

Carbon Divestment as a Rational Climate Protection Measure?

Florian Habermacher

SIAW, University of St. Gallen
Aurora Energy Research
CESifo Research Network

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Swiss Institute for International Economics
and Applied Economic Research



University of St.Gallen

The views expressed herein are only the author's and not related in any sense to any of the affiliation's views.

- Background Divestment Campaign:
 - Underlying motivation: 'Carbon Bubble'
 - Fears
 - Frying
 - Fuel money preventing climate policies
 - Bubble bursting
 - Immediate aim
 - Fuel divestments (public funds etc.)
- Questions/Analysis
 - Really a Carbon Bubble?
 - Financial analysis
 - Costs to divestors
 - 'Leakage'
 - (Geo)political implications
 - Ethical imperative

Bottom Line

Too much fuel!

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Stocks

- Extracting all traded fuels: incalculable risk, extreme warming

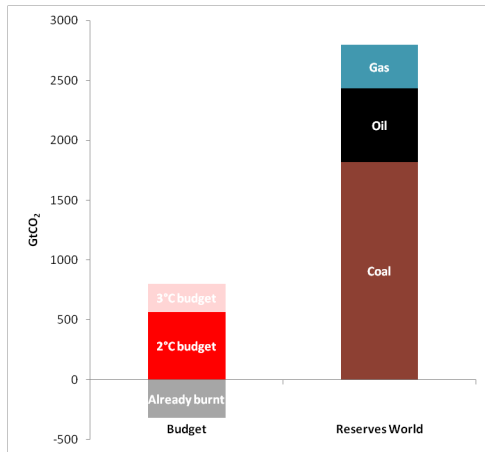
Lobbying

- Rich fuel lobby shapes politics: anti climate policies

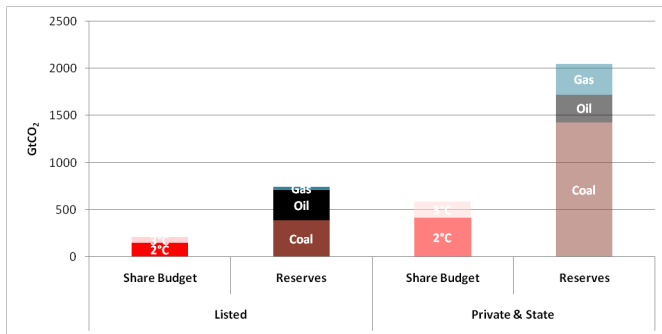
Overvaluation

- Climate policy makes fuels redundant; bubble bursts -> financial turmoil

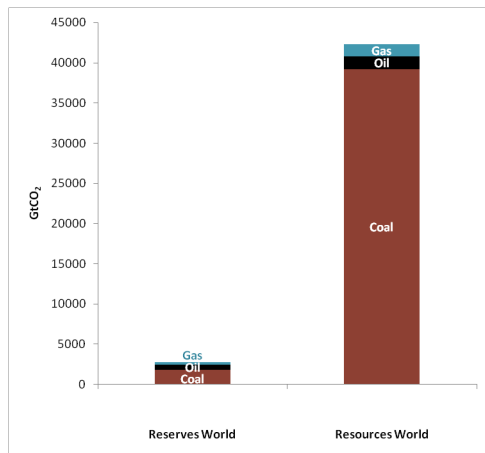
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Carbon Bubble? – Observation

Confirmation

Indeed: 'Too' much fuel!

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...to *savely* burn without any other mitigation measures.

- Questions
 - 1 Too many *valued*?
 - 2 *Overvalued*?

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- Observation: Amounts (valued): Indeed too many to be burned (probably!)
 - Too many valued?
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 - Fuel owners plan to fry us
 - Or ?!

Carbon Bubble?: 1. Too many valued?

Stock valuation with uncertain future:

$$Valuation = \sum_{states} Prob(state) \times Price(state)$$

Prob = probability of *state*

Price = price in *state* (maybe risk adjusted)

Carbon Bubble?: 1. Too many valued?

$$\textit{Valuation} = \sum_{\textit{states}} \textit{Prob}(\textit{state}) \times \textit{Price}(\textit{state})$$

Example

$$\textit{Prob}(\textit{policy}) = 99\%, \textit{Price}(\textit{policy}) = 0$$

$$\textit{Prob}(\textit{nopolicy}) = 1\%, \textit{Price}(\textit{nopolicy}) = 100$$

$$\implies \textit{Valuation} = 1$$

Conclusion

- All resources *should* be valued even if $\textit{Prob}(\textit{nopolicy}) \approx 0$
- Moreover, states that make value larger could be when CCS available or climate change less severe than thought or ...

Carbon Bubble?: 2. Overvalued?

Looming burst and financial crisis?

Pensioneers soon on the street?

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- ② **None*** has calculated 'right' value!

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Third observation: Difficult to calculate and examples show: **might as well be undervalued:**

¹Debt ca. 20-30%. Presumably largely covered by already made investments to current extraction projects and assets other than directly fuel reserves

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BP PLC and Royal Dutch Shell PLC

1. Capitalisation: Ca. \$190 bn each (2010)¹
2. Assets:
 - BP: 76 Gbbl oil + 35 tcf gas + ?
 - Shell: 33 Gbbl oil + 38 tcf gas + ?
3. Conservative prices: \$80/bbl oil, \$6/MMBTU gas
4. Value: 2.×3. = BP \$6.1 tn, Shell \$2.6 tn
5. Say, project costs half of revenues, and cashflows discounted by factor 3 on average.
⇒ BP \$1050 bn and Shell \$477 bn
⇒ Sum >4 times current valuation

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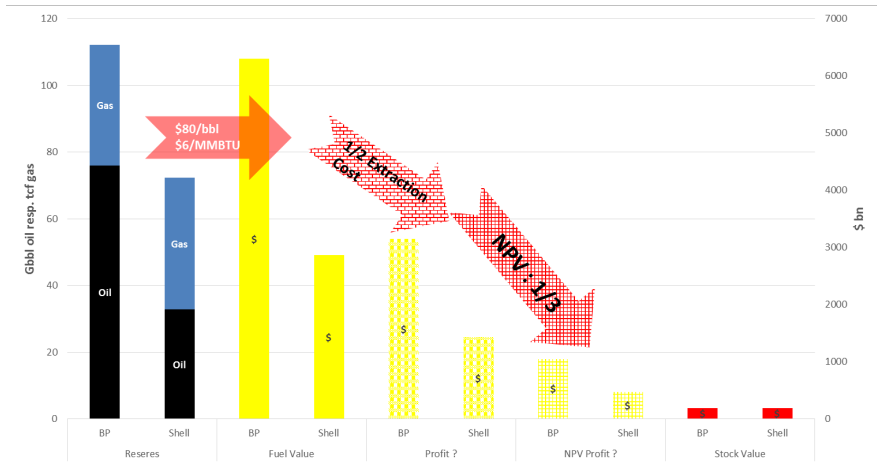
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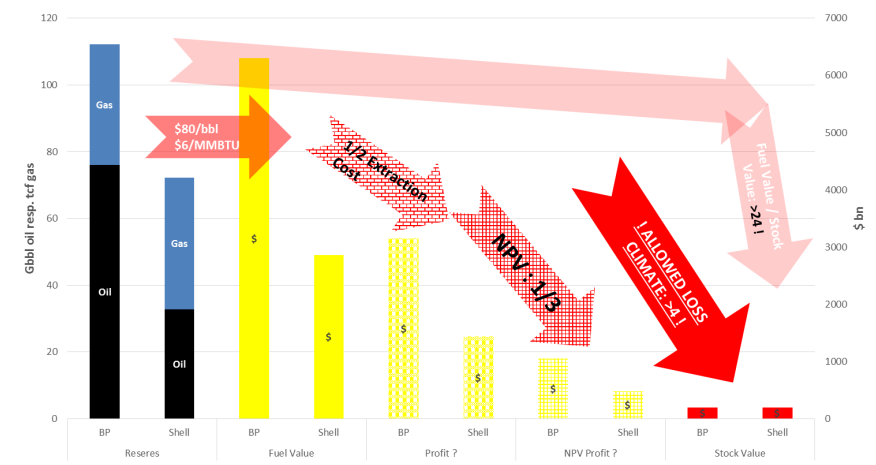
\implies Climate (or climate + costs + delay) could reduce value by factor >4 (>24) to still leave room for there to be undervaluation rather than overvaluation!

This at least acc. to info by carbon bubble theorists

Carbon Bubble?: 2. Overvalued?



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Carbon Bubble?: 3. Asymmetric Risk?

Analogy to financial crisis/too-big-to-fail problem:

- Potential for climate policy to 'expropriate' fuel investors
- Investors as agents: with large risk:
 - **limited liability** for downward risk
 - participate fully in gains

⇒ Excessive risk taking?

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Reality: (glob.) climate policy gradual at best

⇒ **Hardly specific limited liability *specific to the sector.***

Financial markets:

Tradeoff between

- Expected return
- Risk (diversification)

“Biggest eggs, but not if they’re all in the same basket”

Financial Divestment Model

Financial markets: Return vs. Risk

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Bottom line from analysis in paper

- Even if return in sector increases as some divest, offsetting $<100\%$
- Cost to divestor >0 (but marginal divestment at zero cost)

Note: if risk concern less relevant, not only global effect, also divestor's cost small \Rightarrow no counterargument against divestment

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- Slight reduction of global investments achievable at marginal-only cost
- Case for larger reduction (full unilateral divestment) ambiguous

“Left to our own devices, citizens might decide to regulate carbon and stop short of the brink; according to a recent poll, nearly two-thirds of Americans would back an international agreement that cut carbon emissions 90 percent by 2050. But we aren’t left to our own devices. The Koch brothers, for instance, have a combined wealth of \$50 billion [..]. They’ve made most of their money in hydrocarbons, they know any system to regulate carbon would cut those profits, and they reportedly plan to lavish as much as \$200 million on this year’s [US presidential] elections.”

Bill McKibben, 2012

McKibben has a point.

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But should we divest?

Key observations

- ① Even case of 'successful' South Africa Apartheid divestment campaign suggests: many indifferent investors will replace
- ② Analytical model shows: divestment at marginal cost \implies non-marginal benefit for others
- ③ Central Threat to Effective Climate Protection: Nations' Freeriding, so **global accord needed, else simply relocation of consumption**

(Geo)political viewpoint

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Pressing question thus

- Better to keep voice within fuel firm as conscious stakeholder ?!

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Note

- Many non-European countries currently laggards in global climate policy negotiations

Evidence points in one direction

Worst thing to leave even more of fuel rents to remainder of world, where motivation to participate in global agreements small and where private firms even more influence on policy than in western world !

Long-Run View: depletion & fuel demand

Additional aspect of global effects of unilateral divestment not fully captured above.

- Fossil fuels exhaustible
- Demand rather inelastic

Analysing effects of divestment on fuels prospectively exploited in different phases from now onwards until the end of the fuel era, suggests that, coupled with the inelasticity of demand, the exhaustible nature of the supplied implies that **more than an overall reduction** of fuels consumption, **divestment could mainly reduce the profits** from their sales.

There is also a **Green Paradox effect** when the divestment campaign gains traction slowly over time, implying that it could aggravate the climate problem by accelerating fuel sales rather than hampering them.

An Ethical Imperative?

“Slavery was once an investment issue”

Harvard Faculty For Divestment, 2014

An Ethical Imperative?

Would you invest in a ruthless drug-dealing gang in a rogue state where such unmoral activities would be tolerated ?!

Would you do it if anyways many others would invest, so that your funds withholding hardly noticeable effect ?!

Climate change can be killing many persons in future. Persons

- too poor to themselves be guilty for bulk of emissions, and at same time
- without realistic hope for personal compensation.

So Harvard Faculty's (imperfect) analogy has a point.

An Ethical Imperative?

So Harvard Faculty's (imperfect) analogy has a point.

Even if some fuels necessary or at least beneficial to society so far, we may be overusing so that 'last units' mainly detrimental – and as we said killing.

So std cost-benefit analysis may not be considered enlightening

BUT: What if alternative ways exist to save more fuel (emissions) for the same buck ?!

Alternatives exist. E.g. Harstad “Buy Coal!” shows: INVESTING in marginal fuel deposits to keep them underground could be more efficient.
=> related to the “shareholder voice” argument against divestment.

Thanks

Thanks for your attention.

Comments welcome at florian.habermacher@unisg.ch