

Hart House Investment Club

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Net Asset Value (NAV)

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Introduction to Net Asset Value

Valuation technique that determines a share price for a company, based on the company's assets and their future production or cash flows.

Usually used to value companies in resource/commodity based industries:

Ex: Oil and Gas, Metals and Mining.

Why Use a NAV over DCF Analysis?

Key assumption in a DCF is that the target company operates in perpetuity (Hence, terminal value)

However, for an exploration and production (E&P) company, that is not possible – there is a finite amount of resource in the ground.

An E&P company can only operate when there is something to extract.

It follows that the company ceases to exist when all of its resource reserves are depleted.

Key Assumptions

Company operates until it runs out of reserves

No exploration – No new reserves

Declining production rate

Only expenses at the asset level are included:

- Expenses related to production.

- Expenses related to asset development

- The rest can be considered “overhead” – company level.

Assumption Implications

No new reserves implies no exploration expenses.

Development of assets and production expenses are the only two accounted.

Others such as SG&A, non cash expenses (depreciation) are not included.

Only expenses tied to production.

Step 1: The Operating Model

Forecast each of the financial statements:

- Statement of Comprehensive Income
- Statement of Financial Position
- Statement of Cash Flows

Include commodity prices, reserves and yearly production forecasts.

Note: No special treatment for these forecasts

- Include all the expenses, even exploration despite assumptions.

Step 2: Revenue

Revenue is projected based on the company's production and the estimated average commodity price for that year.

- i.e. 5 MMMBoe at \$50/Bbl = \$250 Million revenue

Revenue projections are calculated until the company's reserves run out.

Yearly production should be declining, as reserves are depleted.

- i.e. 5% declining rate

Step 3: Expenses

Expenses related to the asset are included (Asset level vs. Company level)

This includes any expenses related to production. Both production and development expenses are applied.

Non-cash expenses are not included.

Ex: SG&A is a company level expense, and usually considered “overhead”. It is hard to directly attribute these expenses to a specific asset. Therefore they are removed.

Step 4: Taxes and Discounting

Assume a tax rate and discount rate.

Find the after tax revenues for each year. $(1-T)$

Discount the after tax revenues to the present.

– i.e. $\text{After-Tax Revenue} / (1 + \text{WACC})^n$

Sum to get the Present Value of after-tax future cash flows.

Step 5: Other Assets and Segments

Other assets is usually made up of undeveloped land. An oil/gas company may have other businesses, such as chemical or pipeline businesses.

These values are usually estimated based on \$/acre or an EBITDA multiple. Ex:

- 20,000 acres x \$2500/acre = \$50 million
- EBITDA = \$2 million. EV/EBITDA = 4.2x
- Business Segment Value = \$8.4 million

Add these to the PV of future cash flows, giving the Enterprise Value.

Step 6: Balance Sheet Adjustments and Implied Share Price

Do the necessary balance sheet adjustments to arrive at the Equity Value.

To go from Enterprise Value to Equity Value:

- Add: Cash and other Investments
- Subtract: Debt
- Subtract: Preferred Shares
- Subtract: Non-controlling interest

Calculate fully diluted shares outstanding

Implied Share Price = Equity Value / Shares o/s

Summary

Used for companies with resource based operations.

Assumes that the company exists while there are reserves to be extracted.

No exploration expenses and no new reserves.

Production and development expenses make up bulk of expenses.

Other assets and business segments are also taken into account.