

Agenda

- Evaluation transactions economically
 - DCF: issues to consider
 - Oil/gas price
 - Discount rate
 - Economic metrics
 - Tax and ring fence optimisation
 - Value per barrel
- Choosing the right fiscal regime for your investment

Evaluating Transactions: DCF

Discounted Cashflow Techniques (DCF)

- Solve the investor net cashflow equation for each point forward accounting period of the project:

Investor Net Cashflow = Revenue – Costs – Government Take (Taxes)

- Discount the annual net cashflows to determine their present values, recognising the time value of money:

$$M_o = M_t / (1 + i)^t$$

Where M_o is the present value of the cashflow, M_t is the future, nominal cashflow and i is the company discount rate

- Sum the discounted net cashflows (to give the net present value (NPV))



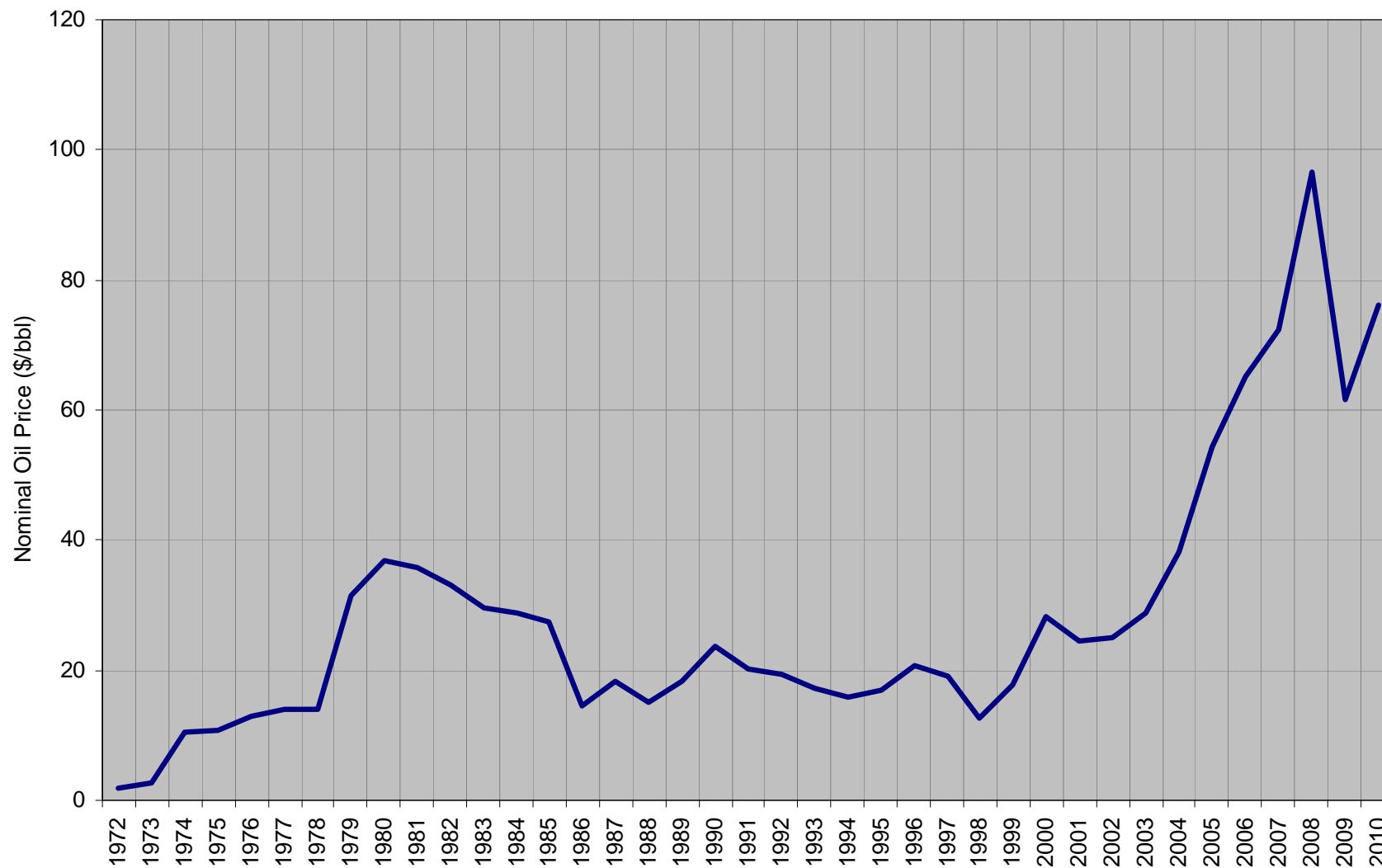
Evaluating Transactions: DCF

- Decision rule
 - Go ahead with the transaction if the NPV is greater than zero at the company's discount rate including the cost of the acquisition

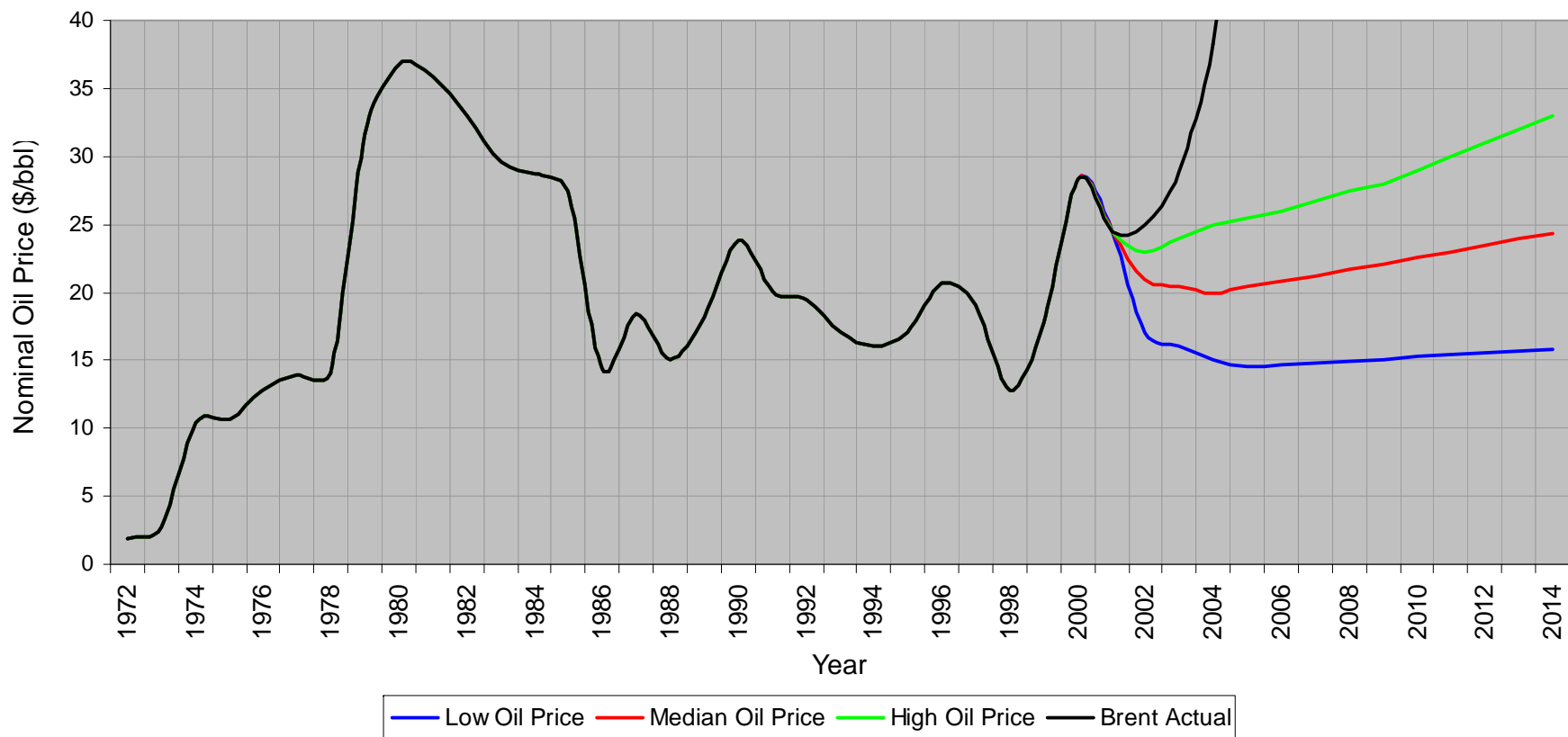
- Issues to manage:
 - What forward oil or gas price should we use?
 - What should the discount rate be and should we adjust for risk?
 - What economic metrics are appropriate?
 - Is the model accurate enough and capturing the company's existing position?



Nominal Oil Price History (Annual Average: 1972 to 2010)

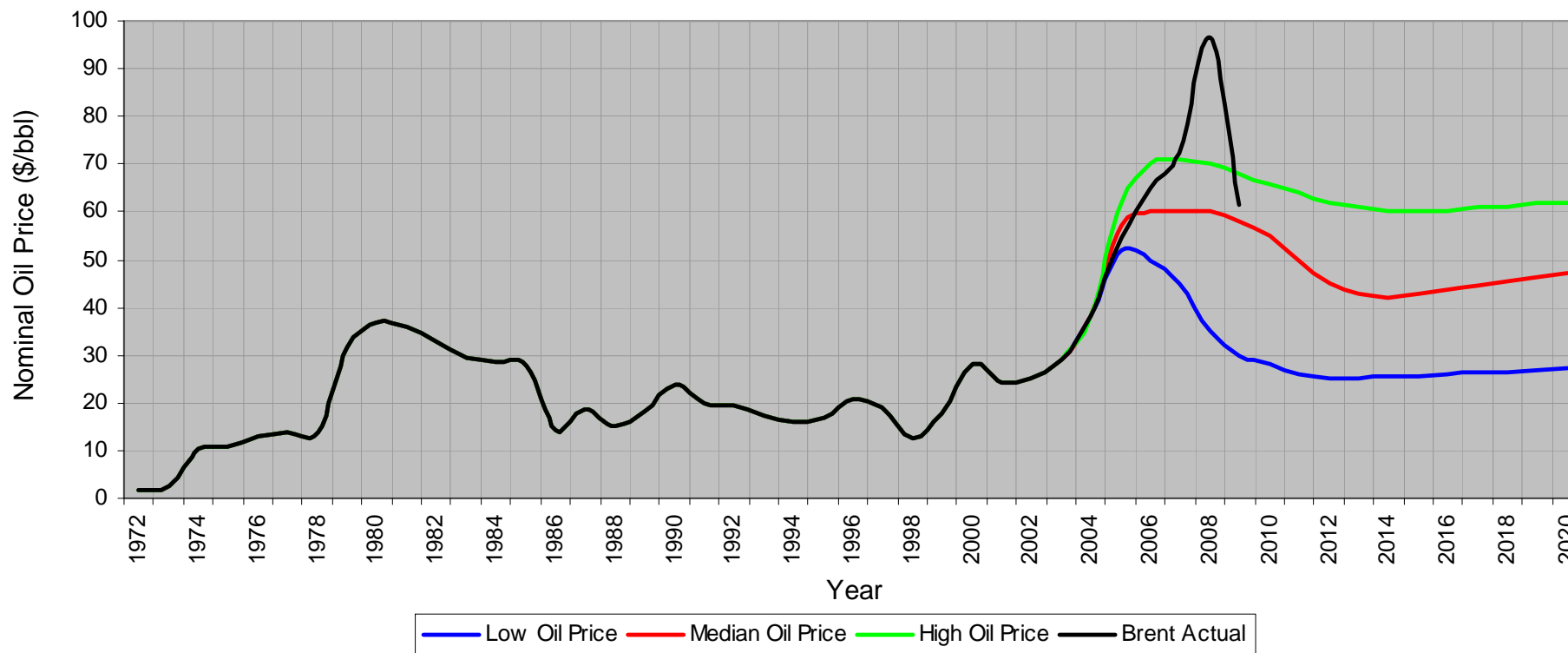


Nominal Oil Prices – Typical ‘Forecast’ in 2001





Nominal Oil Prices – Example ‘Forecast’ in Late 2005





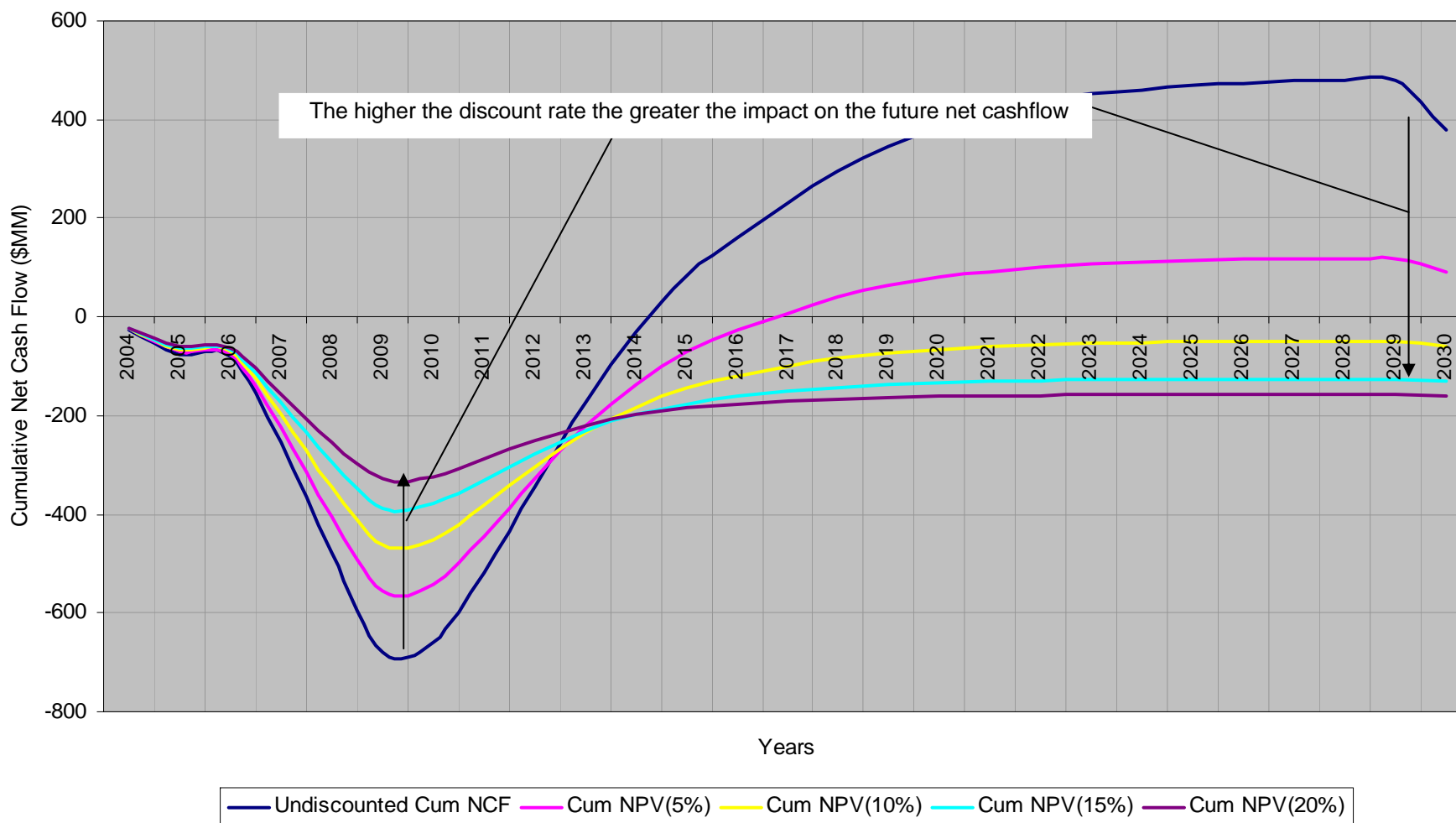
What Discount Rate Should We Use?

- Weighted average of the cost of the equity and debt of the company, given by the formula:

$$WACC = \{Cost\ of\ Debt * \%Debt + Cost\ of\ Equity * \%Equity\}$$

- Where WACC = weighted average cost of capital = discount rate
 - Cost of equity derived from the capital asset pricing model (CAPM), which includes:
 - Market risk
 - Company specific risk (Beta)
-
- Why does getting the discount rate right matter?

Cumulative Net Cashflow & Discounting vs. Time



What Discount Rate Should We Use?

- Gain a competitive advantage by optimising your company capital structure in order to reduce your cost of capital (discount rate).
- Debt is cheaper than equity.
 - Interest on debt is generally tax deductible.
 - Debt carries a higher risk to company; interest must be paid but equity dividends need not be.
- Equity is more expensive; equity holders require higher returns to compensate for increased risk in the event of financial failure.
- Ensure the discount rate used reflects a post-acquisition capital structure.
 - E.g. maybe taking on additional debt to finance the deal.
- Lower discount rate means that your company may see value in an asset that another company with a higher discount rate does not.
 - Transaction driver.



What Discount Rate Should We Use?

- The discount rate is a powerful lever on the overall NPV
- In an acquisition analysis assess the transaction from three points of view:
 - What do we think the asset is worth? (use cost of capital)
 - What do we think the competition thinks it is worth (use generic 10%)
 - What could we reasonably expect to bid against a keen bidder (drop the discount rate)
- We may be competing against companies (particularly NOC's) who have advantageous financing and overriding strategic objectives



Adjusting the Discount Rate for Risk

- In addition to 'technical risks' we may want to adjust the discount rate for 'non technical risks' to ensure our capital does not flow into high risk countries using a risk matrix to include:
 - Political risk: frequency of political change, threat of war, bureaucracy
 - Commercial risk: expropriation of assets, price controls, production regulation
 - Financial risk: change of tax regime, macro economic volatility (currency, inflation)
 - Environmental risk: new legislation

Adjusting the Discount Rate for Risk

For

- The riskier the investment the higher the required return
- Investments should be ranked on a consistent basis that includes the same level of uncertainty
- Higher risk projects are therefore required to be more robust
- The approach is 'auditable'

Against

- WACC already includes risk element with CAPM (the Beta factor)
- Risk adjusted WACC will yield a 'lower risk' portfolio with lower return
- Opportunities will be missed due to the higher ROR target
- The assessment is subjective



What Economic Metrics are Appropriate?

NPV

- 'King of economic metrics'
- If you accept transactions that have a value greater than zero at the company's cost of capital then you will make money

Internal Rate of Return (IRR)

- The discount rate that gives an NPV zero
- Popular metric, easy to compare between projects
- Generally hurdle rates are set that must be passed in order to get the proposal onto the CEO's desk

- IRR...use with caution!

Issues with IRR

- If the cashflows change sign frequently then more than one answer can be generated.
- You need a negative (investment) cashflow at the beginning for it to generate any answer at all.
- It assumes project cashflows are re-invested at the IRR and is therefore not a statement of the annual profitability of a project unless this is so. (Likely that funds generated from the project will be re-invested at a different rate.)
- It is sensitive to the type of project.
 - If you are comparing a low capex high opex project (e.g. field development using a leased FPSO) then it will invariably have a higher IRR than a high capex, low opex project (e.g. platform development). The latter may well have a higher NPV
- IRR tends to favour shorter projects.

Issues with IRR

- Should not be used as a ranking tool by itself because of these shortcomings.
- If NPV and IRR give conflicting results then NPV should prevail.
- NPV is more versatile than IRR and can be adopted in unit metrics (NPV/BOE, NPV/unit investment) ...



Profitability Metrics

- 'How many bangs for your buck'.
- DPIR – Discounted Profit to Investment Ratio (NPV/discounted investment)
 - Arguably the best metric to use when capital is constrained to ensure your money is spent in the most efficient way. For example early 2009 when budgets were being cut following credit crunch and oil price drop (to \$35/bbl).
- Hurdle DPIR may be set by company to set the acquisition price, which may vary depending on reserves classification.
 - E.g. 0.1 for P90
 - 0.2 for P50
 - 0.3 for P10
 - 0.5 for exploration prospects

What Are you Buying?

- The valuation model will include:
 - Point forward cashflows of the asset(s) being valued for acquisition from the valuation date (including project financing).
 - Working capital balances existing on the valuation date.

- Are additional tax allowances included in the deal?(e.g. plant and machinery). If so, they need to be included in the valuation model.
- Are there any UK Petroleum Revenue Tax (PRT) unclaimed expenditure or oil allowances?
 - Research from dataroom and include in valuation model
- In a Production Sharing Contract (PSC) what are the cost recovery balances on the sunk exploration and development costs?
 - Research from dataroom and include in valuation model.
- Are the working capital balances significant e.g. unpaid cash calls?
 - Due diligence.

Tax and Ring Fence Optimisation

How does the potential acquisition sit with your existing portfolio fiscally?

- Can you take immediate advantage of the acquisition of tax losses by offsetting them against existing ring fence taxable income?
 - If so, then you are able to bid more competitively against a company that has no existing taxable income
- What are the tax implications of the acquisition cost (is it deductible?)
- In a PSC, do you have any ring fence cost recovery synergy
 - E.g. cost recover the acquisition cashflows against existing cost oil pool (or vice versa)
 - Potentially able to bid more competitively for the asset against companies that do not have ring fence synergy

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Valuation of an Asset on a per Barrel Basis

- NPV/BOE
- Common method to ascertain what we 'should be paying' based on published data on recent deals

Issues with per Barrel Valuation Method

Good tool to benchmark own valuation model. But...

- Be clear at what reserve level the published data is based on – P90 or P50?
- Are you comparing ‘apples with apples’?
 - Costs of development may be significantly different for a similar reserves base e.g. onshore vs. ‘stranded’ deepwater
 - Time taken to develop a similar reserves base may be significantly different e.g. simple tieback to own infrastructure vs. complex commercial deal involving multi-partner groups and field tax issues (e.g. Brae Fields)
 - Are the shapes of the profiles similar for the two deals that you are comparing e.g. 30MMBO field that can be 90% produced in five years will have significantly more value than one that requires ten years
 - Ensure you’re benchmarking within the same fiscal regime
 - Wide range of government take percentages across worldwide fiscal systems renders this valuation model meaningless



Issues with per Barrel Valuation Method

Summary:

- Loosely worded per barrel comments can be misleading (and dangerous)

“Companies are paying around \$15/bbl for reserves in the ground at the moment”

- What does this mean?

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- **Choosing the right fiscal regime for your investment**



Choosing the Right Fiscal Regime for your Acquisition

- If you're looking to spend money on a new acquisition then hydrocarbon potential will be of primary importance

- Also high on the priority list will be:
 - Political stability.
 - Asset nationalisation (Bolivia, Venezuela, Russia)
 - Contract recognition by government (Kurdistan, Sudan)
 - Contract rescinded by incoming government (Oranto in Sierra Leone and Aker in Ghana)
 - Ensure the risk/reward payoff is right and that the portfolio as a whole is balanced
 - Fiscal stability.
 - When we make an investment decision now how sure are we that the fiscal terms will be more or less the same in 10 years time, 5 years time or even 1 year's time
 - Windfall taxes (UK, Pakistan, Kenya, Ecuador, Russia, Argentina etc)
 - PSC contract changes (Nigeria (2010), Mauritania (2006))



Choosing the Right Fiscal Regime for your Acquisition

- Generally governments are looking to take more control over their own resources either directly or through their NOC's
- A strong oil price over the last few years and increased technical ability of NOC's is enabling them to do this



Choosing the Right Fiscal Regime for your Acquisition

Fiscal Systems Case Studies:

1. A fiscal system that encourages investment
2. A fiscal system that discourages investment
3. The most unstable fiscal system in the world



Fiscal System to Encourage Investment

Norway – Main Fiscal Terms

- 28% Corporation Tax (CIT)
- 50% Special Petroleum Tax (SPT)
- Additional 7.5% capital expenditure depreciation uplift allowance for SPT
- Exploration costs may be expensed or capitalised for CIT
- Operating and abandonment expenditure is expensed
- Capital expenditure depreciated on a six year straight line basis
- No Ring Fencing however limitations exist for offsetting Onshore from Offshore profit and vice versa.
- Carbon dioxide and Nitrogen oxide taxes.
- State participation achieved through a State Direct Financial Interest (SDFI)

Fiscal System to Encourage Investment

Main Fiscal Incentives

- Tax losses carried forward indefinitely with interest
- Alternatively contractor can claim an annual cash refund of the tax value of exploration costs before CIT & SPT
- All abandonment costs are deductible for CIT and SPT
- State will grant cash payment if contractor not in a tax position at the time of abandonment
- Tax incentives have encouraged investment; significant rise in issued licences since legislation introduced in 2004



Fiscal System to Discourage Investment

Libya – EPSA III/IV Fiscal Terms

- NOC has (negotiable) minimum share of production (typically 70%)
- Remaining production (typically 30%) used for cost recovery and profit share
- Profit share to contractor (CPO) based on a formula involving a biddable sliding scale based on both R-factor and production levels
- Royalty (16.67%) and tax (65%) on contractor's share of production paid by NOC



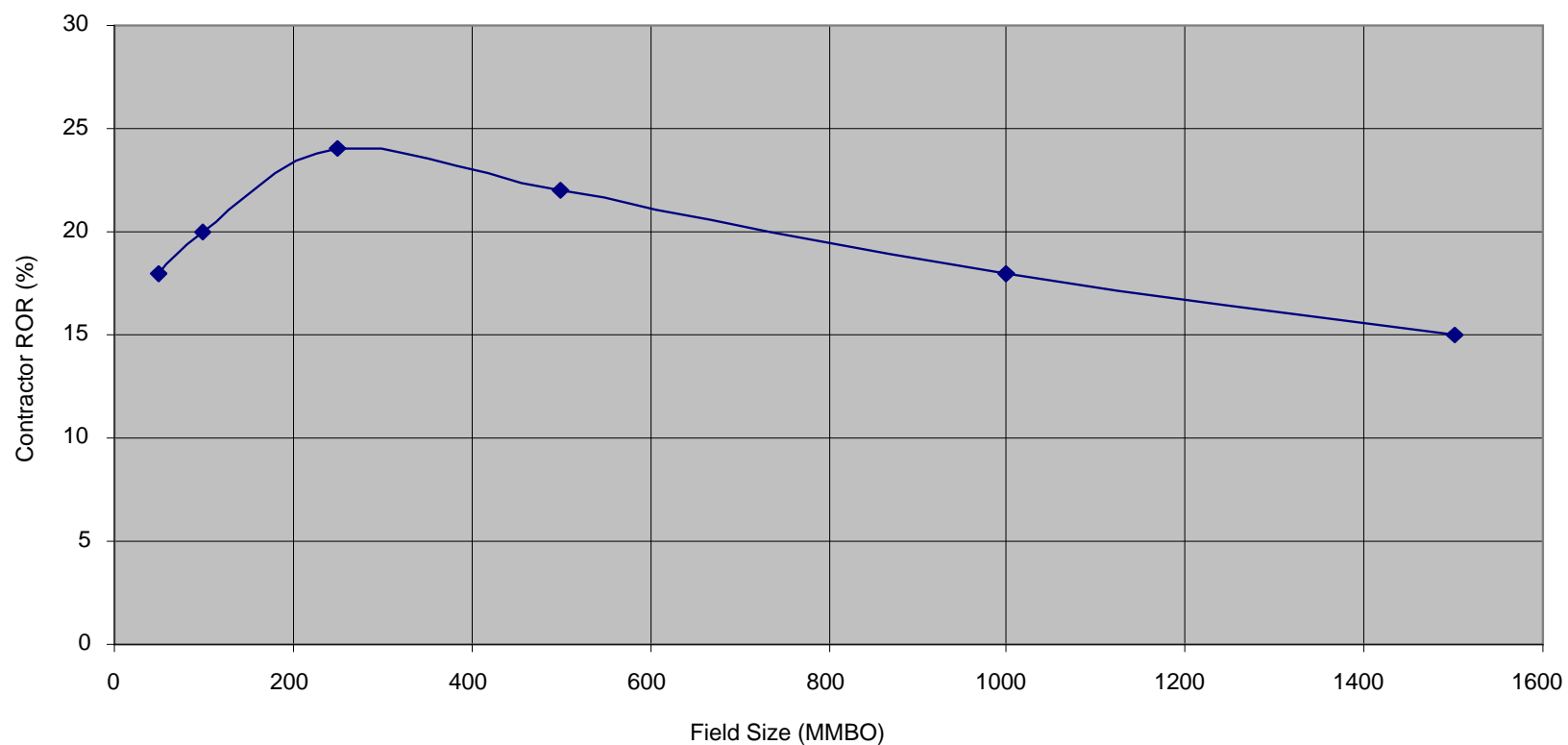
Fiscal System to Discourage Investment

Main Fiscal Disincentives for Investor

- 70% payment to the NOC is effectively a substantive royalty payment
- Sliding scale profit share rewards contractor in the early years of the project but this is during the cost recovery period when there is no profit oil!
- High government marginal take of over 90%
- R-factor based profit share leads to lower contractor ROR as field size increases

Field System to Discourage Investment

Libya EPSA III: Example of Contractor ROR versus Field Size





The Most Unstable Fiscal System in the World

UK

- An attractive fiscal regime but has undergone many changes often complex in nature
- PRT – the most complex taxation charge in the world
- The only place where fiscal elements are linked to reservoir temperature and pressure!

The Most Unstable Fiscal System in the World

UK Current Fiscal Terms

- Royalties abolished January 2003 for all fields
- 50% PRT for fields sanctioned between 1975-1993
- No Petroleum Revenue Tax (PRT) for fields sanctioned from 1993
- 30% CT and 20% supplementary charge
- 100% capital allowances
- 6% capex uplift for a maximum of six years for non-CT paying companies (Ring Fence Expenditure Supplement)
- Interest relief at 30%
- Abandonment relief (carry-back to 2002 available)
- Value Allowances

The Most Unstable Fiscal System in the World

Complex set of field allowances against supplementary charge profits (20%):

- Small fields < 2.75MM tonnes – £75 MM, max annual allowance of £15 MM
- Small fields < 2.75MM tonnes < 3.5 MM Tonnes – Sliding scale 75 to 0 £MM, max annual allowance of 1/5 of total allowance
- Heavy oil fields < API 18° & Viscosity > 50 cp at reservoir temperature and pressure - £800 MM field allowance (£160 MM max annual allowance)
- HP/HT fields, Pressure > 12,500 psi and temperature >330°F - £500 MM allowance increasing on a sliding scale to £800 MM at 350°F
- Allowance extended to west of Shetland gas fields in 2010 - £800 MM field allowance (£160 MM max annual allowance)

The Most Unstable Fiscal System in the World

Catalogue of Major Changes since 2002

2002 - 10% supplementary charge introduced
100% capital allowances introduced

2003 - Royalty abolished for all fields

2004 - No PRT on new tariff business
6% E&A uplift for max six years for non CT paying companies

2006 - 6% capex uplift for max six years for non CT paying companies
Supplementary charge increased to 20%

2007 - Abolition of PRT on fields previously de-commissioned

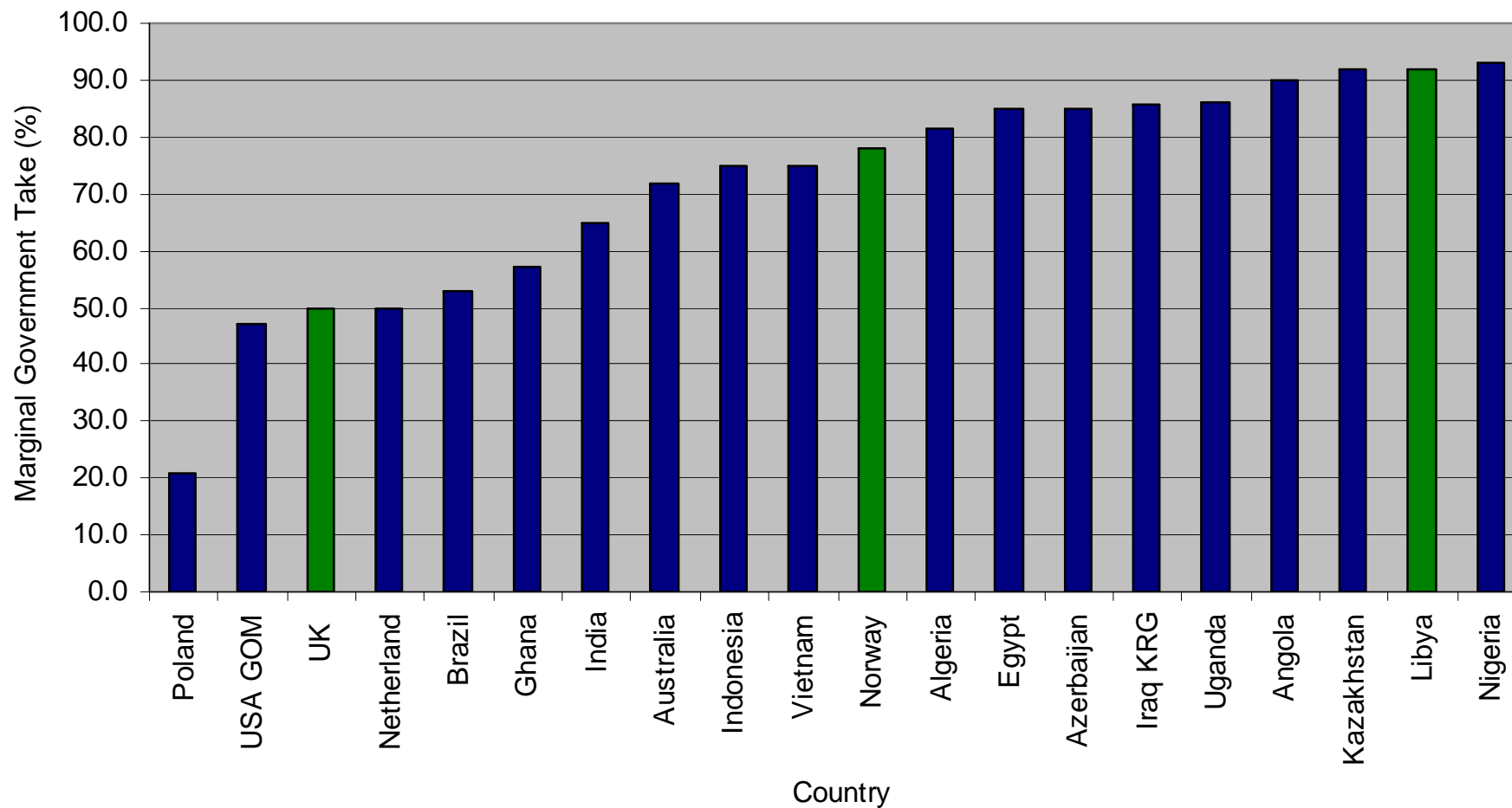
2008 - Carry back period of abandonment losses extended to April 2002 from initial 3 years allowance.

2009 - Small field, heavy oil and HP/HT value allowances against SCT

2010 - West of Shetland gas field allowance against SCT

Which are the Fiscally Attractive Parts of the World?

Marginal Government take for Various Countries



Source: Fugro Robertson OilFIX

Can We Manage Fiscal Risk?

- Before making the final acquisition decision make sure you have done the required sensitivity analysis
 - Sensitivity to higher tax rates
 - Sensitivity to harsher cost recovery and profit share terms
 - What does the government position look like if you forecast a higher oil price? If the IOC is taking a disproportionate share in this scenario then possible that you may be dragged back to the negotiating table or windfall tax imposed

- History can be a good pointer to the future in terms of government attitude to the industry

- Ensure your portfolio is balanced. If buying a package of assets this may therefore mean a subsequent disposal programme.

- Start to build up a good relationship with host government as soon as the transaction has completed and you are on the licence

Summary

- Companies should develop a consistent methodology to economically evaluate a transaction
- Capture oil and gas price volatility in sensitivity analysis
- Selection of economic metrics with care
- Gain a competitive advantage through discount rate and ringfence optimisation
- Understand the fiscal environment you are investing in

