BUSINESS AS UNUSUAL: THE IMPLICATIONS OF FOSSIL DIVESTMENT FOR FINANCIAL FLOWS, ECONOMIC GROWTH AND THE ENERGY MARKET

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Overview

Ethical aspects are increasingly stated in aims of private companies and the business community is showing willingness to act on climate change. On the investors' side a trend has emerged, surfacing as pledges to invest in green projects or to abstain from investments in fossil industries.

Fossil industries are also vulnerable to future tightening of climate policy. The risk of stranded assets in fossil industries is now seen by many as a real and non-negligible threat. Warnings of stranded fossil assets start to come from authoritative voices, like the Governor of Bank of England and IEA.

A timely question is how fossil divestment will affect the economy at large and what it can achieve in terms of climate mitigation. We approach these questions by a study of how dedicated green investments flows and divestment in fossil industries might impact the economy, the financial flows, energy trends and climate emissions.

Methods

The study is based on the multiregional global economic model GRACE, dealing explicitly with alternative segments of the global financial market. GRACE is a multi-sector, multi-regional, recursively dynamic global computable general equilibrium (CGE) model (Aaheim and Rive 2005). GRACE stands for the Global Responses to Anthropogenic Change in the Environment. The model has been applied to studies on climate impact, adaptation, mitigation, and related policy analysis (e.g. Aaheim et al. 2012; e.g. Glomsrød et al. 2013; Liu and Wei 2014; Underdal and Wei 2015).

This version of GRACE covers eight regions: United States, European Union, Japan, Russia, China, India, Brazil, and the Rest of the World. The regional economies include 15 production activities including three agricultural sectors, three manufacturing sectors, three transport sectors, one service sector, and five energy sectors of coal, crude oil, refined oil, gas and electricity. In the electricity sector, we introduce nine technologies to generate electricity. i.e. from coal, gas, oil, hydro, nuclear, biomass, solar, wind, and other renewables. The base year (2011) economy in the model is calibrated around the GTAP v9 database (Badri et al. 2015). The cost structure of electricity generation technologies in the base year (2011) is estimated from Tables 4.1A and 4.2A of OECD/NEA (2010). The business-as-usual (BAU) scenario 2011-2030 roughly follows the regional path of population projected in the medium fertility case of UNPD (2013), and GDP growth and energy consumption as projected in the New Policies Scenario of World Energy Outlook (IEA 2014).

Our study distinguishes the following financial categories as distinct from the general pool of investment finance:

1) Investments dedicated to green solutions
2) Investments avoiding fossil fuel based industries
3) Investments avoiding coal industries

As the divestment movement has been gaining territory, the diversity of pledges has increased. To study the effects of green finance (Green Bonds) and divestment in coal industries we compared the IEA New Policy Scenario (BAU scenario) with a divestment scenario based on the following assumptions (Business as UNusual scenario):

1) Annual labelled Green Bonds issues (non-fossil finance) rise exponentially towards USD 1 trillion in 2030.

2) Future divestment in coal mining and coal power production by large institutional investors and sovereign wealth funds, with annual investment of about USD 5 trillion avoiding coal.
3) Financial flows in 1) and 2) are allocated to regions in proportions similar to the allocation of climate aligned and labelled green bonds.

Results

Our results show that towards 2030 green finance in terms of green bonds and coal divestments shift investments to industries generating more value added and thus increase real GDP. Divestment in coal is the strongest factor behind this development. Higher GDP increases savings and future investments, reinforcing the initial positive effect on GDP. Coal divestments leads to a 2-4% lower rate of return to capital in most regions, but most markedly in China and India (16% and 12%). Coal divestments increases the capital cost of coal industries, with Russia and China facing the highest increase in costs of financing on their coal investments (8% and 7%, respectively). Coal divestment shifts the whole path of coal consumption downwards, reducing consumption by 2.5 per cent in 2030. Coal divestment raises global share of non-fossil electricity from 42 to 46 per cent. Coal divestments decreases accumulated global CO2 emissions towards 2030 with an amount comparable to annual CO2 emissions of EU and Japan combined in a recent year.

Conclusions

The global carbon budget tells the world how much emissions have to be reduced to have a 50 per cent to reach the 2 degrees limit for global warming. Many different policies and initiatives are needed to deal with this challenge, and the divestment movement has initiated substantial efforts by the business community to decouple economic economic growth from carbon emissions.

It is important to keep in mind that our results relates to the effect along a BAU scenario corresponding to the New Policy Scenario of WEO 2014, a scenario that only incorporate already determined climate policies and hence show an increase in global fossil energy use and CO2 emissions. Still, a reduction in emissions as a result of divestment means a cut of emissions during 2015-2030 corresponding to one year of emissions from EU and Japan together. This is far from a trivial result of a campaign that is only in its beginning stage. It is likely to be an underestimate of the results, as divestment is represented as non-investment in coal or fossil in general, but hardly captures the fact that many investors also pledge to increase investments in renewables in addition to or as main commitment to climate change mitigation.

Further, it is noteworthy that GDP is increasing as a result of divestment, in itself a factor that keeps up CO_2 emissions and counters the effect of the divestment. Hence, the carbon intensity is reduced more than the emissions, and higher income is a benefit to many people if distributed fairly.

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