

Port Economics – The Business Case

David Bayne, Port Economist

Drewry Shipping Consultants Ltd

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- Introduction
- Financing for ports vs power utilities
- Current best practice – 8 profit drivers for container terminals
- Restricted pricing – structuring a BOT concession for profit
- Comparative port practices - benchmarks



Global trends - more stevedoring into the private sector



“Increasingly the operation of container terminals is in private hands – in 2005 private sector controlled terminals handled over 78% of global throughput, up from 58% in 1991.”

Source: Drewry Shipping Consultants Ltd.

Key financial indicators



- **15% IRR after tax**
- **Capital payback period of less than 9 years**
- **Debt cover ratio of 2.5 times (EBITDA) earnings within 3 years of start of operations**



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

		Nature of the Market				
		No established trade; projections based on transshipment cargo (visionary) or new free trade zone.	Established regional trade but over 50% of traffic is transshipment 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	<i>Unbankable without subsidy.</i>	<i>Unbankable without subsidy.</i>	<i>Unbankable without subsidy.</i>	<i>Unbankable without subsidy.</i>	<i>Unbankable without subsidy.</i>	17% IRR
Operator leases a Greenfield site but with infrastructure developed to site boundary	<i>Unbankable without subsidy.</i>	<i>Unbankable without subsidy.</i>	<i>Unbankable without subsidy.</i>	<i>Unbankable without subsidy.</i>	16% IRR	15% IRR
Operator leases an improved site with a quayline, paved yard but without buildings or handling equipment	<i>Unbankable without subsidy.</i>	<i>Unbankable without subsidy.</i>	<i>Unbankable without subsidy.</i>	<i>Unbankable without subsidy.</i>	15% IRR	13% IRR
Operator leases a site with all civil works completed, buildings on site but supplies quay cranes and yard handling equipment	<i>Unbankable without subsidy.</i>	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	<i>Flat fee of about US\$500,000 pa net.</i>	<i>Flat fee of about US\$500,000 pa net.</i>	<i>Flat fee of about US\$500,000 pa.</i>	<i>Flat fee of about US\$500,000 pa.</i>	<i>Flat fee of about US\$500,000 pa net.</i>	<i>Flat fee of about US\$500,000 pa net.</i>

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

Source: "Global Container Terminals" report, Drewry Shipping Consultants Ltd, 2002



- **Non-recourse finance based on independent power projects - most active sector of project finance**

POWER

- Revenue based long term contracts
- Take or pay
- Fixed tariff in USD
- CPI risk eliminated

PORTS

- Long term contracts with shipping lines unusual
- Throughput and tariff risk
- Currency mix/risk
- Government tariff without link to inflation/currency





Although there are no formulas for success, high profit terminals can be identified by 8 factors - generally:





Market

1. For the past four years, has the container trade been growing at least 1.2 times faster than GDP?
2. Is the terminal's trade from a local hinterland less than 500 km from the port?
3. If the trade is transshipment driven, is the location at a crossroads in an area with limited regional competition and moreover is the government prepared to share the investment risk in the terms of the concession?





Concession

4. Is the terminal free to adjust prices to inflation, currency devaluation and major labour increases?
5. Does the port authority have a history of allowing occupancy to reach at least 50% before developing new berths?
6. Is the terminal forced to maintain excess manning levels for industrial peace?
7. Does the terminal have the first right of refusal over any new berths as they become available?





Internal financing

8. Is the terminal to be conservatively financed (less than 65% debt)?





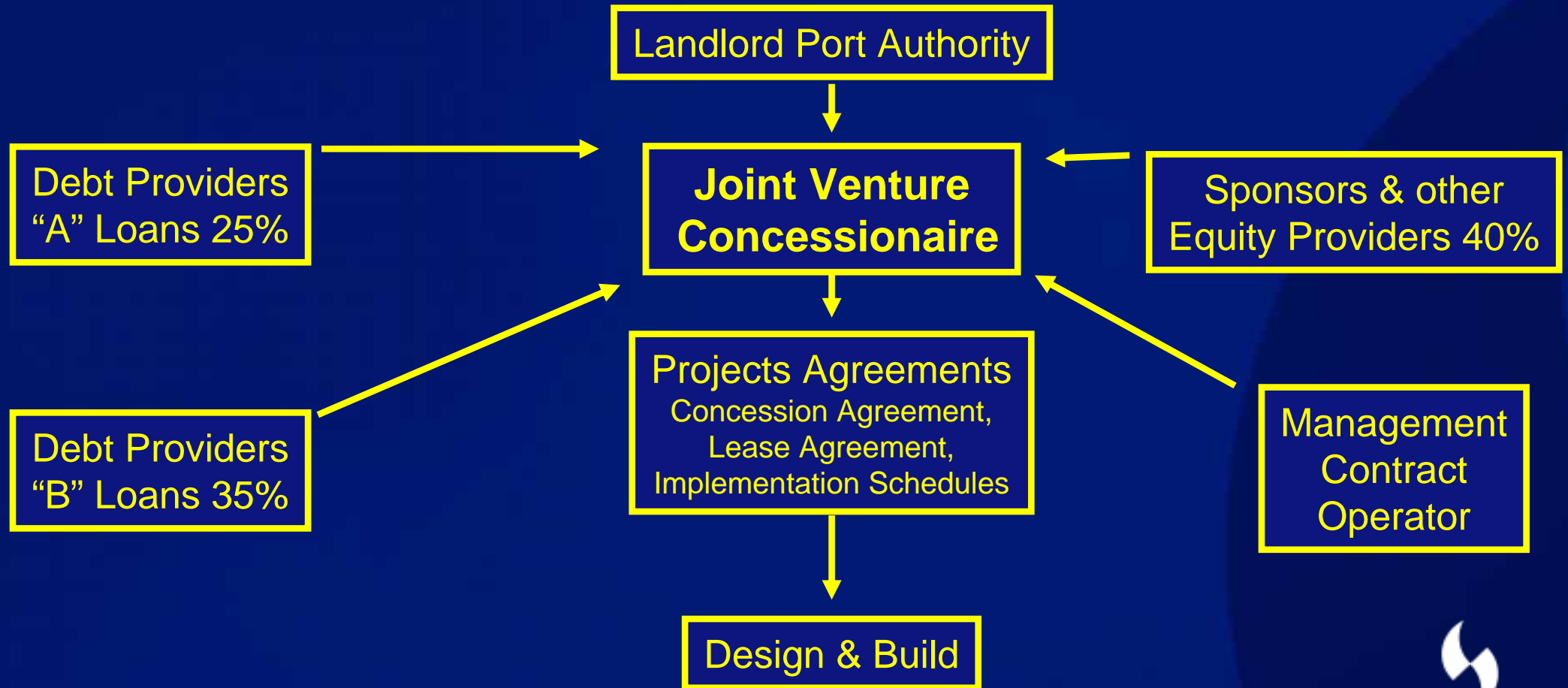
- Concession needs to equitably address risk/reward factors
- Unrealistic concession terms may result in 'no-bids'
- Risk of Wildcat operators

Wildcatters win at all costs and renegotiate

Authorities should use a 2 envelope process to defeat them



BOT project structure for LPA





- 20 - 30 year lease over existing facility
- Lessee purchases handling equipment at market value
- Lessee pays goodwill for the ongoing value of the business
- Lessee collects terminal handling charges
- Lessee may collect berthage or dockage.





- Lessee pays a royalty per container
- Port Authority sets standard of performance including penalties
- Fixed assets revert to the Authority at the end of lease
- Port Authority pays lessee written down value of assets.





- The Authority retains responsibility for:
 - Maintaining approach channels
 - All navigation aids
 - Harbour Master's functions
 - Ultimate ownership of land
 - Structural maintenance of civil works.



Modeling port finances using built-in benchmarks



- Using a point and click model that guides the user through the process
- Modeling revenue
- Modeling tariff
 - Exchange risk mitigation
- Modeling equipment needs
- Modeling operating costs
- Modeling concession terms
 - Market risk mitigation
- Getting to the cash flow



Modeling port finances using built-in benchmarks



- Driven by container numbers
- Built-in database benchmarks include:
 - Country risk - hurdle rates
 - Equipment needed to match container demand
 - Equipment costs for new units
 - Capacity benchmarks – peaking factor
 - Manning required to meet demand
 - Fuel used per container handled
 - Power used per container handled
 - Standard depreciation rates
 - Standard maintenance costs



Modeling port finances using built-in benchmarks



- This model is called CT 3. It assumes:
 - The viewpoint of a bidder for a modern container terminal
 - Typical B.O.T. concession
 - 3 shift operations
 - Rail mounted gantry cranes
 - RTGs in the yard.



Modeling port finances using built-in benchmarks



- CT 3 uses a 9 step process:
- The user inputs
 - The country
 - The trade forecast
 - The lease period
 - The royalty / container to be offered for the concession
 - The length of quayline and area of yard
 - The gross revenue per container
 - The average wage per worker / manager
 - Cost of fuel per litre - power per KW hr
 - Civil works costs, if any



Modeling port finances using built-in benchmarks



- The model outputs
 - Capital required and funding options
 - Operational ratios
 - Containers per man
 - Containers per crane
 - Containers per M of quay
 - Teus per Ha
 - Profit and loss account
 - Cash flow
 - Business unit valuation



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