

THE IMPACT OF ENERGY AND CLIMATE ON SOVEREIGN RISK

SIGNATORY TYPE

Service Provider

OPERATING COUNTRY

France

[Beyond Ratings](#) observes that the socio-economic and geopolitical impact of energy and climate change on sovereign risk is underestimated. [Recent academic research](#) conducted with us estimates that the elasticity of GDP to energy consumption is about 60% (more than 6-10% as is generally understood by conventional macroeconomic theory), and shows that it is a one-way causal relationship: from primary energy consumption to GDP growth.

The PRI's Fixed Income Case Study series highlights examples of interesting and innovative approaches to responsible investment. Written by fixed income practitioners from around the world, the case studies cover topics such as integrating ESG, negative and positive screening, thematic investment and engagement.

Sharing these examples will enable investors to collectively build a concept of emerging good practice. The PRI aims to publish a set of these short pieces every quarter. If you would like to learn more or contribute your own case study please [contact us](#).



WHY ENERGY AND CLIMATE MATTER FOR SOVEREIGN RISK ANALYSIS

Traditional economic thinking has been shaped by the idea that production is a function of labour and capital, leading us to underestimate the role of energy in the economy. Historically there is a strong link between GDP and energy consumption.

Figure 1: Correlation between the global annual change in GDP and in primary energy consumption (1966-2013) Sources: Beyond Ratings, World Bank, BP Statistical Review 2014

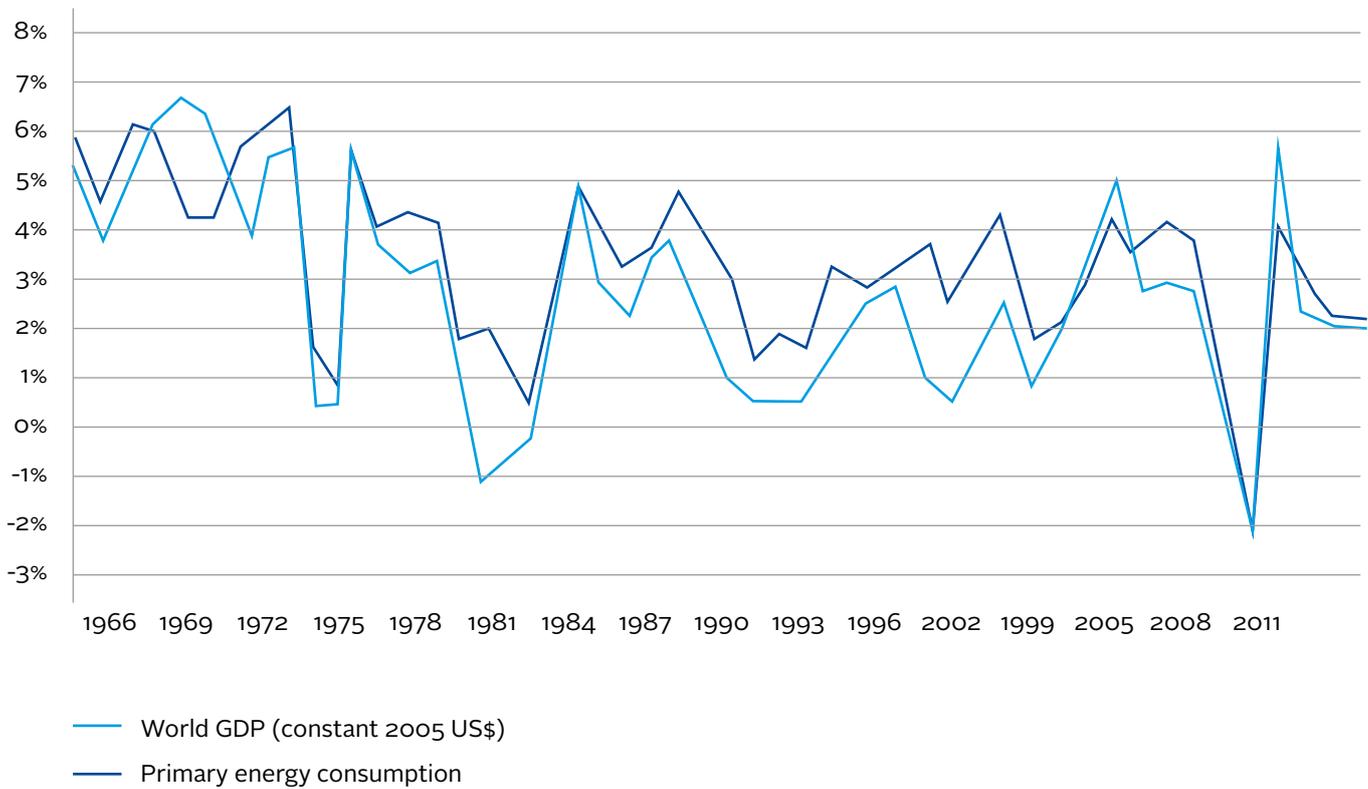
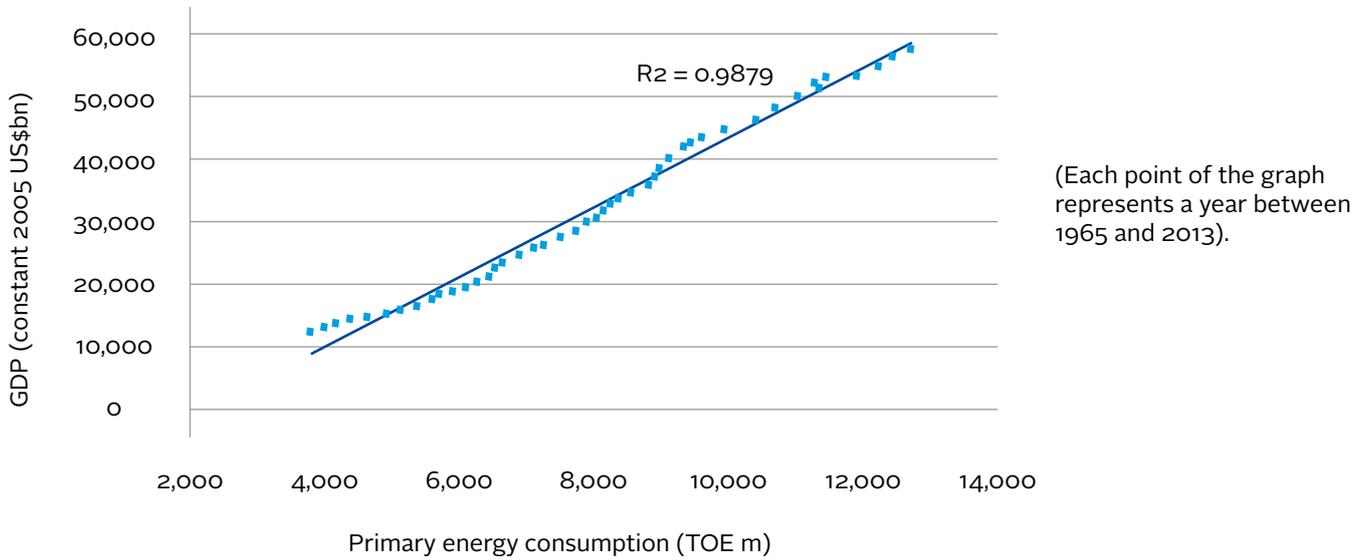
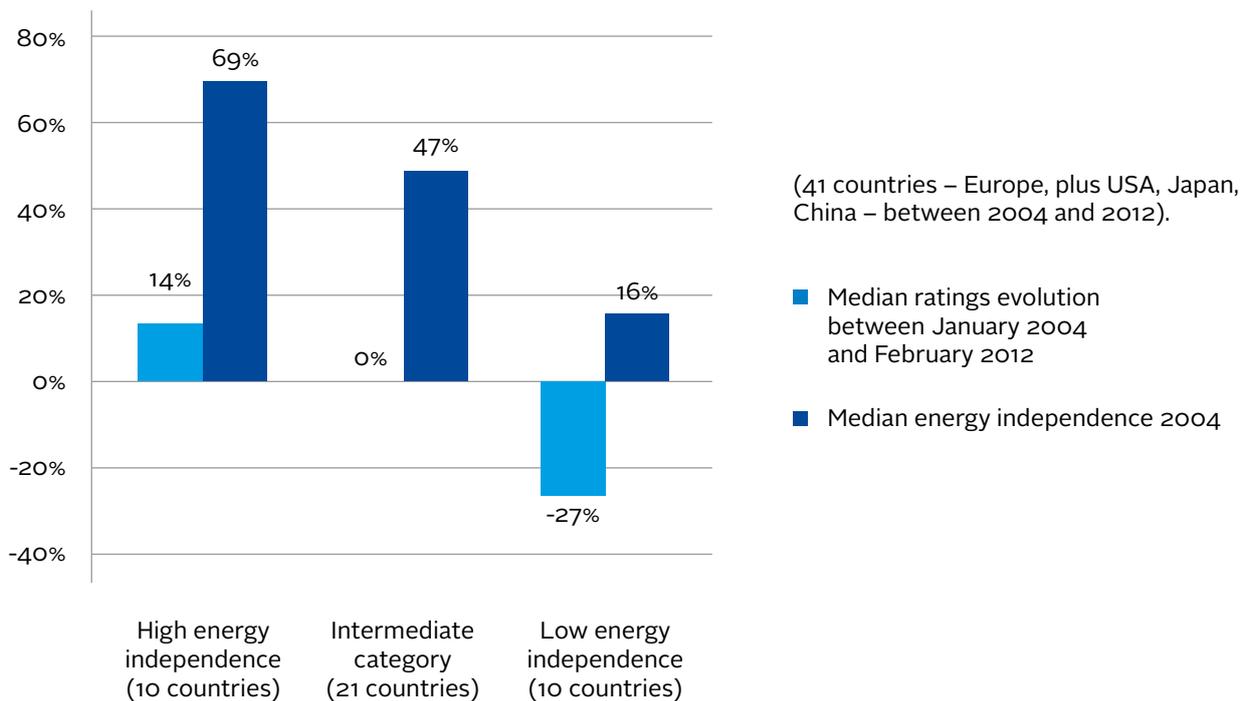


Figure 2: Regression test on global GDP and energy consumption between 1965 and 2013 Sources: Gaël Giraud, Beyond Ratings, BP statistical review, World Bank



More recently a strong link has been observed between heavy credit ratings downgrades and low energy independence, as in the case of Greece, Italy, Spain, Portugal or Ireland.

Figure 3: Ratings evolution and energy independence Sources: Beyond Ratings, IEA, Bloomberg, S&P, Moody's, Fitch



HOW WE MEASURE ENERGY AND CLIMATE'S IMPACT ON SOVEREIGN RISK ANALYSIS

We have created a rating dedicated to energy, and to a lesser extent climate change, by analysing against the framework below. This rating complements those of the mainstream rating agencies.

The core issues within our framework's categories include for example:

- Energy supply risk:
 - Energy infrastructure quality's potential to limit GDP growth
 - External energy dependence and the ability to sustain a supply shock
 - Energy resource exploitation trends
- Energy/climate revenues and expenditures:
 - Energy/climate fiscal revenues and the level of untapped potential
 - Energy-related royalties and dividends collected by the general government
 - Level of energy-related subsidies
- Net external financing needs based on the share of energy in the trade balance
- Analysis of social and political stability issues which may involve energy geopolitics in some countries, as well as cases of socio-economic tensions related to energy and climate risks.

Figure 4: Four scoring categories, 12 sub-categories, spot/ST/LT scoring, country-specific sensitivity factors.
Source: Beyond Ratings

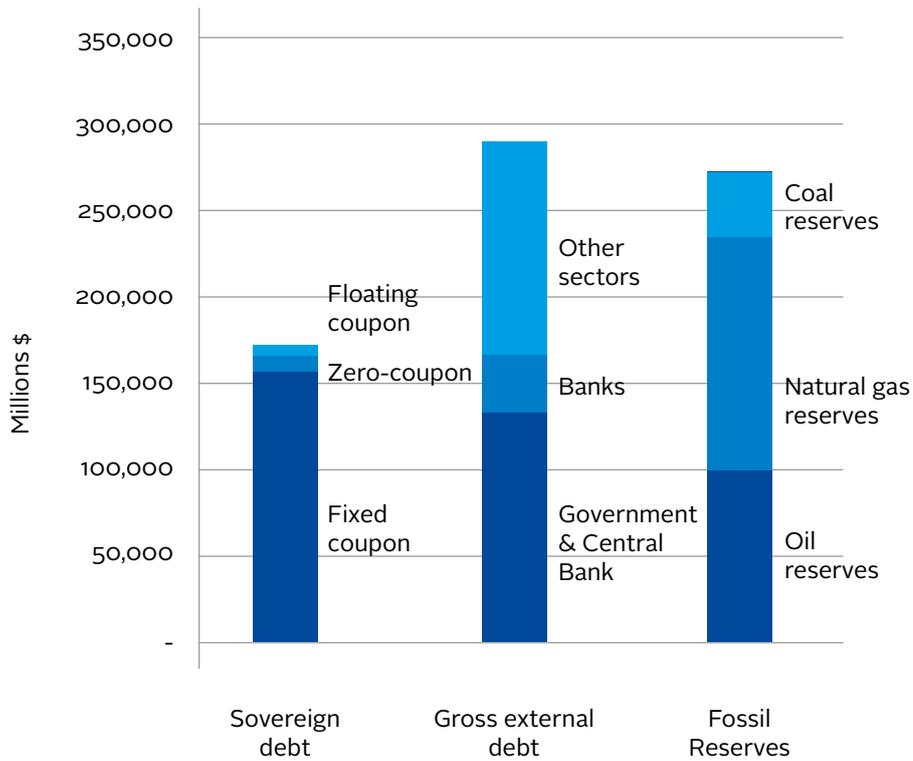
Growth Dynamics: 35%	Energy supply risk: 13% Consistency of energy prices policy: 9% Sectors exposure to energy risk: 9% Economic exposure to climate evolution: 4%
Government Budget: 30%	Energy asset: 6% Energy-climate revenues: 12% Energy-climate expenditure: 12%
Social and Political Stability: 20%	External financing needs: 10% Liquidity risks: 5%
External Risks: 15%	Impact on socio-economic vulnerability: 12% Energy linked conflicts: 4% Energy-climate governance: 4%

CASE STUDY: INDONESIA

Indonesia has developed quickly since being severely hit by the 1997 Asian financial crisis. In January 2014 it raised US\$4 billion in Asia's largest sovereign, dollar-denominated bond issue since 1998.¹

Indonesia's credit ratings from the mainstream rating agencies are: BB+/Stable by Standard & Poor's (non-investment grade); Baa3/Stable by Moody's; BBB-/Stable by Fitch Ratings (lower medium grade).

Figure 5: Fossil fuel energy reserves in comparison with sovereign and gross external debts
Sources: Beyond Ratings, World Bank



¹ Link to full version of Beyond Ratings' Indonesia case study [here](#)

USING OUR ENERGY/CLIMATE ANALYTICAL FRAMEWORK, WE ASSIGN INDONESIA
A RATING OF EEE-, THE THIRD NOTCH ON OUR NINE-NOTCH SCALE:

EEE+	EEE	EEE-	EE+	EE	EE-	E+	E	E-
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GROWTH DYNAMICS

Indonesia's hydrocarbon resource is maturing, as evidenced by the decline of oil production and the plateau of gas production. This calls for a shift in the economy towards higher value-added sectors. Such a transition requires a significant increase in energy efficiency in most sectors to boost production. This could be challenging in the short- and medium-term as Indonesia's energy supply system is under pressure due to weak infrastructure and an abnormally high absolute level of residential energy consumption compared to other countries.

The number of people connected to the power grid is growing at a high rate, 3% per year, which will benefit economic growth. The transition towards a more energy-efficient economy is underway: recent decisions to cut energy subsidies and develop renewables in remote areas indicate a growing awareness of energy issues. In the mid- to long-term, renewable energy sources could be developed and related production capacities could turn out to be valuable assets.

GOVERNMENT BUDGET

The energy sector, which is primarily oil and gas, contributes about 20%-30% of Indonesia's government budget (or 3.3%-4.0% of GDP). Within energy, oil and gas represent around 8%-9% of the total tax revenues and 60%-70% of the non-tax revenues (general economic gains, and dividends as a shareholder of national companies). Energy's net contribution to the budget has been heavily

distorted by subsidies, with Indonesia among the top 15 heaviest energy subsidisers in 2012 at 3.0% of GDP. However, President Joko Widodo, elected in July 2014, announced in November 2014 that energy price subsidies would be drastically reduced. General government gross debt is low at about 25% of GDP.

SOCIAL AND POLITICAL STABILITY

Indonesia is not facing armed conflicts but it has experienced domestic unrest, which is partly related to natural resources, such as separatism movements in Aceh and Papua, and some such risks remain. The country suffers from some corruption in the energy sector (e.g. [corruption scandals at Pertamina](#)). Agriculturally, the country has strong independence and energy-efficiency in terms of production methods, but it remains highly vulnerable to energy/climate shocks due to the dominance of the primary sector and high poverty levels (45% of the population live on less than US\$2 per day). CO2 emissions

are low, but deforestation is pushing them up. The country relies on coal assets, which may become stranded over the medium term. The governance framework for the extractives industry is better than average: the [Resource Governance Index](#) rates Indonesia 14 out of 58. Joko Widodo's decision to cut particularly inefficient subsidies is welcome – 80% of the subsidies do not benefit the poorest – but further attention should be paid to the way the poorest part of the population will be protected.

EXTERNAL RISKS

Many years of energy commodities exports got Indonesia used to having a healthy external position, but declining oil production has caused net oil imports to grow since 2004.

The country is now covering its external financing needs using its central bank reserves, which though comfortable are now declining.

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