

Assignment: Climate Stress Testing an Energy Company

To do:

1. Read the motivations for conducting a climate stress test of a firm.
2. Read the valuation model of the energy company.
3. Read this assignment.
4. Answer the questions in the assignment by conducting a climate stress test of the energy company.
5. Prepare a 5-to-7 minute PowerPoint presentation of your findings, with the following structure:
 - a. Show and critically discuss findings on the core questions (max 2 min).
 - b. Show and discuss findings on the transition & technology scenario questions (max 2 min).
 - c. Discuss validity and ways to improve your energy company stress test (max 3-4 min).

Questions:

Core questions:

1. What is the value of the firm with its current business model under the transition and technology risks imposed in the scenario?
2. How might the firm adapt its strategy to maximize value under the given scenario?

Answer questions 1 and 2 separately for the hot-house scenario, the orderly transition scenario and the disorderly transition scenario. Take the default settings for the technology scenario as given.

Question on transition scenario:

3. How does the timing of the energy company's transition towards a green business model depend on its expectations of the policies to tackle climate change (i.e. the future carbon tax)?

Answer question 3 by explaining how the timing of the energy company's transition towards a green business model depends on the policy scenario (i.e. hot-house world, orderly transition, disorderly transition). Take the default settings for the technology scenario as given.

Question on technology scenario:

4. How might the timing of the energy company's transition towards a green business model depend on its anticipation of the future cost of new investments in green energy?

Answer question 4 by changing the technology scenario.

Question on the interaction of the transition and technology scenario:

5. How might the timing of the energy company's transition towards a green business model depend on the interaction between the transition and technology scenario?

Answer question 5 by both changing the transition and the technology scenario.

Questions on how the climate stress test of the energy company can be improved:

6. How could the valuation model of the firm be made more realistic?
7. How could the strategic adaptation of the energy company in light of the climate policies and technological advances be made more realistic?
8. Are all the relevant costs and opportunities arising from the transition of the firm to a low-carbon and low-climate risk model taken into account?
9. How could the climate policy and technology scenarios be further improved and calibrated? For instance, how can an energy company active in one or multiple jurisdictions select the policy scenarios that are most relevant for it?