Applying Economic Lessons from Unconventional Plays Back to Conventional Projects

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The traditional metric for capital efficiency goes by various names (P/I, DPI, PVI), but it usually involves dividing net present value (NPV) by the present value of the pre-tax capital spend (PV(Investment)). When unconventional resources began to draw attention some years ago, an economic paradox became apparent. When measured by P/I, unconventional plays almost always look terrible. And yet, many companies pursuing these plays were clearly making money and getting a respectable return on their investment. This wasn't the first instance of good projects rating poorly under certain metrics; projects with very long time horizons (e.g., infrastructure projects, LNG plants, etc.) often do not measure up well under P/I, largely because NPV undervalues long-term projects. With unconventional projects, however, the problem is a combination of the long time horizon (often >40 years) reducing NPV, and the fact that heavy capital expenses continue throughout project life as hundreds of wells are drilled, thereby increasing the P/I denominator.

So how were companies making money? Quite simply, the projects become self-funding after a few years. Even though PV(Investment) is very large, only a small percentage of the total capital must be provided out-of-pocket by the operator. Many companies found that NPV/PV(Max Cash Out), where "Max Cash Out" is the maximum cumulative negative after-tax cash flow, is a much more useful measure of capital efficiency for unconventional resources.

This paper argues that the revised version of the P/I metric - NPV/PV(Max Cash Out) - is a more appropriate capital efficiency metric for all projects, conventional or unconventional. In the traditional P/I, PV(Investment) is based on the pre-tax capital spend profile. This drastically underestimates the capital efficiency not only of unconventional projects, but also of projects in fiscal regimes with a high tax rate and generous tax deductions for investment, coupled with ring fences that allow for immediate realization of those deductions against tax paid on current production. NPV/PV(Max Cash Out) allows for a fair comparison between these projects and ones that are in fiscal regimes in which tax deductions cannot be taken until project first oil.

Capital efficiency metrics should give an idea of how much value can be created per current dollar of capital resources invested. NPV/PV(Max Cash Out) measures this far better than does the traditional P/I.