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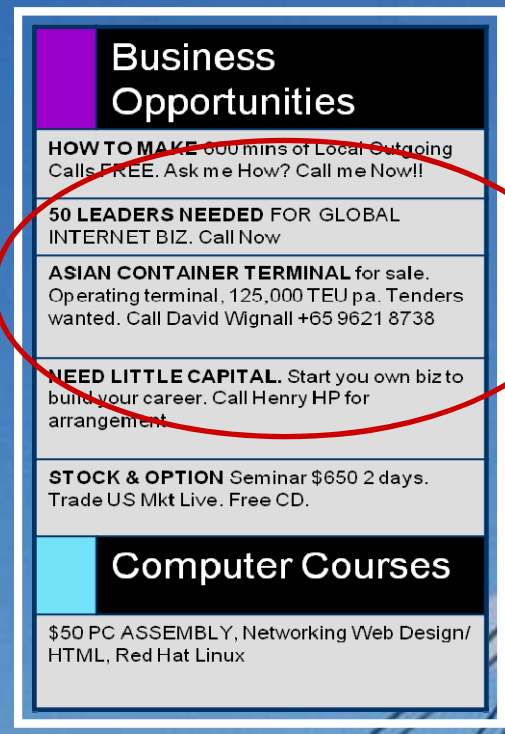
How to Assess the Commercial Viability of a Port or Stevedore Company

David Wignall

Assessing Commercial Viability

- How can you assess the commercial viability of a port?
- This provides a seller with an idea of the price they should receive and a buyer with a price they pay for a terminal
- Always remember the difference between commercial value and economic benefit



Permit the Use of a Black Box Model?

- Never!
  - Different objectives of the vendors
    - Encourage economic regional development
    - Obtain operating expertise / Infrastructure investment
  - Different objectives of the purchasers
    - To generate return on investment
    - Strategic geographical location
  - Different environmental aspects
  - Ownership structures of the concession

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How to Assess a Terminal's Real Value

- DWA uses three coupled models:
  1. Throughput model; which forecasts container throughput
  2. Operational model ; which simulates the operations and development of the terminal against throughput
  3. Financial model ; which constructs P&L and Balance Sheets on an annual basis for the valuation period

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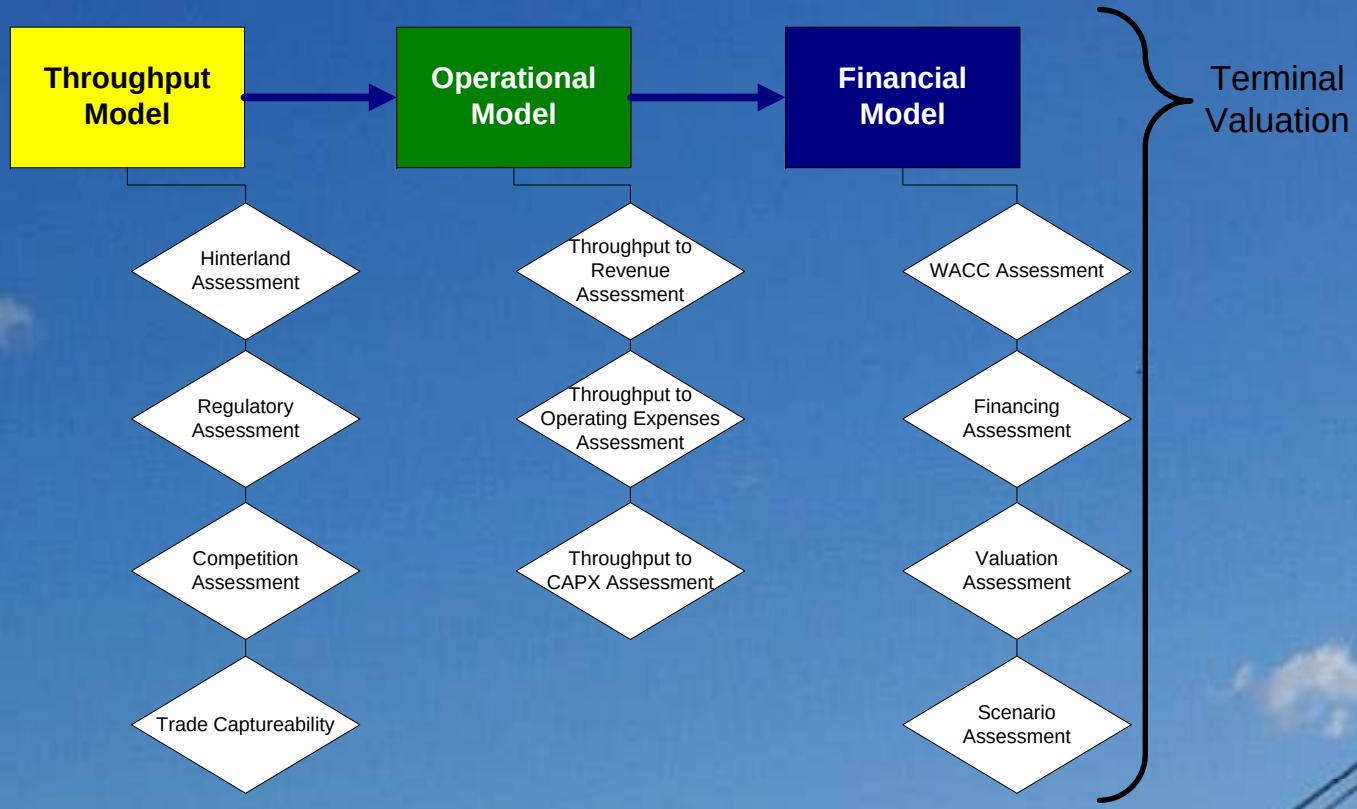
How to Assess a Terminal's Real Value

- A valuation period of between 20 and 30 years is most common to match the concession period
- From these models we can provide a financial value

Valuation Process



Throughput Model Hinterland Assessment

- Hinterland supply and demand forecast
  - Short Term (0-5years)
    - Current export/import demand in the region
    - Local infrastructure (Road/Rail/Inland waterways)
    - Direct competition
    - Historical Growth Rates

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Throughput Model Hinterland Assessment

- Medium Term
  - Expected trends – specific to container industry
  - Growth and development of industries conducive to container volumes
  - Growth of logistics centres at the port
  - Growth and development of infrastructure to container volumes
  - Development of intermodal connectivity and logistics chain alliances
- Long Term
  - Gross Domestic Product and long term expectations

Throughput Model Tariff Assessment

- The tariff levels are also generated:
  - For the ports:
    - Terminal handling
    - Port dues
    - Storage
    - Miscellaneous charges
  - For distribution:
    - Transport costs
    - Distribution costs

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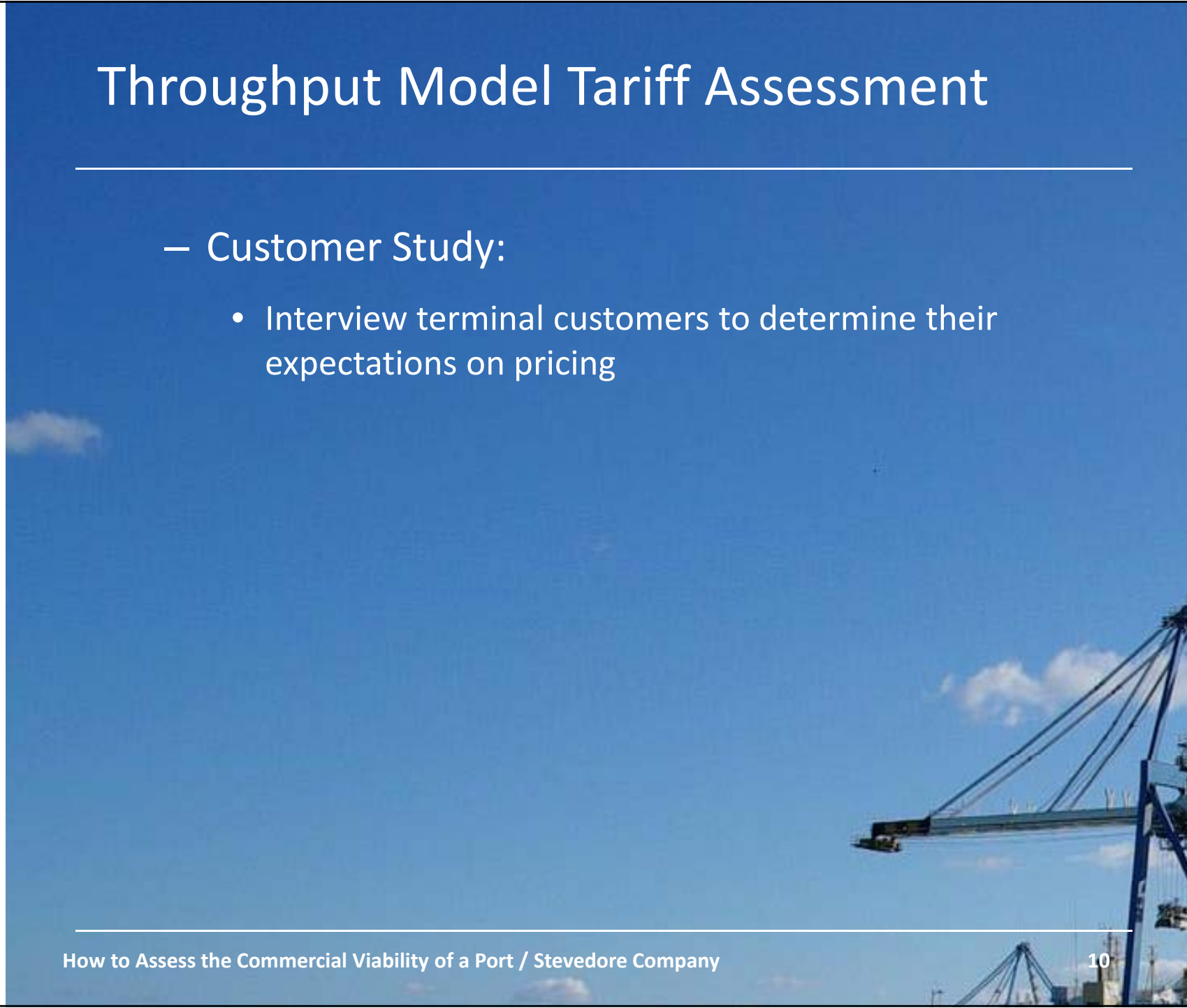
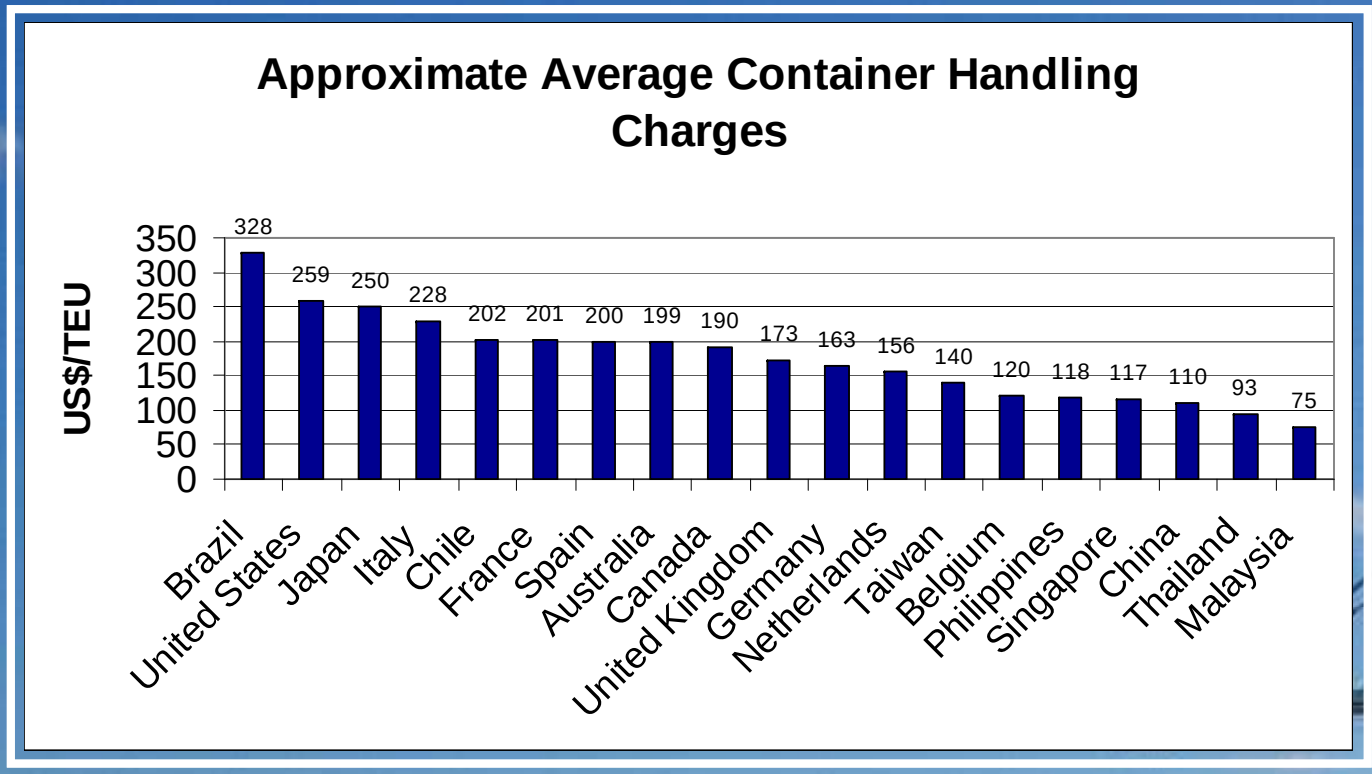
Throughput Model Tariff Assessment

- Customer Study:
  - Interview terminal customers to determine their expectations on pricing



Throughput Model Example Figures

Typical handling charges vary between USD60 and USD330



World Bank

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Throughput Model Regulatory / Competition Assessment

- To determine the appropriate tariff a detailed study of the competition in the vicinity is undertaken
  - Direct competition – Other container and break bulk terminals
  - Indirect competition – other modes of transport such as road, rail, barging operations
- Regulatory study
  - Taxes and trade legislation obtained

Throughput Model Added Value

- Gives the concessionaire a better understanding of future throughput
- Gives a platform to produce throughput scenarios and establishes income drivers
- Value can be added through the development of road, rail and inland shipping into the terminal hinterland. In the case of transhipment terminals, feeder and barging operations can be looked at

Throughput Model Added Value

- Identify where weak strong links lie in the logistics chain

- This has an impact on the potential income which flows through to the financial evaluation model

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Operational Model
Key Objectives and Capability

- Model needs to be able to calculate/estimate
  - Cost of the current operation
  - Identify and integrate the main cost drivers such as throughput and productivity
  - Evaluate the cost impact for different equipment choices or container handling systems
  - Evaluate berth and yard capacities
  - Establish capital expenditure requirements based on the cost drivers

Operational Model - Step 1

- Model the current container terminal operation
  - Identify variable and fix cost components
  - Model current operational processes and work practices

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Operational Model - Step 1

- Establish current productivities of the main operational functions i.e. Vessel operation, road/rail exchange
- Calibrate with current operational costs to establish the accuracy of the model

Operational Model - Step 2

- Establish alternative equipment choices and model their operational costs under different throughput and productivity scenarios
  - Top lift, reach stacker direct/indirect
  - Straddle carrier
  - RTG
  - Automated RMG + AGV (Trailer or straddle carrier)
- For all the options personnel and equipment requirements need to be established

Operational Model Step 2 Example Vessel Operation

- Costs are related to the time a container crane is deployed and its personnel paid.
- Gross crane productivity is the best measure although it does not incorporate costs that are incurred when the vessel starts or ends during shifts
- What is the effect on costs per vessel move?
- Simple comparison reach stacker versus straddle carrier handling system

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Operational Model Step 3 Capacity Evaluation

- Berth capacity
  - Quay length
  - Number of cranes
  - Working hours
  - Productivity
  - Utilisation factors

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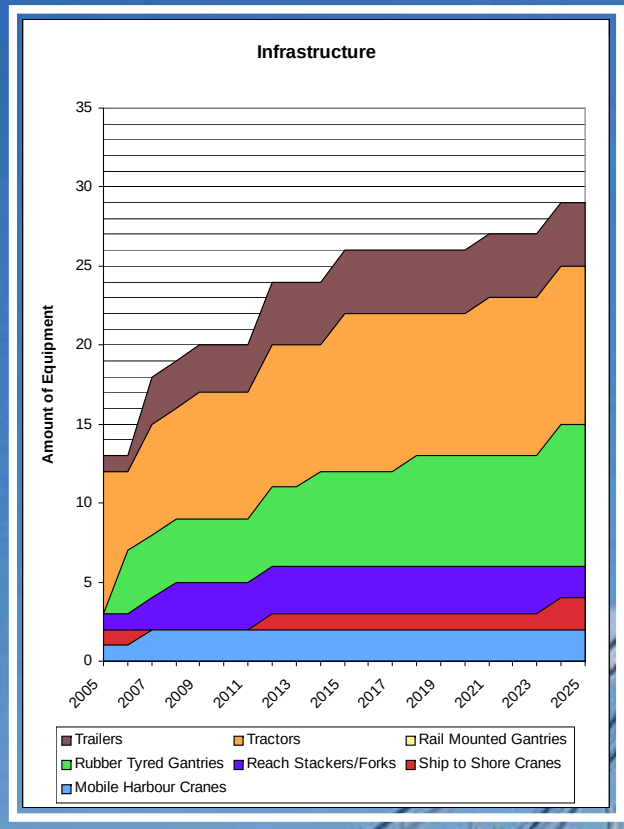
Operational Model Step 3 Capacity Evaluation

- Yard capacity
  - Available space
  - Stacking system
  - Dwell times
  - Yard utilisation factors
- These capacities are critical to determine at what stages additional equipment or change to a different handling system is required

Operational Model Example CAPX

- Step changes in infrastructure requirements
- Growth in terminal corresponds to a higher requirement and use of infrastructure



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Operational Model Step 4
Risk Analysis

- Example labour environment
- Ideally a container terminal operator wants full control and responsibility of its personnel
  - Direct employment
  - Enterprise agreements that cover personnel costs, deployment and flexibility

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Operational Model Step 4
Risk Analysis

- Worst case scenario (hypothetical)
  - Labor pool where the conditions are negotiated between the union and a third party
  - Many unions with specific work coverage
  - No opportunity for enterprise specific deployment
- This will reduce the enterprise/concession value

Financial Model

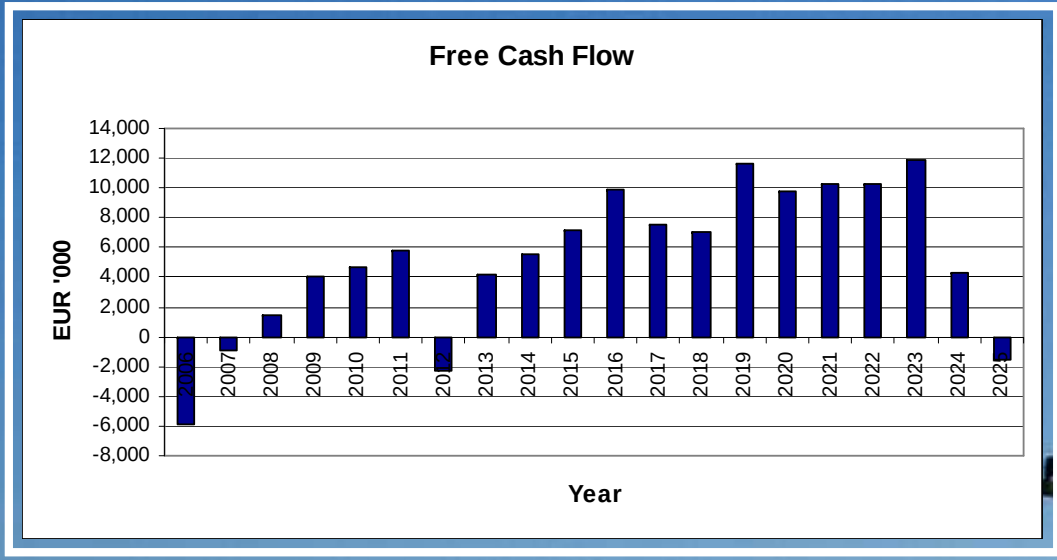
- The financial model is to determine a value for the concession based on free cash flows (FCF) and provide analysis tools
- Defined as the cash in the business that is available to financiers
- Created from the throughput and operational models

Financial Model

- Defined as: Net Profit – Capital Expenditure – Change in Working Capital
- Free Cash Flows and other indicators are then analysed to develop a value for the concession
  - Multiple of EBITDA (Enterprise Multiples)
    - High infrastructure intensive firms
    - Good before financing comparison
  - Internal Rate of Return
  - Net Present Value
  - Financial Ratio Analysis

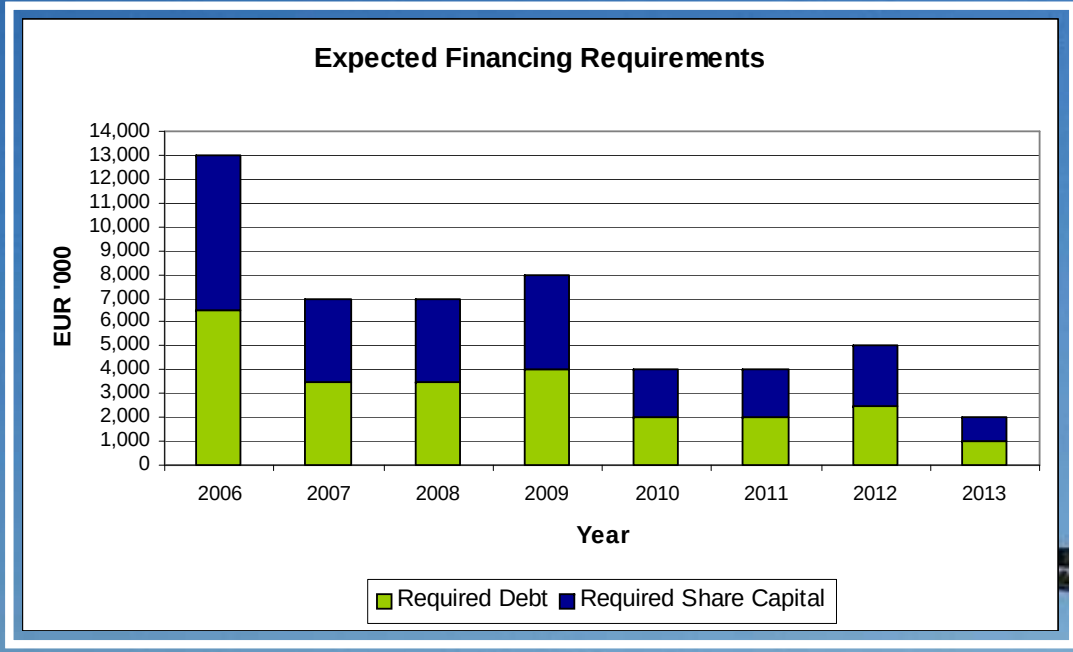
Financial Model Case Study

- Heavy Capital Expenditure in assets causes the free cash flow in initial years to be negative. This provides an insight as to when expenditure is payable



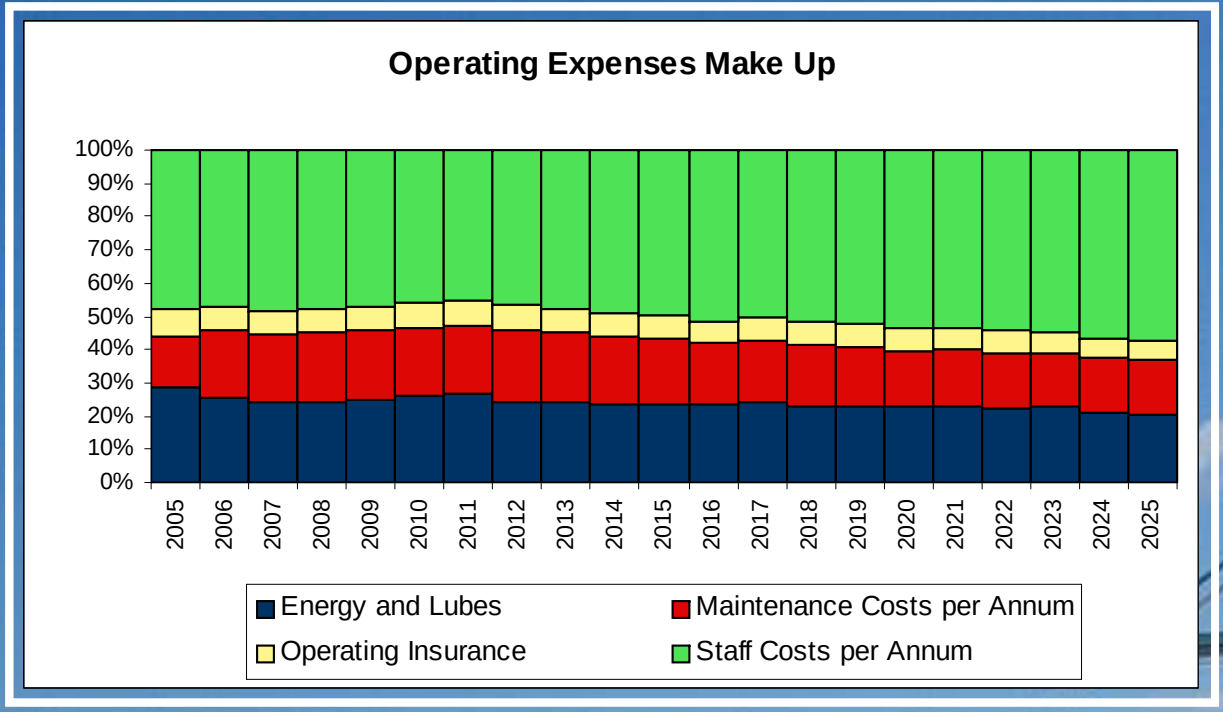
Financial Model Case Study

- Inflows of capital is required to get the terminal into operating condition
  - In later years this can be repaid



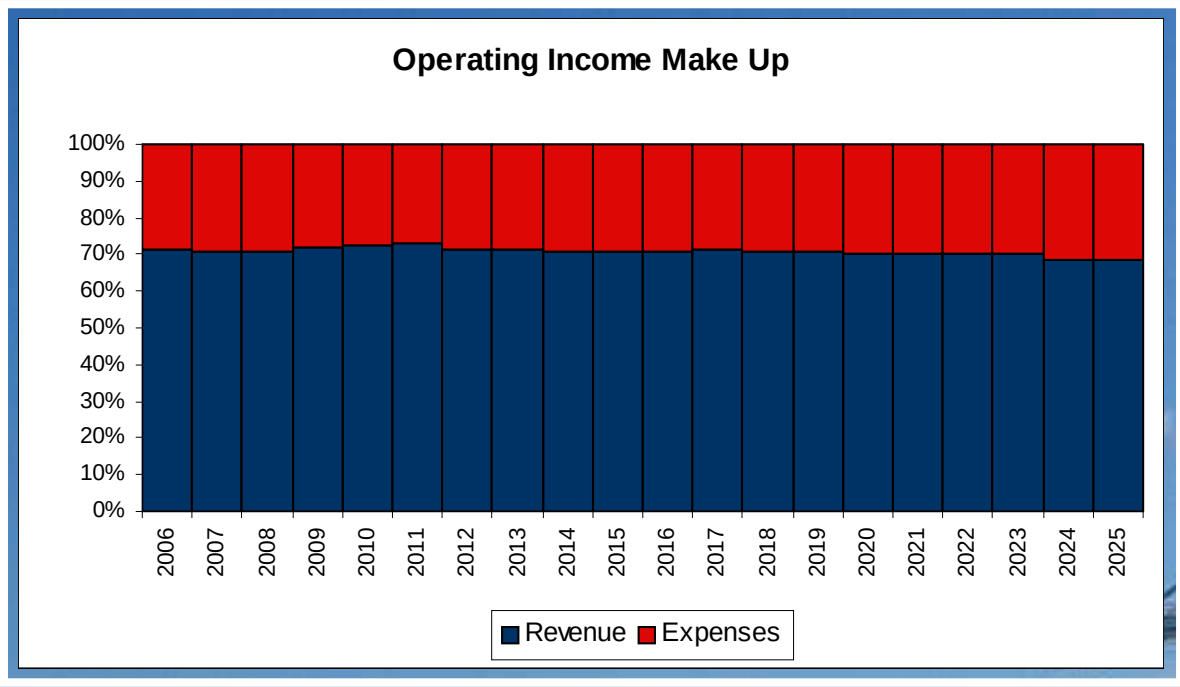
Financial Model Example of Operating Costs over the Concession

- Staffing costs are found to make up a high proportion of expenses in a container terminal



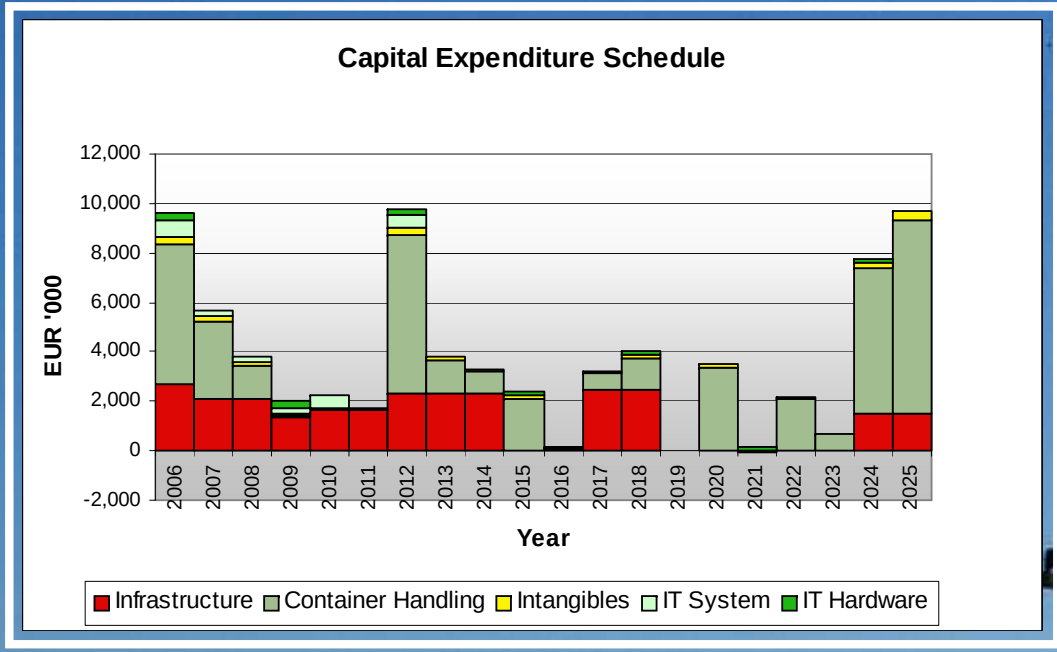
Financial Model Example of Operating Costs over the Concession

- Operating revenue often lies between 50% and 75% in European container terminals



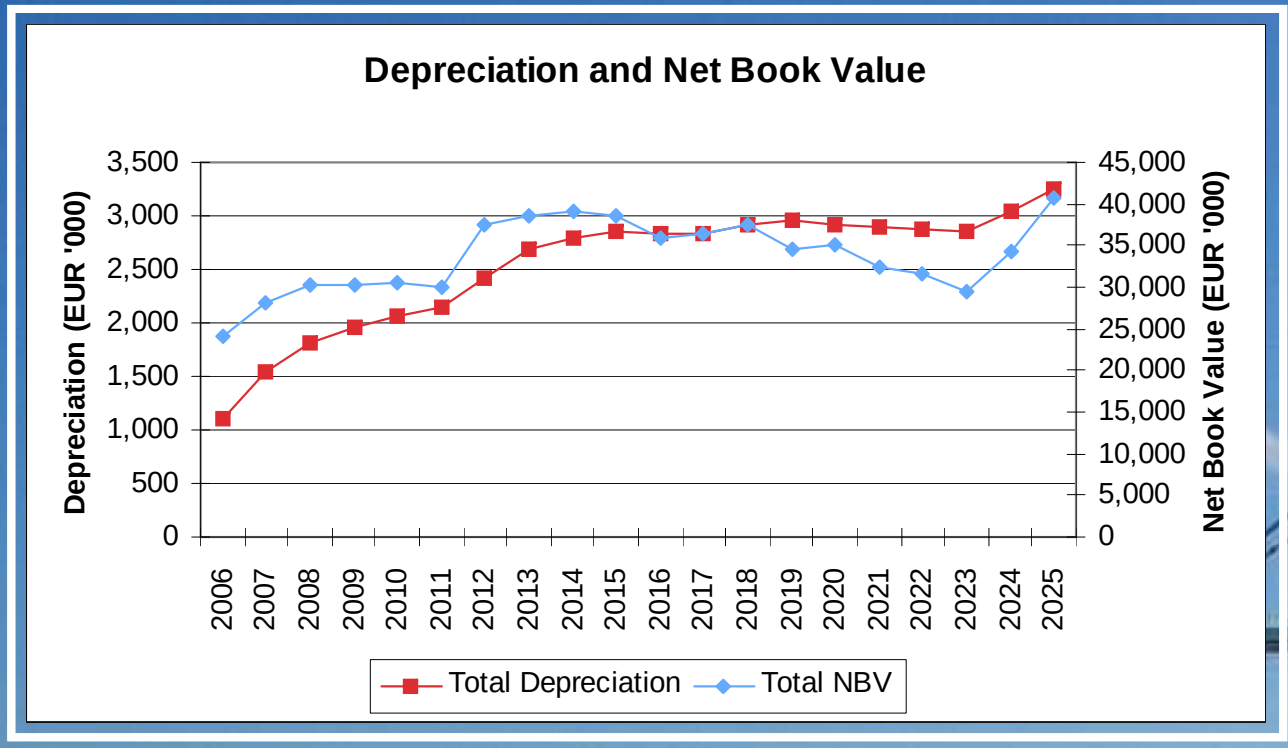
Financial Model Example of CAPX over life of Concession

- Initial acquisition and replacement of infrastructure is high
  - Varies as per operational model



Financial Model Example of CAPX over life of Concession

- Growth in terminal corresponds to a higher requirement and use of infrastructure



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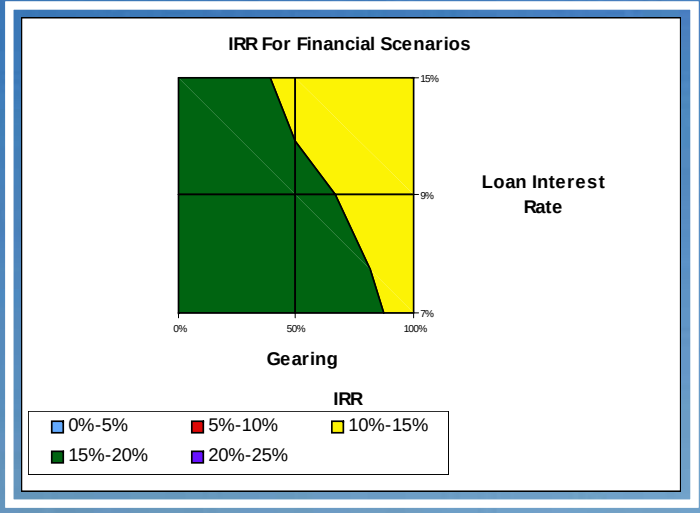
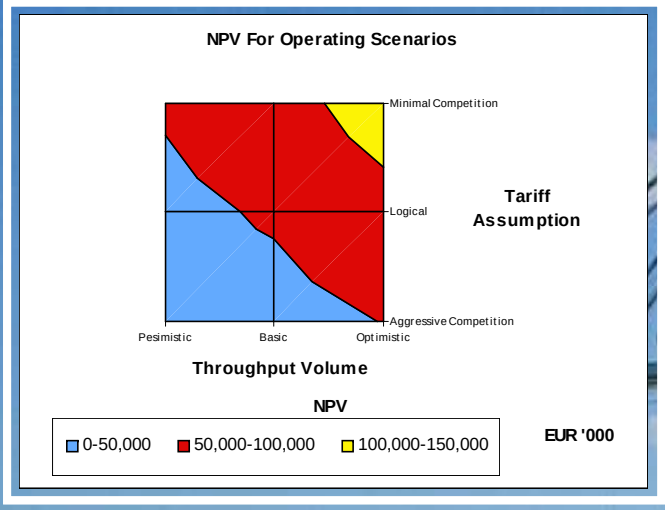
Financial Model
Processing of the Results

- Important phase is to investigate the results of the valuation
  - Scenario Analysis
  - Sensitivity Analysis





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Financial Model
Sensitivity of input Variables

- The impact of various variables on the model is investigated
- The degree of influence can correlate to the actual operations of the terminal
  - Impact of a number of cranes could show the impact on value if it breaks down
  - Impact of the interest rate to the companies cash flow
- Allows for mitigation planning

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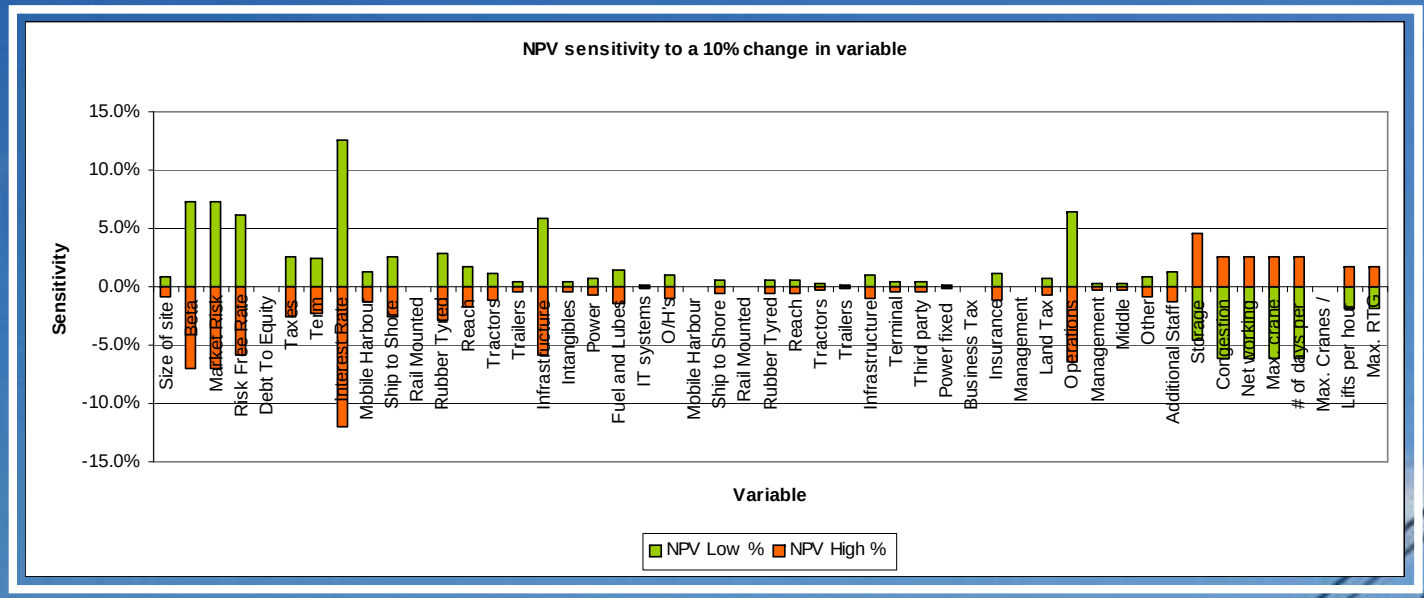
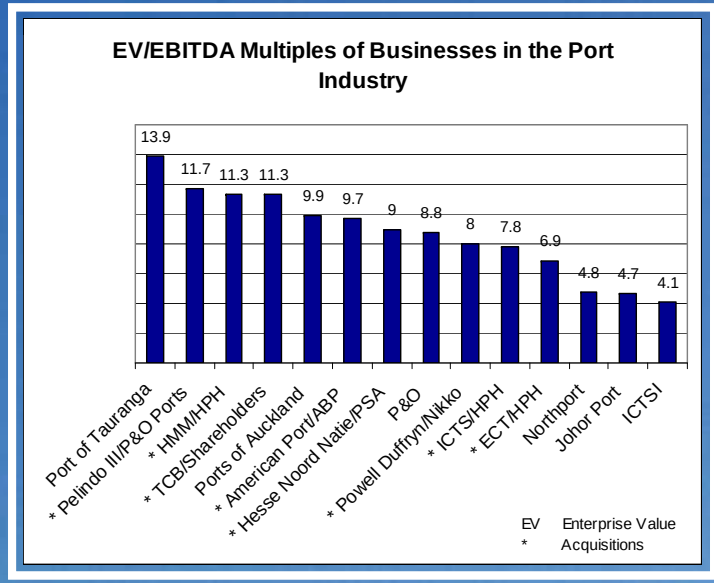
Financial Model
Sensitivity of input Variables



Financial Model Example Enterprise Value Calculation (Based on EBITDA)

- Enterprise Value of the firm (Takeover price) can be determined
  - Forecast cash flows
  - Comparable enterprise multiple
- Enterprise multiple of comparable firms



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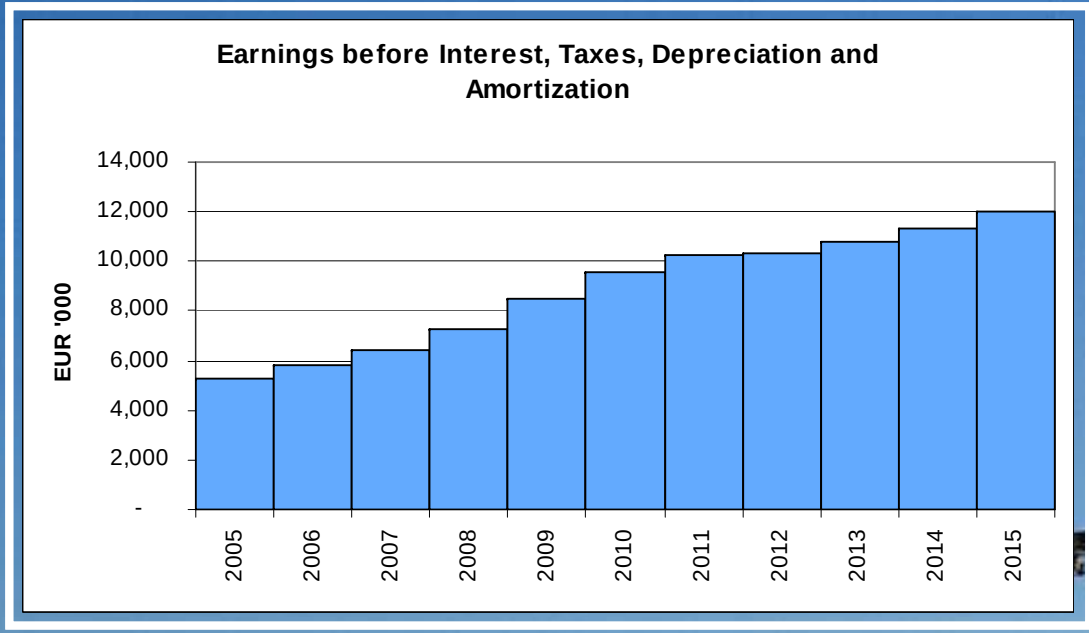
Financial Model Example Enterprise Value Calculation (Based on EBITDA)

- Select an firm similar to its state of development / market
- Enterprise multiple should increase as value increases

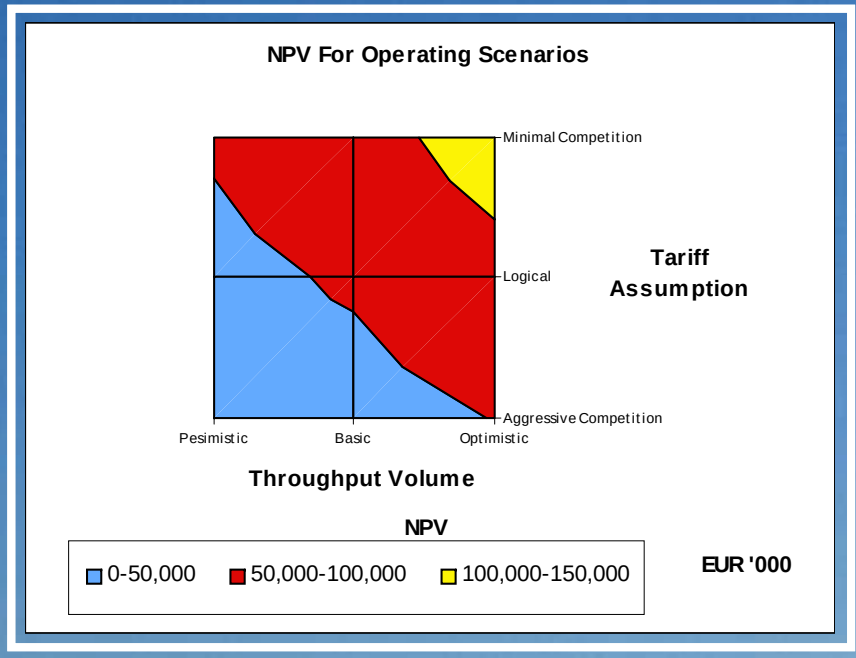


Financial Model Example Enterprise Value Calculation (Based on EBITDA)

- Enterprise value = Market Value + Debt – Cash
- Estimate that after 5 years the firm is in steady state
- Debt: 16 mill Cash: 28 mill
- Estimate the this firm is comparable to ECT/HPH (x6.9)
- Enterprise Value approx 65.6 mill (9.5 mill EBITDA x 6.9)
- Market Value 77.6 mill (65.6-28+16)
- Discount back at WACC over 5 years 48.9 million value

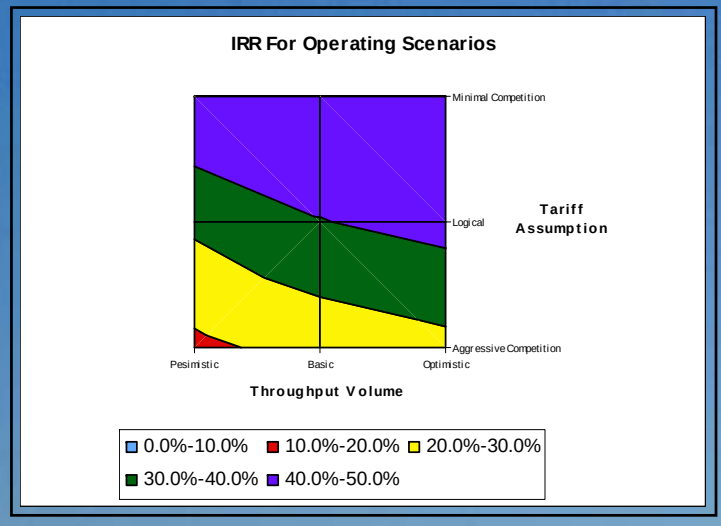
Financial Model Example of IRR and NPV

- Net present value of the cash flows describes 40 million
- Internal rate of return 20%



Financial Model Example of IRR and NPV

- Value under different operating and financial scenarios and sensitivity
- If there have been recent sales in the industry these can also be valued forward to a comparative point in this model



Expected Rates of Return

Risk-return matrix – hurdle rate needed to attract a major operator to commit to a common user container terminal

Typical US$ Returns Required, 2002 (Assumes country risk grade 1)

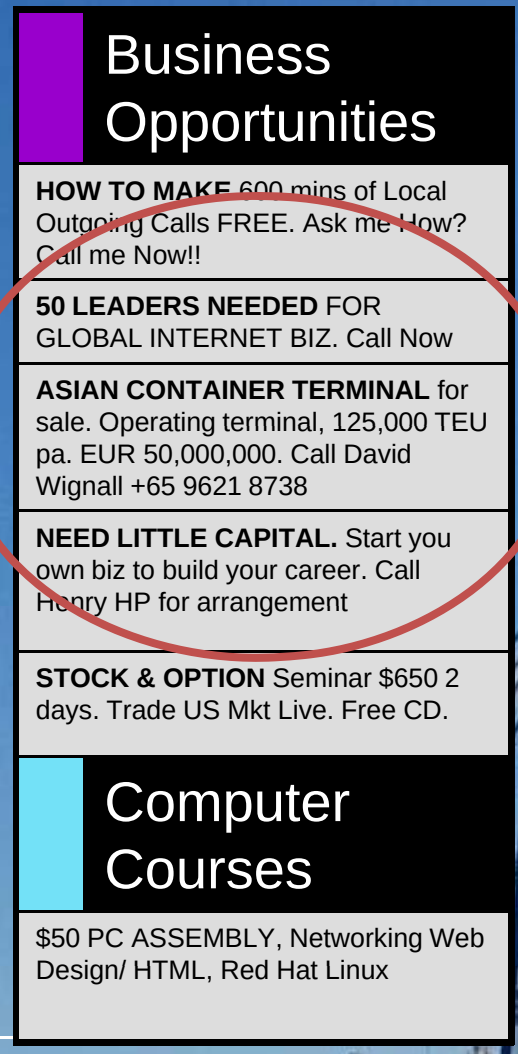
	Nature of the Market				
	No established trade; projections based on transhipment cargo (visionary) or new free trade zone.	Established regional trade but over 50% of traffic is transhipment and low barriers to competitive entry (international or local).	Established hinterland general cargo trade but low container penetration factor.	Established regional and national container trade but open to competition from other terminal operators within the same or nearby ports.	Established container trade and the need for facilities is evident and high barriers to new competition.
Stage of development of terminal site leased to private operator					
Operator leases an undeveloped site and is expected to provide infrastructure to site	*Unbankable without subsidy.*	*Unbankable without subsidy.*	*Unbankable without subsidy.*	*Unbankable without subsidy.*	*17% IRR*
Operator leases a Greenfield site but with infrastructure developed to site boundary	*Unbankable without subsidy.*	*Unbankable without subsidy.*	*Unbankable without subsidy.*	*16% IRR*	*15% IRR*
Operator leases an improved site with a quayline, paved yard but without buildings or handling equipment	*Unbankable without subsidy.*	*Unbankable without subsidy.*	*Unbankable without subsidy.*	*15% IRR*	*13% IRR*
Operator leases a site with all civil works completed, buildings on site but supplies quay cranes and yard handling equipment	*Unbankable without subsidy.*	*18% IRR*	*16% IRR*	*14% IRR*	*12% IRR* *Hurdle rate consistent with the standard Landlord model.*
Operator leases a fully developed site including quay cranes but supplies yard handling equipment	*16% IRR*	*15% IRR*	*14% IRR*	*13% IRR*	*11% IRR*
Operator supplies only technical expertise for a management fee	*Flat fee of about US$500,000 pa net.*	*Flat fee of about US$500,000 pa net.*	*Flat fee of about US$500,000 pa.*	*Flat fee of about US$500,000 pa.*	*Flat fee of about US$500,000 pa net.*

Assumes as a reference point - 10 year US government bond at 6% per annum yield.

Source: Drewry Shipping Consultants Ltd

Conclusion

- Upper bound for buyer is 40-50 million euro.
- Seller also knows this is the upper bound based on accepted assumptions
- Mr Wignall can update his ad with a 50 million Euro price tag



Thank You

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