



Fossil fuel shares in the GPF-G

A tale of two discussons

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A tale of two discussions

Arguments for divestment of fossil shares

- Diversification
 - Oil and gas exposure
 - National wealth perspective
- Climate concerns
 - Asset management guided by climate policies



Divestment for diversification

White paper response: NO

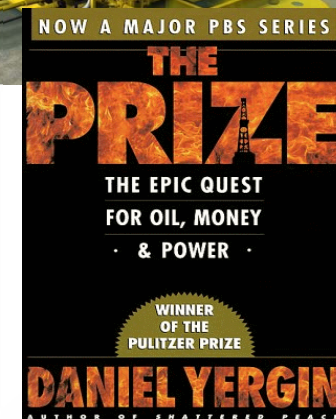
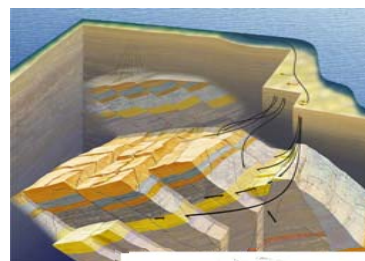
- Three arguments against
 - Diversification by default (depletion)
 - Oil price sensitivity of oil shares is limited
 - Oil shares are beneficial to GPF diversification



Oil price sensitivity of oil shares

Not exactly like other shares

- Oil shares are odd
- Resources are scarce
- Risks are dissimilar



Oil price sensitivity of oil shares

Oil price sensitivity in the area of 0.2-0.4

	S/L/D	S/L/E	S/H/D	S/H/E	B/L/D	B/L/E	B/H/D	B/H/E
Const	0.005 (1.46)	0.007 (1.62)	0.006 (1.44)	0.010** (2.46)	0.008** (2.39)	0.007** (1.99)	0.008** (2.845)	0.004 (1.06)
r_M	0.853*** (11.29)	0.810*** (9.47)	0.799*** (9.70)	0.707*** (8.49)	0.676*** (9.49)	0.829*** (10.78)	0.840*** (10.41)	0.823*** (11.54)
r_{SMB}	1.036*** (16.60)	1.075*** (15.20)	1.039*** (15.26)	1.040*** (15.11)	0.014 (0.24)	0.065 (1.02)	0.101 (1.51)	0.011 (0.18)
r_{HML}	-0.526*** (-5.99)	-0.788*** (-7.93)	0.648*** (6.77)	0.981*** (10.14)	-0.131 (-1.58)	-0.241*** (-2.70)	0.323*** (3.44)	0.363*** (4.39)
r_{EMD}	-0.616*** (-7.16)	0.677*** (6.95)	-0.946*** (-10.28)	0.861*** (9.09)	-0.177** (-1.237)	0.093 (1.06)	-0.285*** (-2.97)	0.346*** (4.26)
r_P	0.211*** (4.98)	0.252*** (5.26)	0.216*** (4.69)	0.192*** (4.13)	0.220*** (5.52)	0.188*** (4.38)	0.224*** (4.96)	0.238*** (5.98)
R^2 (adj)	0.706	0.712	0.702	0.752	0.356	0.386	0.432	0.502
N	240	240	240	240	240	240	240	240

$$r_{it} = \alpha_i + \beta_{iM} r_{Mt} + \beta_{iSMB} r_{SMBt} + \beta_{iHML} r_{HMLt} + \beta_{iEMD} r_{EMDt} + \beta_{iP} r_{Pt} + \varepsilon_{it}$$

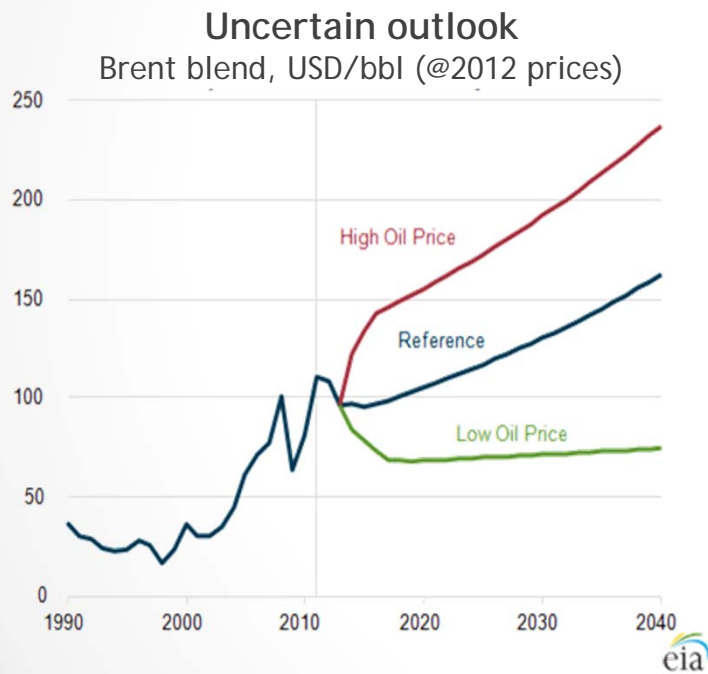
OLS estimates of augmented Fama-French model based on monthly data from 114 oil and gas companies over the period 1993-2011. t-values in brackets;

*) Significant at 90, **) 95 and ***) 99 per cent confidence level, respectively.



Oil shares beneficial to GPF diversification

Questions could be raised



- Historical data
- Structural break
- Price and policies

The elephant in the ground

A broader view is required

- Oil exposure of national wealth
- Oil exposure of national income
- Energy and climate policies



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OxCarre Research Paper 129

**The Elephant in the Ground:
Managing Oil and Sovereign Wealth**

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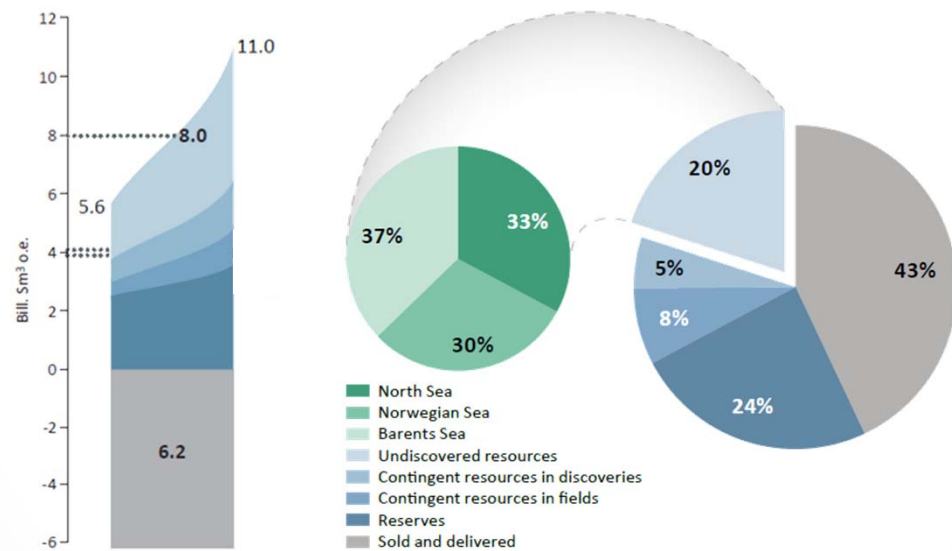
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The elephant in the ground

NCS resource estimates and uncertainty intervals



~50 per cent of the volumes remain in the ground



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Asset management and climate policies

Political pressures are building - at home and abroad



- Concerns
 - Expected returns and risk
 - Effectiveness and efficiency
 - Evaluation and control



Asset management and climate policies

Some thoughts on effectiveness and efficiency

- Active vs passive strategies
 - Green venture investments
- Carbon footprint reporting
 - Development of data
 - Get the incentives right
 - Challenges: reporting and restructuring
- Total restraint on climate risk
 - Let NBIM work out implications
 - Industry-neutral framework



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Fossil fuel shares in the GPF-G

To divest or not divest...



- Divest for the right reasons
- Divestiture as climate policy
 - Safeguard effectiveness and efficiency
 - Protect returns and risk
 - Get incentives right



Thank you for your attention

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