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Moody's Analytical Approach to ESG

Integrated Credit Analytical Approach



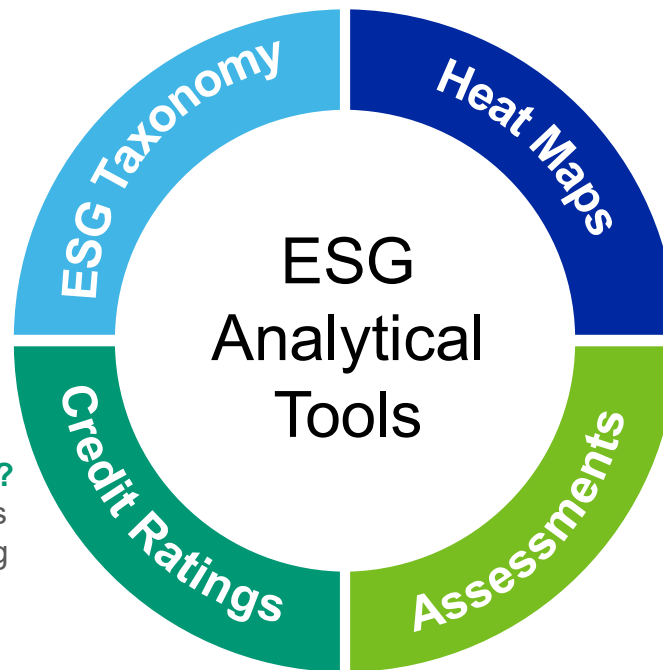
What is ESG?

Framework Reports describe Moody's taxonomy of ESG risks



How are ESG factors incorporated into an issuer's credit rating?

Integrate ESG analysis into credit ratings using the relevant industry methodology supplemented by the ESG methodology, and provide greater transparency in press releases and credit opinions.



Is ESG material to credit quality?

Heat maps indicate materiality of ESG risks to credit quality and provide relative ranking of sectors



How is a specific issuer exposed to ESG risks?

Assessments are issuer-specific scores that provide rank ordering of issuers along a single ESG risk. Typically applied to sectors that rank as high risk in heat maps



ESG Taxonomies



ENVIRONMENTAL

Air pollution
Carbon regulations
Natural & man-made hazards
Soil/water pollution & land-use restrictions
Water shortages



SOCIAL

Private Sector Governments

Customer relations	Demographics
Health & safety	Labor & Income
Human Capital	Education
Responsible Production	Health & safety
	Housing
Demographic & Societal Trends	Access to basic services



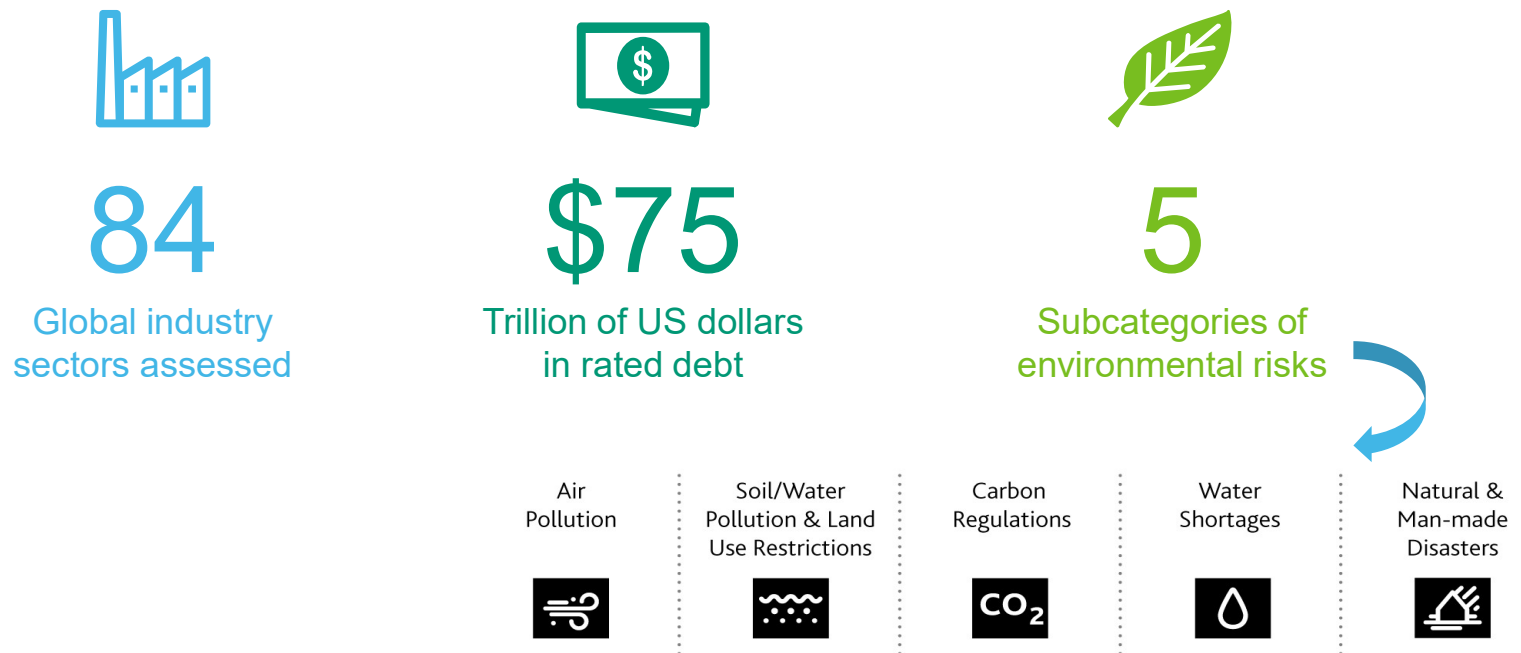
GOVERNANCE

Private Sector Governments

Financial Strategy & Risk Management	Institutional Quality
Management Credibility & Track Record	Policy Credibility & Effectiveness
Organization Structure	Budget Management
Compliance & Reporting	Transparency & Disclosure
Board Structure, Policies & Procedures	

Heat maps provide relative ranking of sectors along ESG taxonomy categories

Environmental Risks Heat Map

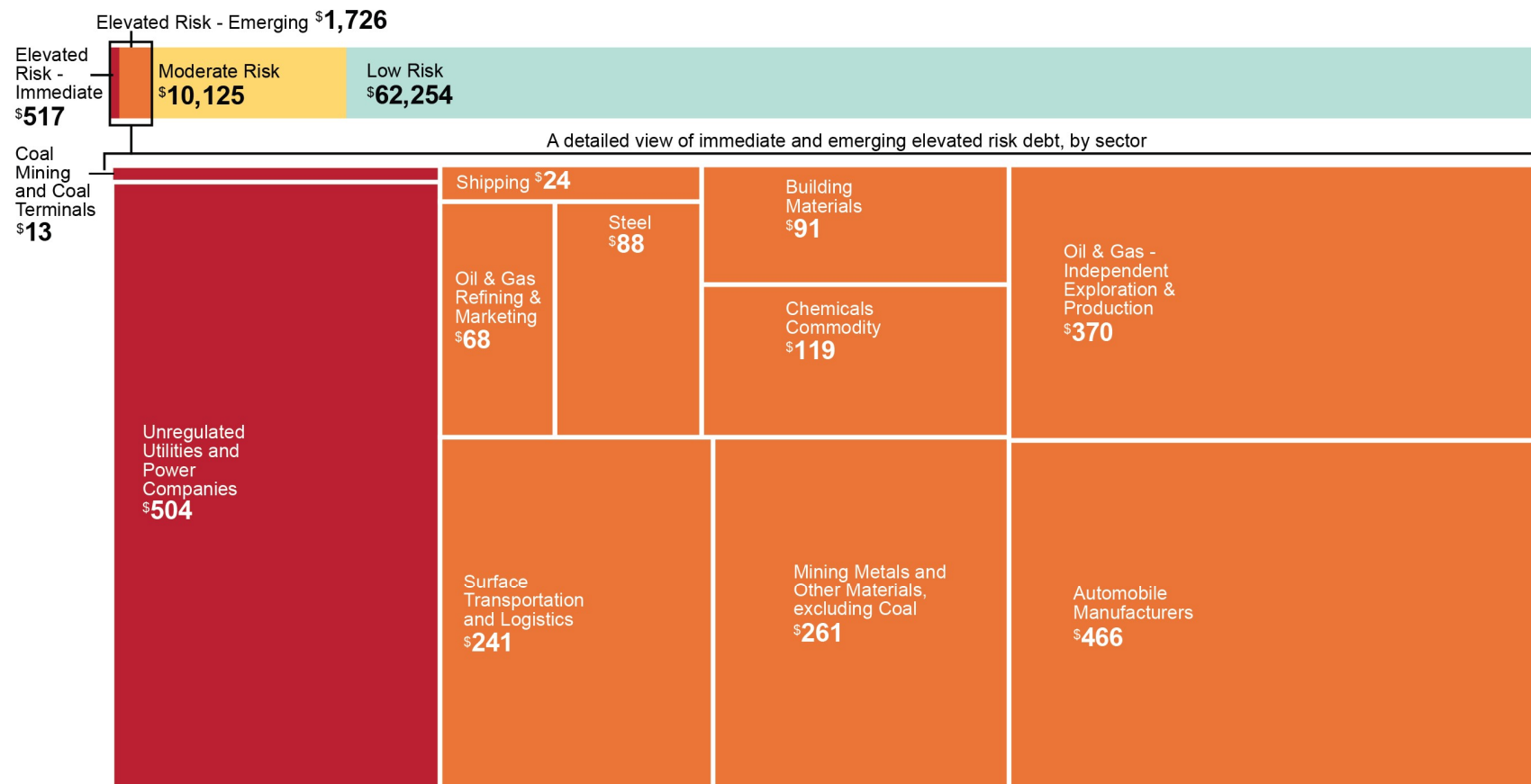


Materiality & Timing of Risks



Eleven sectors, with \$2.2 trillion of debt, have elevated environmental risk

KEY: ■ Elevated Risk - Immediate ■ Elevated Risk - Emerging ■ Moderate Risk ■ Low Risk

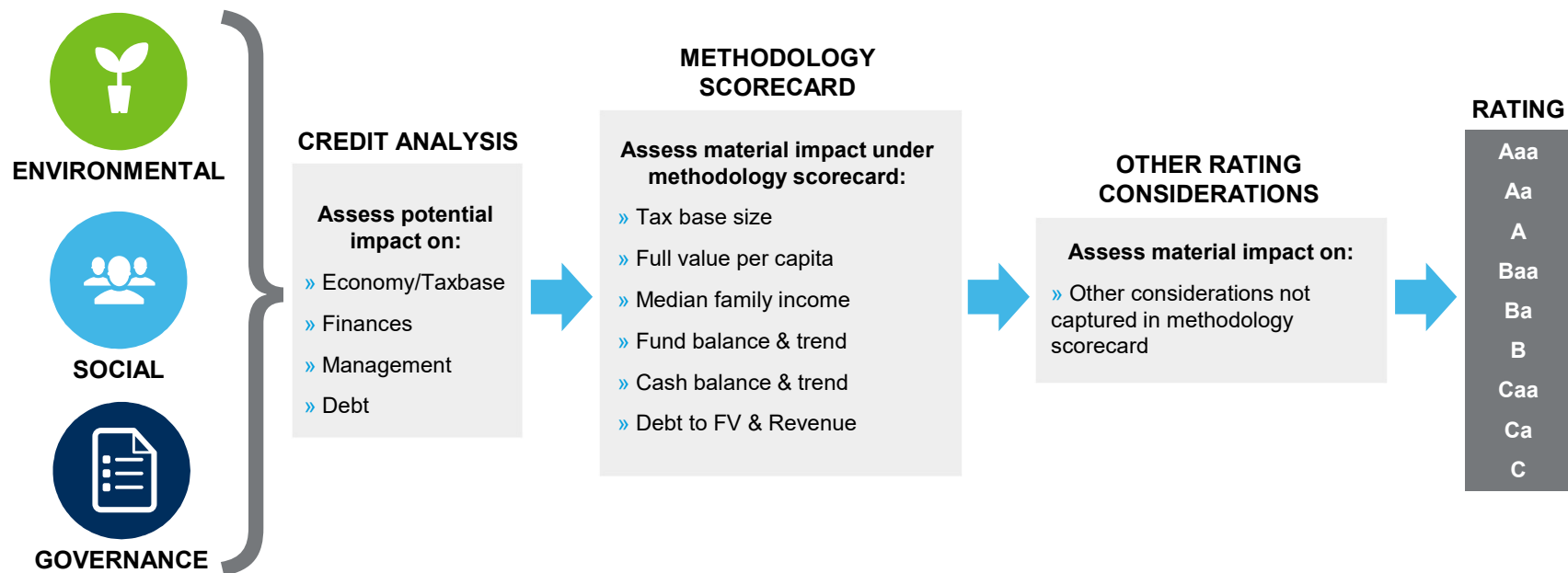


Global environmental heatmap risk scores by sector

Sector	Overall Score	Sector	Overall Score
Airlines	Moderate Risk	Oil & Gas - Integrated Oil Companies	Moderate Risk
Airports	Low Risk	Oil & Gas - Midstream Energy	Moderate Risk
ABS - Aircraft	Moderate Risk	Oil & Gas - Oilfield Services	Moderate Risk
ABS - Auto Loans, Car & Truck Rental	Moderate Risk	Oil & Gas - Refining & Marketing	Elevated Risk - Emerging
ABS - Equipment Leases and Loans	Low Risk	Packaging Manufacturers: Metal, Glass, and Plastics	Moderate Risk
ABS - Other (Solar)	Low Risk	Paper and Forest Products	Moderate Risk
ABS - Railcar			
Leasing	Low Risk	Passenger Railways	Low Risk
ABS - Small and Medium Enterprises	Low Risk	Pension Funds	Low Risk
ABS - Utility Cost Recovery Charges	Low Risk	Pharmaceuticals	Low Risk
Asset Managers	Low Risk	Ports	Moderate Risk
Automobile Manufacturers	Elevated Risk - Emerging	Power Generation Projects	Moderate Risk
Automotive Suppliers	Moderate Risk	Privately Financed Public Infrastructure Projects (PPPs)	Low Risk
Banks and Finance Companies	Low Risk	Property, Casualty and Reinsurance	Moderate Risk
Beverage Industry	Low Risk	Protein and Agriculture	Moderate Risk
Building Materials	Elevated Risk - Emerging	Public Sector Housing	Low Risk
Business and Consumer Services	Low Risk	Real Estate Trusts & Other Commercial Property Firms	Low Risk
Chemicals - Commodity	Elevated Risk - Emerging	Regional and Local Governments - Developed Economies	Low Risk
Chemicals - Specialty	Moderate Risk	Regional and Local Governments - Developing Economies	Moderate Risk
Closed-End Funds	Low Risk	Regulated Electric and Gas Networks/Utilities with no Generation	Low Risk
Coal Mining and Coal Terminals	Elevated Risk - Immediate	Regulated Electric and Gas Utilities with Generation	Moderate Risk
CDLOs	Low Risk	Regulated Water Utilities	Low Risk
CDLOs - Project Finance and Infrastructure Assets	Low Risk	Residential Mortgage Backed Securities	Low Risk
Commercial Mortgage Backed Securities	Low Risk	Restaurants	Low Risk
Construction	Low Risk	Retail and Apparel	Low Risk
Consumer Goods	Low Risk	Securities Industry and Financial Intermediaries	Low Risk
Covered Bonds	Low Risk	Semiconductors & Technology Hardware	Low Risk
Distribution and Supply Chain Services	Low Risk	Shipping	Elevated Risk - Emerging
Education, Health Care, and Not-for-Profits	Low Risk		
Environmental Services and Waste Management	Moderate Risk	Sovereigns - Developed Economies	Low Risk
Equipment and Transportation Rentals	Moderate Risk	Sovereigns - Developing Economies	Moderate Risk
Financial Guarantors	Low Risk	Special Property Tax Districts and Tax Increment Debt	Low Risk
Gaming Industry	Low Risk	Steel	Elevated Risk - Emerging
Health Insurance Companies	Low Risk	Surface Transportation and Logistics	Elevated Risk - Emerging
Homebuilding and Property Development	Low Risk	Telecommunications	Low Risk
Life Insurance	Low Risk	Title and Trade Credit Insurance	Low Risk
Manufacturing	Moderate Risk	Tobacco	Moderate Risk
Mass Transit	Low Risk	Toll Roads	Low Risk
Media & Broadcasting	Low Risk	Trading Companies	Low Risk
Mining - Metals and Other Materials, excluding Coal	Elevated Risk - Emerging	Unregulated Utilities and Unregulated Power Companies	Elevated Risk - Immediate
		US Municipal Utilities and State Revolving Funds	Low Risk
Mortgage Insurance	Low Risk	US Public Power and Cooperative Utilities with Generation	
Natural Gas Pipelines	Low Risk	Ownership	Moderate Risk
Oil & Gas - Independent Exploration & Production	Elevated Risk - Emerging	US Special Tax Bonds	Low Risk
		US States	Low Risk

Rating methodologies capture ESG risks with material credit implications

Illustrative example of how ESG considerations are incorporated into our local government GO ratings



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