

## **Optimal adaptations to thin-capitalisation rules: The case of the Norwegian petroleum sector**

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*The high marginal tax rate of 78 per cent in the Norwegian petroleum sector gives petroleum companies a strong incentive to finance themselves by both external and internal debt. Because the interest expense on debt is tax deductible, extensive use of debt, also referred to as thin capitalisation, reduces the petroleum companies' taxable income substantially. As the tax from the petroleum sector accounts for over half of the Norwegian State's total revenue from the sector, different so-called thin-capitalisation rules have over time been put in place to reduce the problem. In spite of this, empirical observations of selected companies show that thin capitalisation is indeed prevalent in the Norwegian petroleum sector, and that the average debt-to-asset ratios have increased substantially since 1992, hitting 90 per cent in 2007. Despite the different thin-capitalisation rules that are in place, theoretical modelling confirms that petroleum companies have had, and continue to have, incentives to be thinly capitalised.*

In July 2013, OECD published a report named "Action Plan on Base Erosion and Profit Shifting". The report states that the globalisation of the national economies and markets is increasing, leading to a larger cross-country integration of firms. This global integration enables multinationals to exploit tax differentials between countries in order to shift profits from high-tax countries to low-tax countries. Together with the increasing sophistication of tax planners in identifying and exploiting legal arbitrage opportunities, this development has enabled multinationals to greatly minimise their tax burden. This is what OECD refers to as *Base Erosion and Profit Shifting* (BEPS), which harms stakeholders like national governments due to the reduction in corporate tax income.

There are two main strategies that multinationals utilise to shift profits. The first is related to transfer pricing where multinationals under- and over-invoice intra-firm trade. The second strategy, which is borrowing and lending among related affiliates, is referred to as internal debt shifting. By loading affiliates located in high-tax countries with debt from affiliates in low-tax countries, a multinational

can reduce its overall tax payments, and thereby increase its total profits. The mechanism at play in this strategy is that the interest expense charged on the internal debt is deducted from the high-tax affiliates' tax base, transferred to the internal bank and taxed at a lower tax rate. Because the tax deduction in the high-tax country is larger than the tax payment in the internal bank, this results in a net gain for a multinational (i.e., a tax arbitrage).

In the Norwegian petroleum sector, thin capitalisation is a particularly important issue due to the high marginal tax rate of 78 per cent, which incentivises both the use of internal as well as external debt. As the tax from the petroleum sector is a significant source of income for the Norwegian State, different thin-capitalisation rules have over time been implemented in order to curb excessive debt financing.

There have been three different rule regimes: 1994, 2002 and 2007. The 1994 regime introduced the first thin-capitalisation rule, which reduced the net financial costs allocated offshore if the total debt-to-asset ratio in a petroleum company exceeded 80 per cent. The regime in 2002 further introduced an upwards adjustment rule that increased net financial costs allocated offshore if the total debt-to-asset ratio was below 80 per cent. The 2007 regime combined the reduction and increase mechanisms of the previous regimes, but had a threshold defined over interest-bearing debt relative to total capital at 50 per cent. Additionally, the 2007 regime aimed to remove loopholes in the previous regimes, and the rules were thus harder to circumvent.

Using theoretical modelling, it can be shown that under the 1994 regime, all petroleum companies would have a debt-to-asset ratio of at least 80 per cent, consisting of both external and internal debt. This result is primarily driven by the large tax-arbitrage profit enabled by the use of internal debt. The companies' optimal mix of external and internal debt is reached when the marginal cost of external debt is equal to the marginal tax payment in the internal bank. Interestingly, this also implies that the external debt-to-asset ratio is in fact independent of the tax rate in the borrowing affiliate.

With the introduction of the upwards adjustment in 2002, petroleum companies had several optimal adaptations. Since the upwards adjustment mechanism implied that companies would get interest deduction *as if* they had an 80 per cent debt-to-asset ratio, it was sometimes optimal to have a debt-to-asset ratio below the threshold of 80 per cent without any internal debt. Only if the additional debt costs incurred by increasing the debt-to-asset ratio to the threshold were larger than the net gain of exceeding it, would companies exceed the threshold. They would then have the same capital structure as they did under the 1994 regime.

The optimal capital structure under the current 2007 regime is qualitatively equal to what it was under the 2002 regime. However, since the 2007 regime's threshold is defined over interest-bearing debt while the 2002 regime targeted total debt, the quantitative results under the two regimes differ.

Empirical observations of the total debt-to-asset ratio for selected petroleum companies between 1992 and 2011 coincide largely with what the theoretical model predicts under the 1994 regime. Some observations also coincide with theoretical predictions for the 2002 regime, stating that the debt-to-asset ratio should be unchanged or reduced compared to the previous regime. However, since several companies increased their debt-to-asset ratio after 2002, there are other debt-incentivising mechanisms in play that have not yet been considered.

In 2007, under the current regime, the companies' total debt-to-asset ratio converges to 90 per cent while the interest-bearing debt for the sector in total increases from around 80 BNOK in 2006 to some 150 BNOK in 2007. Up to 2009, internal debt made up around 70 per cent of total interest-bearing debt in the sector, while this figure rose to over 90 per cent in 2009. Based on theoretical results, this is largely believed to be caused by the increase in interest rates following the financial crisis in 2008, leading to an increase in external debt costs.

In 2011, the total interest-bearing debt in the sector amounted to some 225 BNOK with over 90 per cent being internal debt. Thin capitalisation in the Norwegian petroleum sector is therefore as relevant as ever, and an issue that should be worthy of more attention from economists.