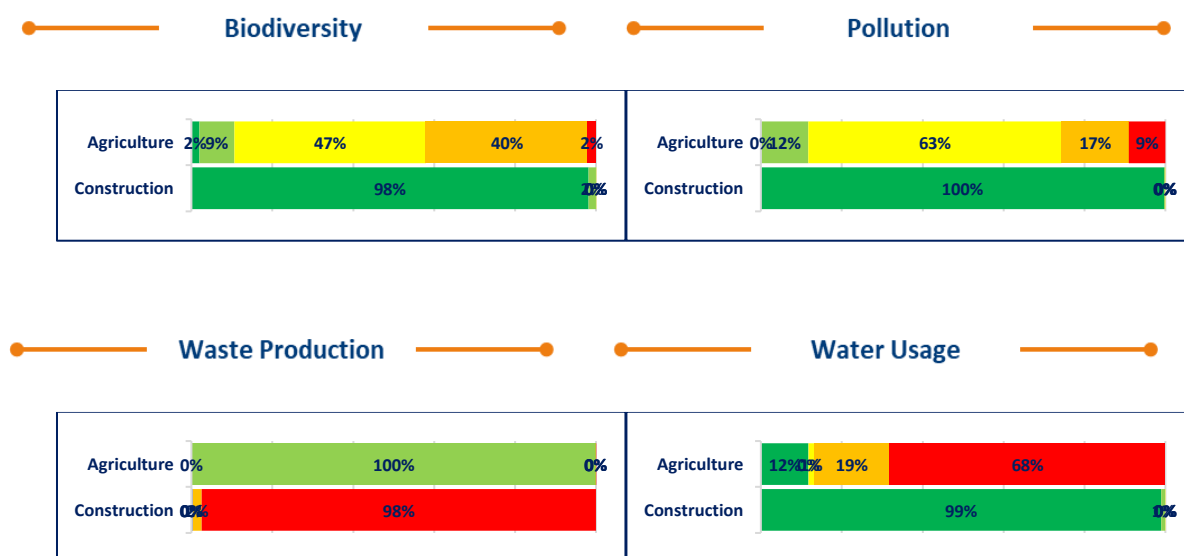


Figure 11. Distribution of Score Impact KPIs – Agriculture & Construction

2.3.2 The assessment of “Dependency”

The “Dependency” indicator measures how much a company is exposed to environmental risks due to its reliance on natural resources and ecosystem services. Using international environmental data, geospatial information and company-specific details, this indicator assesses the company’s dependence on four key assets: biodiversity, atmosphere, soil and water.

Figure 12 shows the distribution by Dependency score classes of the number of SMEs analysed and their related credit exposure. The data reveal a low level of dependence on natural resources, with approximately 68% of companies and about 51% of exposures falling within the “low” and “moderate” dependency classes. As with the impact indicator examined in the previous

paragraph, companies in the Veneto region display characteristics similar to those observed in the Italian market in terms of dependency on natural resources.

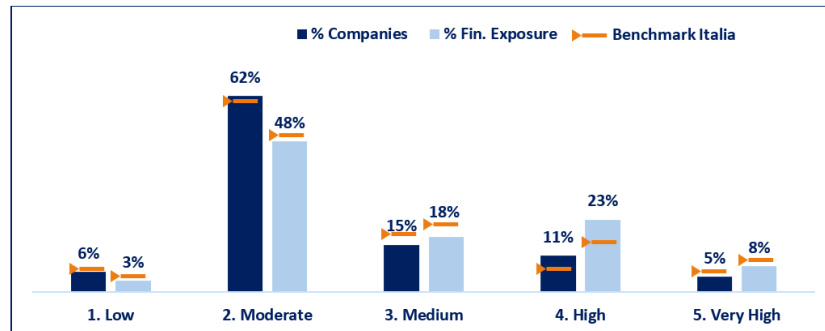


Figure 12. Distribution of the Dependency score by number of companies and by share of loans granted to SMEs

Figure 13 shows the distribution of the average environmental dependency score for sectors that individually account for more than 5% of the sample analysed in the Veneto region. It can be observed that the scores are relatively low in sectors characterised by a greater incidence of human capital, such as Other Services, while they are particularly high in the Agriculture sector, similarly to what was noted for the impact indicator described in the previous paragraph.

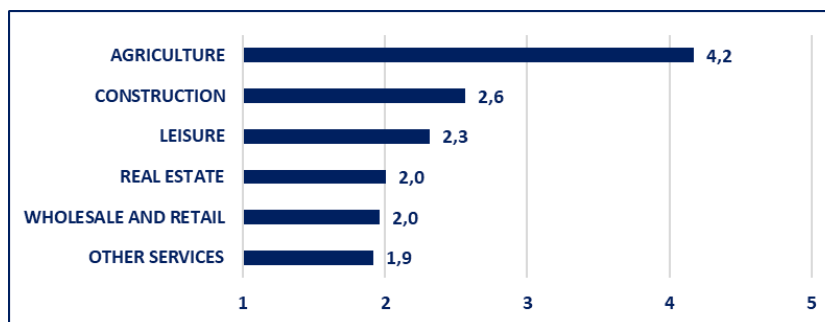


Figure 13. Distribution of the average Dependency score for sectors with a weight greater than 5% in the sample for Veneto

As illustrated by the following figures, which analyse the Dependency score KPIs for the two most dependent sectors identified in Figure 13, the agricultural sector emerges as particularly critical due to its high dependence on resources such as soil fertility, the availability and quality of water, and climate stability. In contrast, the construction sector displays a medium level of dependency across all four KPIs considered.

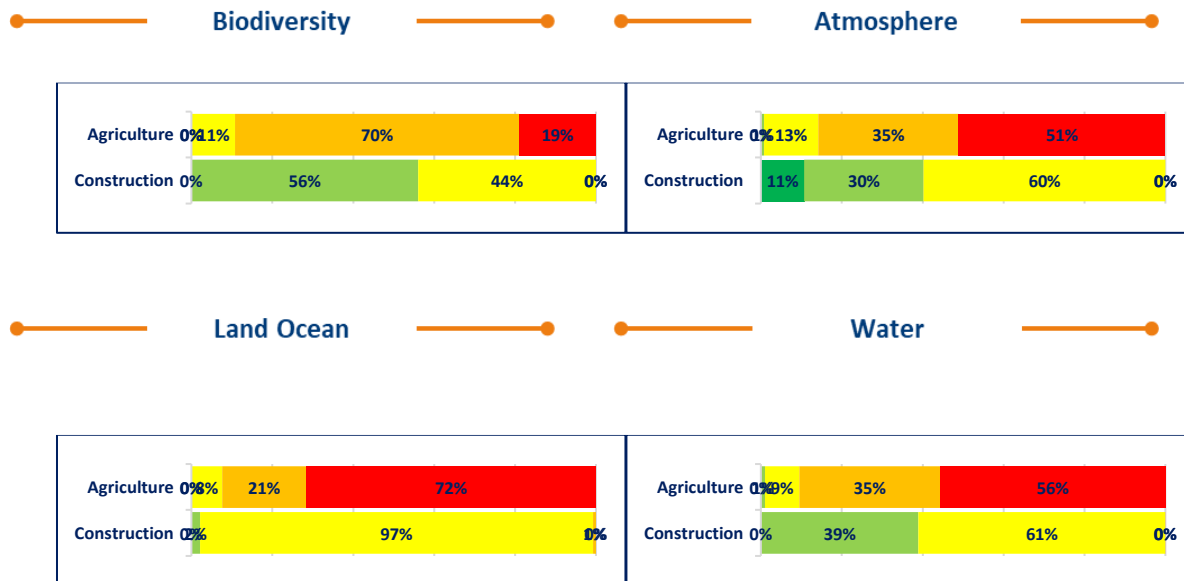


Figure 14. Distribution of Score Dependency KPIs – Agriculture & Construction

Policy Implications

The study confirms that sustainability is not merely a reputational issue but a significant driver of risk and opportunity for bank credit. Companies that excel in ESG (Environmental, Social, and Governance) criteria are less risky, while the management of transition and natural risks is becoming increasingly central, especially in specific regions and sectors. Therefore, banks can no longer delay strengthening their governance mechanisms and risk management related to climate, environment, and natural capital.

To effectively integrate safeguards, governance, and the accuracy of analyses, it is essential to use high-quality, robust, and widely disseminated data, along with solid analytical methodologies.

In this regard, it is hoped that:

- There will be convergence on disclosure standards (e.g., VSME) and the information that institutions can automatically acquire from external providers;
- The principle of double materiality will be maintained in ESG assessment methodological standards, both for Climate and Environment (C&E) and for Natural Capital;

- External providers will be used only if authorized by supervisory bodies (such as ESMA), in line with regulation 3005/24.

The goal is to provide the market with a standardized and high-quality informations, enabling evaluations conducted with regulated methodologies, thus resulting in robust and homogeneous assessments among different players. This approach is essential to increase trust and reliability among users, particularly financial institutions. To achieve this goal, the growing role of regulators and supervisors in promoting the transparency and integrity of ESG ratings is crucial.