Neutrality features of the Norwegian Petroleum Tax Act

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Despite recent changes in the Norwegian Petroleum Tax Act, we find that tax allowances for petroleum companies are too favourable from a theoretical point of view, and that this gives too strong investment incentives offshore. This conclusion is turned around, however, if companies do not treat tax allowances as risk free and discount their net cash flow with a discount rate higher than 12 %. Analysing the effect of tax position, we find that the system is neutral in theory, but favouring companies in tax position when risky and risk free cash flows are discounted using one single discount rate.

An Official Norwegian Report published in 2000 (NOU 2000:18) found distortive aspects in the Norwegian Petroleum Tax Act which where detrimental to optimal resource allocation on the Norwegian Continental Shelf. Effective tax rates on marginal investments offshore were found to be below the marginal tax rate for capital investments onshore. Fiscal barriers to entry were also identified due to beneficial treatment of companies in tax position. Consequences emphasized in the report were sub-optimal capital intensity offshore and too little diversity amongst the companies operating on the Norwegian Continental Shelf.

In the aftermath of the report, several changes have been made to the Norwegian Petroleum Tax Act and the regulatory system. However, despite recommendations in NOU 2000:18 to align the tax regime with principles derived from theory, the Norwegian Petroleum Tax Act still differs from theory when ensuring that only the *resource rent* is subject to special tax.

Due to the controversy with regards to petroleum extraction and climate change, and the importance of the oil industry in the Norwegian economy, the effect of the tax regime on total welfare is disputed. On one side, the industry is occasionally calling for eased fiscal burden due to falling profitability. On the other hand environmentalists claim that the industry is subsidized. In the middle, academics point to the tax system’s sensitivity to the assumptions made and discount rates applied.

Disparity is understandable as no single objective function describes investment decisions for companies under uncertainty, and actual company behaviour may contradict the assumptions made in the design of the Norwegian Petroleum Tax Act. It follows that a theoretical neutral system based on the wrong assumptions is likely to be distortive. According to theory and systemic features in the Norwegian Petroleum Tax Act, companies should value tax allowances as risk free cash flows on an after tax basis. This is based on certainty regarding reimbursement of future tax allowances. However, production and exploration companies on the Norwegian Continental Shelf may not concur. The disparity can be explained by either wrong assumptions about company behaviour under uncertainty from the authorities' side or that the companies do not differentiate between risky and risk free cash flows. The neutrality properties of the Norwegian Petroleum Tax Act are therefore viewed differently by the State and the industry.

In light of recent changes in the Norwegian Petroleum Tax Act, the objective of our master thesis has been to analyse if *the current* offshore fiscal system is neutral. More precisely we have investigated whether the Norwegian Petroleum Tax Act is neutral to investment decisions and treatment of companies with respect to tax position. This can be measured by whether the internal rate of return (IRR) for offshore investments is affected by the tax system and dependent on tax position. By assuming tax allowances to be either certain or uncertain, the difference between theoretical and perceived neutrality and the importance of correct valuation of tax allowances is illustrated. Our thesis therefore objectively contribute to the public debate by attempting to illustrate how neutrality is perceived by different stakeholders, thus providing insight into what degree the Norwegian Petroleum Tax Act can be said to be neutral.

When analysing a hypothetical equity based capital investment, employing the assumptions made by the authorities, our findings suggest that the investment incentive offshore prevails, consistent with the Tax Commission's findings in 2000. The reason is still too favourable tax allowances – reducing the ordinary tax base on marginal projects. Consequently, normal returns on marginal investments are taxed at a lower rate than the alternative onshore. This will in turn lead to capital accumulation offshore through overinvestments, detrimental to efficient resource allocation in the Norwegian economy.

When the analysis is done by employing one single discount rate on all net cash flows, thus neglecting to differentiate between risky and risk free cash flows, we find that neutrality is dependent on the employed discount rate. For rates below 11.7 percent, the Norwegian Petroleum Tax Act provides investment incentives offshore and for rates above, the onshore tax system is favourable. This is not consistent with recent findings by Diderik Lund, who published an article in *Samfunnsøkonomen* (4/2012) in response to a study by Pöyry Management Consulting claiming that the industry was subsidized. Lund uses different assumptions regarding when depreciation of capital expenditure is allowed to commence in the two tax regimes, and finds the threshold discount rate to be 7 percent after ordinary tax. This further illustrates that analysing neutrality features of the Norwegian Petroleum Tax Act is sensitive to the assumptions made. Our thesis therefore contains sensitivity analyses of key variables. The implications of our findings are dependent on what actual discount rates investment decisions on the Norwegian Continental Shelf are based on. This is a topic that we do not cover.

Assuming tax allowances as risk free, we find the treatment of companies with respect to tax position to be neutral, while the industry – not differentiating between risky and risk free cash flows – is likely to perceive the system as distortive, favouring companies in tax position. Fiscal treatment of exploration investments is found to be neutral irrespective of assumptions made. The reason is that the tax value of exploration investments is immediately reimbursed after a revision in 2005, thus resembling a *Brown tax* element in the Norwegian Petroleum Tax Act. Descriptive statistics suggests that the diversity of companies operating on the shelf has increased after this policy change, but the coherence to lower fiscal barrier to entry is not empirically tested.

Our main finding is that the problems described in the official report in 2000 still prevails with respect to the investment incentive offshore from a theoretical point of view. The main reason is still too favourable tax allowances. However, this can be *perceived* differently by the industry, depending on the discount rate employed. If it is above 11.7% after ordinary tax, the two points of view will have opposite conclusions.

Point of view / Neutrality	Industry (Employing one single discount rate on the net cash flow)	State (Discounting tax allowances by the risk free rate of return)
Investment Decision	Sensitive to the discount rate employed (11,7 %)	Investment incentive offshore
Tax Position	PTA favours companies in tax position	Tax position of no relevance