

Oil project selection by metrics

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(1) Overview

The recent fall in the oil price has led to extensive capital rationing, and thus given rise to a renewed focus on parameters for project selection that supplement net present value (NPV). In the financial crisis period with capital constraints issues the oil industry seemed to have a high focus on the Net Present Value Index. The metric most often referred to now, with the uncertainty in the direction of the level of future oil prices, seems to be the breakeven price of the project. Management and professionals in the oil and gas industry as well as industry analyst seem to be very concerned about what additional criteria (in addition to NPV) other companies are applying to their decision making. Our findings indicate that they may relax their concern about selected criteria since the different supplement criteria provide very similar rankings.

In economic theory when an investment regime with constraints is introduced the correct economic solution is to apply a portfolio model to choose the combination of projects within the opportunity set that has the highest overall NPV. This is often simplified in order to achieve decentralized evaluation in organizations that undertake investment decisions on a daily basis and often also in different countries with different fiscal regimes, by looking at key metrics like the Internal Rate of Return (IRR), the Net Present Value Index (NPVI) and the Break Even Price (BEP) of the projects. The reasoning behind this is that formal optimization of the project portfolio can only be undertaken at the highest corporate level and thus the organization needs simplified metrics for testing project profitability. It also functions as financial targets for the organization and creates discipline with a reduced number of projects being presented to management for decisions.

(2) Methods

We examine the different investment metrics of a portfolio of oil projects and we introduce a new metric, referred to as the complete net present value index, which improves the traditional net present value index by including operating expenditure and by treating taxes in a consistent manner.

(3) Results

The project metrics analysis shows that the overall grouping of the projects is the same with the three supplementary metrics. The highest ranked projects are the same for the 13 first projects, with individual order ranking also the same. This also applies to the 6 worst projects. Projects 14 to 21 are the same for the three metric rankings but their individual ranking differ somewhat. The main difference in individual project ranking is between the IRR ranking and the other metric rankings. The company focus on robustness related to oil price gives particular attention to break-even price and

cost optimisation. Projects that are optimized and sanctioned may have a very high return with realisation of an expected price scenario.

(4) Conclusions

It is difficult to say what ranking criteria a company chooses to use and most likely it is used alongside extensive portfolio aggregation on the corporate level in order to examine other parameters like results, return on average capital employed (RoACE) and future investment commitments given variations in future price scenarios. The results of the metrics analysis are that the overall grouping of the projects is the same with the four metrics. The highest ranked projects are the same as are the worst projects. It is for the middle projects that the individual ranking differ somewhat between the IRR ranking and the other three metric rankings. The high similarity of ranking results between the three metrics; the breakeven price, the NPV index and the NPV/total after tax cost is generally due to the relative profitability of the projects. The similarity in ranking results is here also further strengthened by the fact that they are subject to the same fiscal regime and also the simplified assumption on field investment and production profiles.

Management and professionals in the oil and gas industry as well as industry analyst seem to be very concerned about what supplement criteria other companies are applying to their decision making. Our findings indicate that they may relax their concern about what criteria is used since the different criteria provide very similar rankings. For a company to use project metrics to examine likelihood of project sanction decisions in licenses with multiple owners would be ill advised, other than to say something about overall grouping. For this purpose, any of the metrics will suffice.

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