VPC
ASIA PACIFIC
In association with
CLUTTONS

INFRASTRUCTURE VALUATIONS: TOLL EXPRESSWAY

By

DATO MANI USILAPPAN

26TH SEPTEMBER 2018

DESCRIPTION HIGHWAY OF PROPERTY

The 17.5 kilometres long was built to link industrial areas and to serve the ports

1. Section 1: A 2 lane dual carriageway Expressway ending at KM3.24.
2. Section 2: From KM3.24 and ending after the KM8.48.
3. Section 3: From KM8.48 it continues ending at a new Bypass.

Toll Plaza	Total Number of Lane	Number of Reversible Lane	Number of Operating Toll Booths			
			Total	Cash	TnGo	Mixed Mode - TnGo & Smart Tag
ABC 1	16	4	15	7	4	4
ABC 2	3	1	2	1		1
ABC 3	3	1	2	1		1
ABC 4	8	2	7	3	2	2
Total	**30**	**8**	**26**	**12**	**6**	**8**

Traffic	200X6	20X7	20X8	20X9	20XX0	20XX1	Jan to Jun 20XX2
ABC	21,206,558	20,808,324	21,707,319	22,679,218	22,977,891	23,259,338	11,726,466
ABC 1	2,880,164	3,121,157	3,179,040	3,512,661	3,666,265	3,681,853	1,930,687
ABC 2	3,605,387	3,326,579	1,139,443	1,115,982	968,894	949,608	507,045
ABC 3			2,035,061	2,200,808	2,481,521	2,665,206	1,406,628
All Plaza	27,692,109	27,256,060	28,060,863	29,508,669	30,094,571	30,556,005	15,570,826
Average Daily Traffic	75,869	74,674	76,879	80,846	82,451	83,715	85,320
Annual Growth Rate		-1.57%	2.95%	5.16%	1.99%	1.53%	1.92%
Average Growth Rate	2%						

VPC ASIA PACIFIC
In association with
CLUTTONS

APPROACHES OR METHODS

MARKET DATA APPROACH

COST APPROACH

INCOME APPROACH

The approaches like the Cost Approach and the Market Data Approach can be used in the valuation of toll highways.

However, these methods have limitations in terms of applicability owing to a dearth of data on the transactions of highways.

Cost Approach

There is an extreme shortage of new costs of construction of toll highways. The variations in costs also does not lend the analysis to easy use. The concession is for a limited period and the remaining period is too short to place an effective land value component.

Market Data Approach

The more important consideration in not adopting this approach is the lack of comparable similar data of transactions requiring the use of alternative approaches to land valuation.

Income Approach

The Income Approach would be a good approach to value toll concessions. The very nature of the concession being a build, operate and lease concession would mean that the success of the concession would very much depend on the income generated by the toll highway. If the toll highway is generating revenue then the revenue could be used to determine the economic value of the concession.

There are 2 methods used in the Income Approach. The first is the Investment Approach where the estimated annual net rent is capitalised over the remaining economic life of the concession. The other method is the Discounted Cash Flow (DCF) Method. This method uses the cash flow generated from revenues and the outflows of expenses and discounted annually the net cash flow over the remaining life of the cash flows at an appropriate discount rate.
In the valuation of a business like a toll highway which is purely run for profit generation, the better method will be the one that addresses the cash flows. Hence, we are adopting the Discounted Cash Flow Method.

Discounted Cash Flow Method (Income Approach)

As stated above, the toll highway is an entity that exists to generate revenue through providing a better system of infrastructure. Therefore, the Discounted Cash Flow provides the better approach to determining the value of the toll highway.

Application of the DCF Method

As in all DCF methods, there are three variables that need particular attention. These are

FUTURE CASH FLOWS FROM REVENUES
FUTURE CASHFLOW FROM EXPENSES
DISCOUNT RATE

REVENUE

The sources of revenue need to be identified and adjusted. Sources and past track records are a good guide to extrapolate the future cash flows. These include

Toll Collections
Stall Rentals
Advertisement Income
Government Compensation

EXPENSES

The sources of expenses also need to be identified and adjusted. Sources of past track records are a good guide. These include:

Staff based expenses
Repairs and resurfacing expenses
General Maintenance of buildings, toll booths, grass cutting etc
Office Administration expenses

Discount Rate

There are several options available to determine the Discount Rate.

The discount rate adopted in this DCF is a market derived rate from the Plus Expressway Berhad assets (which were bought by the parent company) which was reported to be the following:

Toll Business	Discount Rate, K_e
Malaysia	9.02% - 9.5%
Indonesia	12.40% - 16.00%
India	11.58% - 13.90%

The different discount rates adopted was to reflect the key risk factors in the three different countries.

In the valuation of the Toll Highway using the Discounted Cash Flow method we have made the following assumptions:

- The future projection of revenue and car volumes using the highway would be based on the past performance as we do not see any creation of townships or any other major urban conurbations. No new ports are anticipated in the Klang Valley.

- The growth rate has been taken at 2% per annum. This is based on the historical average annual growth rate

- The valuation is based on a loan free interest free model. The assumption being in a market value situation a willing purchaser will be deemed to bring in sufficient working capital to run the business.

- Any loans outstanding and accrued accumulation of funds to set off historically incurred costs will be treated through normal accounting evaluation practices

Pertinent Factors Considered in the DCF Valuation

The following factors are considered in the DCF valuation:

- The discounted cash flow Valuation is based on the projection of expected income less the costs involved in the operation and maintenance of the road system and the overhead costs of managing it. Other income such as interests and other operations are expressly excluded. If there is rental income, this is included.

- The rate of growth is estimated to be 2% per annum of the revenue, as there are no major growth prospects for this highway. Besides, the historical growth rate has also been approximately 2%

- The costs have been declining and some replacements will be expected in the future. We anticipate a major resurfacing exercise has to be undertaken. There is also a need to replace mechanical and electronic equipment and systems. We have provided a sum for this from the third year of operation. These costs will be spread over two years. Subsequently, increased costs of operation and maintenance will be underpinned by the minimum wages requirement as well as more optimum maintenance costs. For this purpose we take 5% per annum as a reasonable growth factor in the costs.

Pertinent Factors Considered in the DCF Valuation Contd

- The Corporate Tax rate is estimated to be flat at 25% per annum throughout the Concession periods.

- The contribution by the Government as compensation for restrictions of vehicles class 2 and 3 is adopted using the estimation of annual growth rate of 10% of vehicles class.

- New Bypass (NKSB) is entitled to increase toll tariffs for the remaining Concession Year, however, we have assume that the toll rates are capped at the existing toll rate for all vehicles. The difference of the existing toll rate with the increase toll rate for all vehicles is the compensation that will be pay by the Government.

YEAR		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Revenues											
ABC 1		15,027,748	15,589,649	15,901,442	16,219,470	16,543,860	16,874,737	17,212,232	17,556,476	17,907,606	18,265,758
ABC 2		16,422,120	17,085,574	17,427,285	17,775,831	18,131,348	18,493,975	18,863,854	19,241,131	19,625,954	20,018,473
ABC 3		2,508,370	2,558,537	2,609,708	2,661,902	2,715,140	2,769,443	2,824,832	2,881,328	2,938,955	2,997,734
ABC 4		4,298,412	4,472,068	4,561,509	4,652,739	4,745,794	4,840,710	4,937,524	5,036,275	5,137,000	5,239,740
Touch N Go											
SUBTOTAL		38,256,649	39,705,827	40,499,944	41,309,943	42,136,142	42,978,864	43,838,442	44,715,211	45,609,515	46,521,705
SALES NET OF INT		8,778,528	9,217,454	18,760,945	19,313,992	17,194,692	12,804,427	13,444,648	14,116,880	14,822,724	15,563,861
OTHER ADMIN EXPENSES		808,945	849,392	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506	1,276,282	1,340,096	1,407,100
SUBTOTAL		9,587,473	10,066,847	19,760,945	20,363,992	18,297,192	13,962,052	14,660,154	15,393,162	16,162,820	16,970,961
NET INCOME		28,669,176	29,638,981	20,738,999	20,945,950	23,838,950	29,016,813	29,178,287	29,322,049	29,446,695	29,550,744
COMPENSATION (GOVT)		15,000,000	12,996,043	13,069,743	19,517,064	19,701,693	19,889,215	27,693,382	28,021,985	28,356,338	39,584,756
TOTAL		43,669,176	42,635,023	33,808,741	40,463,014	43,540,642	48,906,028	56,871,669	57,344,034	57,803,032	69,135,500
LESS INCOME T	25.0%	32,751,882	31,976,268	25,356,556	30,347,261	32,655,482	36,679,521	42,653,752	43,008,025	43,352,274	51,851,625
			5,343,979								30,246,781
Period			0.1671	1.167	2.167	3.167	4.167	5.167	6.167	7.167	7.750
PV Factor			0.983	0.885	0.798	0.719	0.647	0.583	0.525	0.473	0.445
Discounted Value			5,251,583	29,931,708	32,272,882	31,286,096	31,658,909	33,167,028	30,128,384	27,359,947	13,471,172
Net Present Value after Compensation		234,527,709									
Without Compensation		28,669,176	29,638,981	20,738,999	20,945,950	23,838,950	29,016,813	29,178,287	29,322,049	29,446,695	17,237,934
less Income tax	25.0%		22,229,236	15,554,249	15,709,463	17,879,212	21,762,610	21,883,716	21,991,536	22,085,021	12,928,451
			5,968,397								7,541,596
PV Factor			0.983	0.885	0.798	0.719	0.647	0.583	0.525	0.473	0.445
Discounted Value			5,865,205	13,770,558	12,529,705	12,847,094	14,087,844	12,762,379	11,554,288	10,453,517	5,758,014
Net Present Value Bef C		99,628,605									

Computation of Resurfacing costs	Width	length	Rate psm	Est Costs
Two lane carriageway	14	8.5	50	5,950,000
Three lane carriageway	21	9	50	9,450,000
Total costs		17.5		15,400,000
Average cost per Km				880,000
Assuming the costs are spread over 2 years cost per year				7,700,000
Estimated costs of operation		**Base year**	**2012**	**9,217,454**
Add for increased costs		20.0%		1,843,491
Increased Costs		year	2013	11,060,945
Add for resurfacing				7,700,000
Estimated costs of operation + Resurf		year	2013	18,760,945
Estimated costs of operation + Resurf		year	2014	18,760,945
Add increase in operation at	5.0%	over	2013	553,047
Total Estimated costs of op + Resurf			2014	19,313,992
Operating Expense		year	2014	11,613,992
From then on increases	5.0%			580,700
Operating Expense		year	2015	12,194,692
Replacement of Eqipment and systems		year	2015	5,000,000
Costs in			2015	17,194,692
Op costs in		year	2016	12,804,427

VALUATION :

Adopting the Discount Cash Flow Method, we access the Market Value of the Bypass Expressway measuring 17.5 kilometres comprising of both 3 lane and 2 lane dual carriageway Expressway, with an unexpired term of about 7 years and 10 months, with vacant possession and free from any encumbrances, is as follows:-

Description	Market Value (RM)
Value before taking consideration of Government Compensation	RM104,500,000/-
Value after taking consideration of Government Compensation	RM237,000,000/-

THANK YOU

CONTACT
DATO' MANI USILPPAN
VPC ALLIANCE (KAJANG) SDN BHD
Email: vpckajang@vpc.com.my or
Personal: muarm@yahoo.com
Mobile:+60122999822
Office:+60387350181