What effects of the integration of "Energy-Climate-Natural Resources" determinants in the country risk methodology?

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Summary

The Beyond Ratings country risk proprietary methodology is based on five pillars of analysis, of which the Energy-Climate-Natural Resources (ECR) pillar is the main innovation in comparison with conventional methodologies. The comparative analysis of risk scores, excluding and including the Energy-Climate-Natural Resources determinants, reveals that they provide distinct complementary information to the determinants of the other pillars.

Over the period 1999-2016, the analysis by subgroups of countries of comparable levels of income (according to thresholds set by the World Bank) and covering different and contrasted situations (in particular net energy exporters and importers) shows that the integration of the Energy-Climate-Natural Resources determinants translates into an improvement in the median risk score of middle- and low-income countries and a slight deterioration of the median score of high-income countries.

The integration of Energy-Climate-Natural Resources determinants, in the general context of rising country risk and increasingly ambitious climate policies, contributes to revealing contrasted underlying situations, the characterization of which is not limited to simply taking into account exogenous factors such as natural resources endowment.

The Beyond Ratings country risk scoring proprietary methodology

The proprietary Beyond Ratings country risk scoring methodology is based on the integration of five pillars of analysis: economic structure and growth dynamics; public finances; external position; socio-political situation and prospects; Energy-Climate-Natural Resources (ECR) determinants. This latter pillar covers the indicators characterizing the risks and opportunities related to the fundamental factors of production which are natural resources, first of which energy, as well as the risks at the national level related to the global issue of emissions of greenhouse gases and their impact on world climate change.

Each pillar is based on indicators, partly available in the public space, partly resulting from the Beyond Ratings proprietary research. The integration of Energy-Climate-Natural Resources determinants is one

of the methodological innovations of Beyond Ratings and is based on several proprietary indicators: energy supply risks, energy performance diagnosis, greenhouse gases emissions performance diagnosis, compliance with greenhouse gases emissions national targets, rent extracted from the exploitation of natural resources, level and evolution of water stress. The result of the methodology is a synthetic score between 0 and 100, with 100 being the highest score.

What are the effects of integrating « Energy-Climate-Natural Resources » determinants?

The issue of a possible bias in the country risk scores

The innovative feature of the integration of the Energy-Climate-Natural Resources determinants aims to improve the quality of diagnosis of conventional methodologies. As such, a discrepancy between scores resulting from Beyond Ratings methodology and from conventional methodologies ignoring these determinants is likely. We do not deal here with the differences of scores and ratings resulting from competing methodologies. But the question of a possible distortion in scores between countries is legitimate. Indeed, the hypothesis that the Energy-Climate-Natural Resources factors are first-order determinants of macroeconomic performance, financial stability and aggregate country risk, suggests that the fact that some countries stand at the lowest levels of the income scale is mainly due to a structural weakness on this analysis pillar.

We provide an answer to this question in this note, based on the geographic coverage of Beyond Ratings of 85 countries, segmented[1] into three subgroups of low-income[2], middle-income[3] and high-income[4] countries. It should be noted that the composition of the three subgroups over the period 1999-2016 is very stable: for the 85 countries, over a period of 72 quarters (from Q1 1999 to Q4 2016), we only register 39 changes in the composition of the three subgroups (out of a total of 6132 observations).

Moreover, using the balance of energy trade as a first-order variable, the composition of each of the three subgroups shows the presence of countries characterized by very contrasted energy situations, net exporters and importers. Over a period of 18 years, the geographic sample of Beyond Ratings does not show any obvious bias, which allows to conduct the comparative analysis of the results of country risk scores.

[1] The thresholds between low and intermediate income and between intermediate and high income, as defined by the World Bank, stand at USD 4,000 and USD 12,500 per capita (current prices) respectively as of December 2016,.

[2] Angola, Bangladesh, Cameroon, Colombia, Congo, Cote d'Ivoire, Egypt, Ghana, India, Indonesia, Kenya, Morocco, Namibia, Nigeria, Pakistan, Philippines, Senegal, Sri Lanka, Tanzania, Ukraine, Vietnam, Zambia

[3] Algeria, Argentina, Azerbaijan, Brazil, Bulgaria, Chile, China, Croatia, Ecuador, Gabon, Iran, Iraq, Jordan, Kazakhstan, Lebanon, Malaysia, Mexico, Panama, Peru, Romania, Russia, Serbia, South Africa, Thailand, Turkey, Uruguay, Venezuela

[4] Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hong Kong, Hungary, Ireland, Israel, Italy, Japan, South Korea, Kuwait, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Qatar, Saudi Arabia, Singapore, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Taiwan, United Arab Emirates, United Kingdom, United States of America

What is the weight of Energy-Climate-Natural Resources determinants in the aggregate country risk score?

Measuring the effect of the integration of the Energy-Climate-Natural Resources determinants requires comparing the scores obtained for the same sample of countries. Figures 1 and 2 present the series of median aggregate scores, for each of the three subgroups of countries, excluding and including these determinants respectively. The first element resulting from the observation of these graphs relates to the evolution of the general context: all scores signal a general increase of the country risk. Whether the determinants of Energy-Climate-Natural Resources are excluded (Figure 1) or included (Figure 2), the median scores representative of each of the three subgroups of countries show a negative trend over the period 1999-2016:

- The median score of high-income countries (left scale) decreases from about 69 to 67 excluding the ECR determinants and from 68 to 65 including the ECR determinants
- The median score of middle-income countries (right scale) decreases from about 46 to 41 excluding the ECR determinants and from 48 to 44, including the ECR determinants
- The median score of low-income countries (right scale) decreases from about 38 to 36 excluding ECR determinants and from 42 to 38 including ECR determinants

Fig. 1 - Beyond Ratings median score including Energy-Climate-Natural Resources determinants

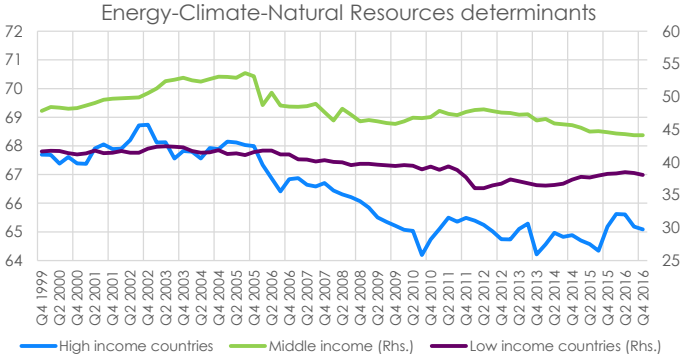
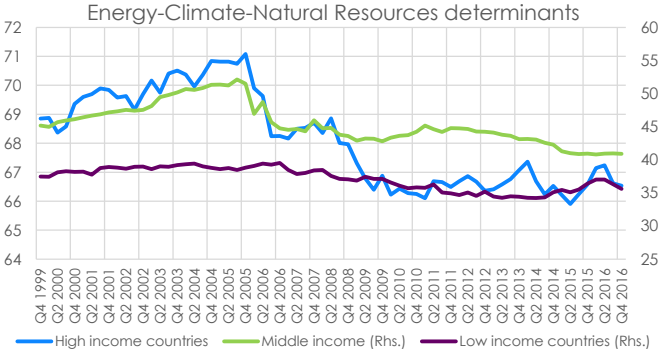


Fig. 2 - Beyond Ratings median score excluding Energy-Climate-Natural Resources determinants



The effect of integrating Energy-Climate-Natural Resources determinants over the period 1999-2016

The second level of analysis specifically addresses the effects of including ECR determinants in the scoring methodology. Figures 3 and 4 represent differences in absolute (score points, Figure 3) and relative terms (in percent, Figure 4) between median aggregate scores, excluding and including ECR determinants. It appears that the integration of the Energy-Climate-Natural Resources pillar into the scoring methodology, on one hand increases the median scores of middle-income and low-income countries and, on the other hand, degrades that of high-income countries.

The deterioration of the median score of high-income countries shows a structural character by its stability at about 3% (Figure 4). The contribution of the ECR determinants to the scores of middle and low-income countries appears more cyclical. The difference between median scores for low-income countries is about 6%, with no marked trend. The difference between median scores of middle-income countries shows a slight trend: the differential in 2015-2016 is around 8% compared to about 5% in 1999-2000 (Figure 4). Consequently, depending on whether the ECR determinants are excluded or included, the median score for each of the three subgroups of countries evolves differently over the 1999-2016 period:

- median scores for high-income countries, excluding and including ECR determinants, decline by approximately 3%, with no significant differences: the effect of the ECR determinants is neutral
- median scores in middle-income countries, excluding and including ECR determinants, decreased by approximately 10% and 8% respectively: the effect of ECR determinants contributed to a moderate mitigation of the degradation of the score
- median scores in low-income countries, excluding and including ECR determinants, decreased by approximately 4% and 8% respectively: the effect of ECR determinants contributed to slightly amplify the degradation of the score

Fig. 3 - Impact of Energy-Climate-Natural Resources determinants (versus score excluding ECR)

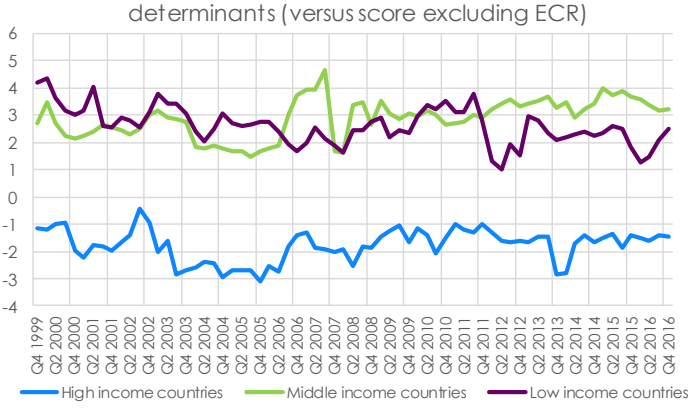
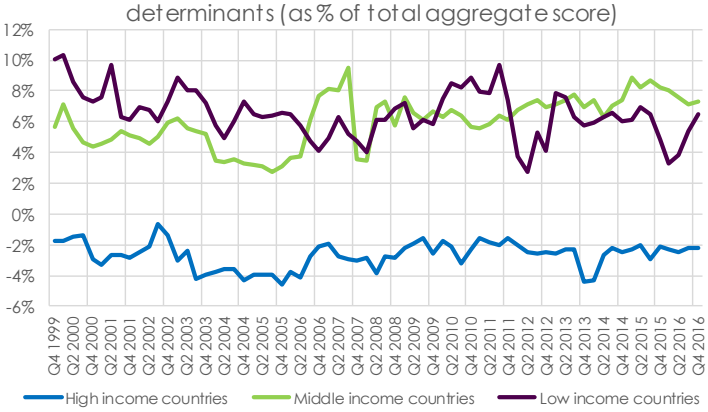


Fig. 4 - Impact of Energy-Climate-Natural Resources determinants (as % of total aggregate score)



Synthesis of the added value of integrating the Energy-Climate-Natural Resources determinants

The comparative analysis of the median scores for each of the three subgroups of countries that make up the Beyond Ratings geographical coverage of 85 countries shows that the integration of the Energy-Climate-Natural Resources determinants provides distinct and complementary information to the determinants of the other pillars of analysis, both in terms of level and trend.

At the aggregate subgroup level, ECR determinants do not alter the general diagnosis of a general rise in country risk, regardless of income level. However, over the period 1999-2016, the integration of ECR determinants translates into moderate upward revaluation of middle-income countries scores and downward revaluation of low-income countries scores. We do not discuss in this note the diversity of cases among the countries which make up these subgroups, but this observation accredits two elements of diagnosis:

- The lower level of scores for all emerging, middle and low-income countries, compared to those of high-income countries dos not the result from any structural underperformance or general under-potential related to ECR determinants. The risk of systematic distortion in scores related to the integration of ECR determinants can be discarded at the most general level as well as in subgroups defined by income level.
- The analysis and the score of each country would allow to highlight constraints and opportunities of different natures and different degrees: natural resource endowment, exposure to climatic risks, productivity of natural production factors, sustainability of exploitation of natural resources. In this sense, the Beyond Risk country risk methodology is not limited to the simple consideration of exogenous factors (such as the potential of energy

resources) but integrates the will of each State to take decisions and implement policies aiming at an optimal trajectory of economic development.

These elements confirm the added value of integrating the Energy-Climate-Natural Resources determinants into country risk analysis, particularly in the context of a general rise of risk and the mounting energy and climate issues.

Climate objectives requires integrating Energy-Climate-Natural Resources determinants

The latent failure of international negotiations on climate targets is partly due to the lack of a universally agreed framework for allocating greenhouse gases emissions budgets at the national level (see "Allocation methodology of national climate budgets", Beyond Ratings, December 2016). The proprietary Beyond Ratings methodology for allocating national emissions budgets consistent with a global temperature rise target limited to 2°C shows the following results for the 85 countries of the Beyond Ratings geographic coverage:

- Figure 5: by 2030, total emissions of the subgroup of high-income countries must be reduced by two thirds, total emissions of the subgroup of middle-income countries must be reduced by about 40% and the subgroup of low-income countries has a potential for growth of total emissions equal to about 150% of 2015 emissions
- Figure 6: at the same time horizon, these results imply a three-fold division of per capita emissions in the high-income subgroup, a two-fold division of per capita emissions in the middle income subgroup, and possible two-fold increase of per capita emissions of the low-income subgroup

Fig. 5 - 2030 GHG total emissions in a 2°C scenario

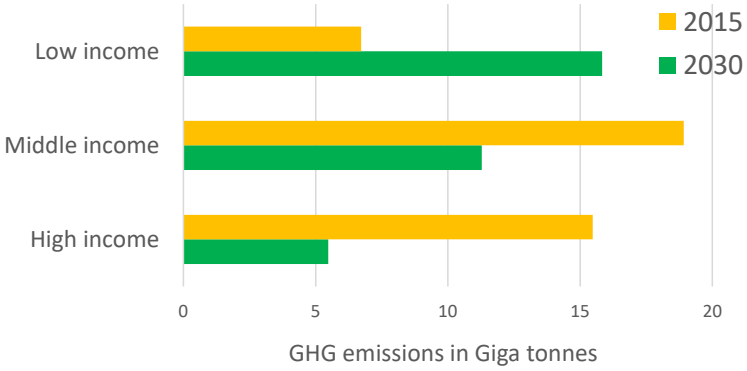
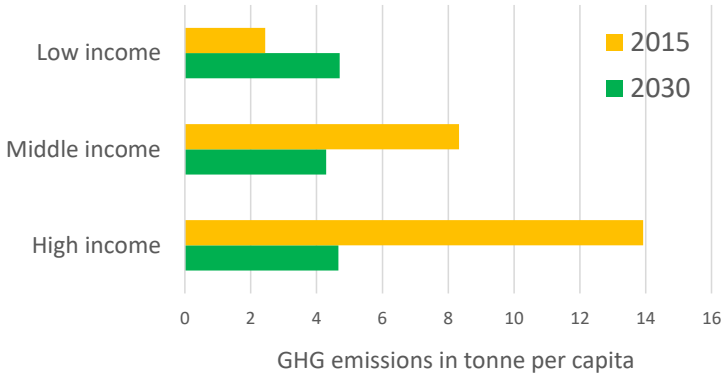


Fig. 6 - 2030 GHG emissions per capita in a 2°C scenario



The achievement of such objectives is based on profound changes in the systems of production and the structure of international trade. In the light of what is taught by the evolution of risks over the period 1999-2016 for each of the three subgroups, we consider first that such mutations confirm the need for the integration of the Energy-Climate-Natural Resources determinants in country risk analysis, second that the evolution of country risk will be more and more differentiated according to the situation specific to each country, structurally as much as cyclically. In this regard, we consider that:

- Low-income countries, which have experienced a limited increase of risk and have been slightly penalized by the integration of ECR determinants, should benefit from a lower level of constraint.
- Middle-income countries, which have experienced increased risk but benefited from the integration of ECR determinants, are expected to show the most contrasting situations.

The integration of Energy-Climate-Natural Resources determinants, in the context of increasingly ambitious climate policies, should not lead to a systematic increase of risk scoring of emerging countries, but should contribute to revealing underlying contrasted risk situations, insufficiently apprehended by conventional country risk methodologies.

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Beyond Ratings offers a broad range of services to the financial industry to assess risks related to energy, climate and all categories of natural and non-natural capital:

- **Energy-Climate Sovereign Risk**: Assess the financial impacts & creditworthiness of energy and climate risks
- **Sovereign Carbon Footprints**: Measuring the carbon footprint of your sovereign bonds and portfolios
- **ESG Sovereign Factor-IN**: ESG adjusted financial ratings for 160 countries
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