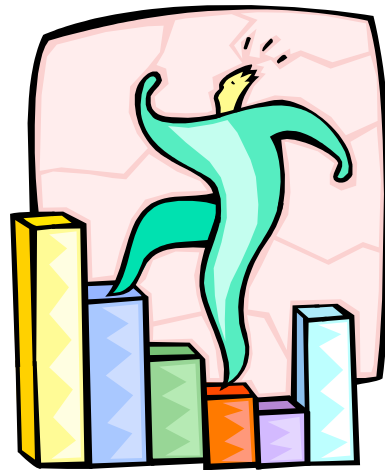


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# CapInvest



*Post Tax Pricing Techniques*

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The relationship between the Pre-Tax Return used in pricing a financing transaction and the Post-Tax Return can be set out as follows:

$$\text{Post Tax Return} = \text{Pre-Tax Return} * (1 - \text{tax rate})$$

For example, suppose Bank XYZ Ltd finances a USD 1 Million loan for a period of 5 years at 10% p.a., payable in arrear.

Using the Equated Calculation Mode of CI, the annual repayment is calculated as being USD 263,797.48. The following Amortization Table confirms the calculation


Year	Opening Bal	Financing Return (10%)	Total Due	Repayment	Closing Balance
1.00	1,000,000.00	100,000.00	1,100,000.00	263,797.48	836,202.52
2.00	836,202.52	83,620.25	919,822.77	263,797.48	656,025.29
3.00	656,025.29	65,602.53	721,627.82	263,797.48	457,830.34
4.00	457,830.34	45,783.03	503,613.37	263,797.48	239,815.89
5.00	239,815.89	23,981.59	263,797.48	263,797.48	0.00

If the income-tax rate is 33.33%, the return from the transaction after tax would be 6.67% as can be seen from the following table: The post-tax rate is obtained by calculating the IRR of the flows in the last column. Thus, the Post Tax Return is equivalent to the Pre-Tax Return X (1-tax rate) or 10% x 0.67%

Year	Taxable Income	Income Tax	Pre Tax Flows of Transaction	After Tax Flows of Transaction	(1,000,000)
1.00	100,000.00	-33,333.33	263,797.48	230,464.15	230,464.15
2.00	83,620.25	-27,873.42	263,797.48	235,924.06	235,924.06
3.00	65,602.53	-21,867.51	263,797.48	241,929.97	241,929.97
4.00	45,783.03	-15,261.01	263,797.48	248,536.47	248,536.47
5.00	23,981.59	-7,993.86	263,797.48	255,803.62	255,803.62
					6.67%

The actual return obtained by a financier is not the Pre-Tax Return but the Post-Tax Return.

Post-Tax  
IRR of  
Transaction



It would be interesting to see how the Post-Tax Return is calculated for a leasing transaction, using the same example as above, with a tax depreciation rate of 40% p.a., written-down value method, as set out in the next page.

To calculate the Post Tax Return from a leasing transaction,

- *a leasing company will need to include the entire repayment (lease rental) from the borrower (lessee) as taxable income, unlike the financing transaction, wherein only the finance income for a year is included as taxable income (and not the whole repayment from a borrower, which also includes a repayment of principal);*
- *a leasing company will set-off a depreciation charge against lease rental, to arrive at the taxable income for the year.*

The following tables set out the Post Tax Returns as arising from a range of Depreciation Rates used in calculating the Post Tax Return; Annex 1 contains the calculations.

Tax Depreciation Rate	Post Tax Return
25.00%	6.77%
40.00%	7.30%
50.00%	7.60%
66.67%	8.00%
100.00%	8.51%

As can be noted, the higher the tax depreciation rate, the higher is the Post-Tax Return from a lease. Since, a financier is concerned with the net return from a transaction, the yard-stick to use is the Post-Tax Return. If we assume a financier requires 6.67% as his Post-Tax Return, he will have no option but to price a transaction at 10%. On the other hand, a leasing company would have greater flexibility in setting the pricing for the lease, as can be seen:

- *With a tax depreciation rate of 40%, the pre-tax equivalent pricing rate is 9.1%*
- *With a tax depreciation rate of 50%, the pre-tax equivalent pricing rate is 8.8%*
- *With a tax depreciation rate of 66.67%, the pre-tax equivalent pricing rate is 8.4%*
- *With a tax depreciation rate of 100 the pre-tax equivalent pricing rate is 7.8%*

The above example assumes that the lease is signed on the first day of the tax accounting year, which is not necessarily the case – the post tax return will be even higher if the lease is signed towards the end of the tax accounting year. Thus, using an extreme example of a 100% tax depreciation item and signing of a lease on the last day of the tax accounting year, the Post Tax Return (10%) will be equivalent to the Pre-Tax Return (10%) – the tax shielding generated by the transaction completely nullifies the effect of tax. Since Post Tax is now equal to Pre-Tax, a leasing company can price the transaction at 6.67%, (as against the 10% that a financial institution would be compelled to price), and thus easily win business. Post-Tax Pricing is a powerful technique for winning market share without compromising a lessor's profit objectives.

*Using CapInvest to compute the Post Tax Rate of Return for a lease transaction with a 100% tax depreciation, with transaction signed on the last day of the tax accounting year.*

Note the Lease Start Date, which has been set to the last day of the tax accounting year

This would be the Post-Tax Return had this been a 'non-lease' transaction, given the tax rate of 33.33%

Note the Pre-Tax Pricing Rate of 10%

**Post Tax Analysis**

Clear Print

Quotation Date: 29-Mar-2003 5:27

Lease Start Date: 31-Dec-2004

Asset Description: Laptop Computers

Leasee: ABC Corporation

Asset Value: 1,000.00

Lease Term: 5.00

Annual Pricing Rate: 10.00%

Lease Rental: 263.80

Balloon: 0.00

Frequency: Yearly

Type: A/Lease

**Spinner Date Movements**

Monthly Beg  
☒ Monthly End  
☐ One Day At a Time

Random Calendar

Goal Seek Reports

LMF: 0.00%

Direct Expenses: 0.00

Depreciation: HALF Full Year

Depreciation Method: INDV

Depreciation Rate: 100.00%

Tax Year-End: 31-Dec

Tax Rate: 33.33%

Cost of Capital: 10.00%

**Custom Depreciation**

SUMMARY

Tax Delay (Months): 0

Period Rate: 10.00%

Total Periods: 5

First Payment Date: 31-Dec-2005

Last Payment Date: 31-Dec-2009

Total Revenue: 1,318.99

Gross Profit: 318.99

NPV of Lease: 0.00

**Flow in Use**

☒ naive ☐ Profiling

EMI

**Wrap-Up**

Pre-Tax Return: 10.00%

Expected Post Tax Return: 6.67%

Actual Post Tax Return: 10.00%

Depreciation Effect: Positive

Variance from Expected: 3.33%

Post Tax Return: 10.00%

Post Tax Cost of Capital: 6.67%

Post Tax Pricing Flexibility: 3.33%

Note the Actual Post Tax Return from the Lease, which is the same as the Pre-Tax Rate due to 100% depreciation

Note the Positive Depreciation effect of the transaction

Note the Positive Variance

Post Tax Cost of Capital is equal to Pre Tax Cost of Capital \* (1-tax rate)

Note the Pre-Tax Pricing Rate of 10%

Note the Tax Depreciation Rate of 100%

Note the lessor's pricing flexibility in this transaction – he can drop rates by an additional 3.33% and yet meet his profit objective, as reflected by his cost of capital (in this instance)

## LEASE Post Tax Analysis

## LEASE ASSET

Value	1,000.00
Balloon	0.00
Lease Start Date	31-Dec-2004
Duration	5
Payment Frequency	Yearly
Payment Type	Arrears
Annual Pricing Rate	10.00%
Yearly Lease Rental	264
Total Rental Periods	5
Total Rental	1,319
Total Depreciation	1,000
Depreciation Method	WDV
Depreciation Rate	100.00%
Depreciation Availability	Full Year
Depreciation Linkage	Asset
Tax Year-End	31-Dec
Tax Rate	33.33%
Tax Payment Delay (Months)	0

Depreciation Effect	POSITIVE
Built-In Return	10.00%
Expected Return	6.67%
Actual Return	10.00%
Variance	3.33%

Rental	Rental Date	Year-End
First Payment	31-Dec-2005	31-Dec-2005
Last Payment	31-Dec-2009	31-Dec-2009

LEASE ASSET	Purchase Date	Year-End
	31-Dec-2004	31-Dec-2004

Depreciation	First Y.E.	Last Y.E.
	31-Dec-2004	31-Dec-2009

## Dated Cash Flow of Lease

0	31-Dec-04	Investment	(1,000.00)
1	31-Dec-04	(Tax) / Shield	333.33
2	31-Dec-05	Rental	263.80
3	31-Dec-05	(Tax) / Shield	(87.93)
4	31-Dec-06	Rental	263.80
5	31-Dec-06	(Tax) / Shield	(87.93)
6	31-Dec-07	Rental	263.80
7	31-Dec-07	(Tax) / Shield	(87.93)
8	31-Dec-08	Rental	263.80
9	31-Dec-08	(Tax) / Shield	(87.93)
10	31-Dec-09	Rental	263.80
11	31-Dec-09	(Tax) / Shield	(87.93)
TOTAL			212.66

## Post Tax Cash Flow Schedule of LEASE - Investment Date: Dec 31 2004

Period	Tax Year-End	Lease Rental	Depreciation	Taxable Profits	Tax Charge	CF1	Investment	Cash Flow
0.00	Purchase of Asset						(1,000.00)	(1,000.00)
1.00	31-Dec-2004	0.00	1,000.00	(1,000.00)	333.33	333.33		333.33
2.00	31-Dec-2005	263.80	0.00	263.80	(87.93)	175.87		175.87
3.00	31-Dec-2006	263.80	0.00	263.80	(87.93)	175.87		175.87
4.00	31-Dec-2007	263.80	0.00	263.80	(87.93)	175.87		175.87
5.00	31-Dec-2008	263.80	0.00	263.80	(87.93)	175.87		175.87
6.00	31-Dec-2009	263.80	0.00	263.80	(87.93)	175.87		175.87
TOTALS		1,319	1,000	319	(106)	1,213	(1,000)	213

**Annex 1**

Depreciation		25.00%		Post Tax Return		6.77%
Year	Lease Rental	Depreciation	Taxable Income	Income Tax	After Tax Flows	-1,000,000.00
1.00	263,797.48	-250,000.00	13,797.48	-4,599.16	259,198.32	259,198.32
2.00	263,797.48	-187,500.00	76,297.48	-25,432.49	238,364.99	238,364.99
3.00	263,797.48	-140,625.00	123,172.48	-41,057.49	222,739.99	222,739.99
4.00	263,797.48	-105,468.75	158,328.73	-52,776.24	211,021.24	211,021.24
5.00	263,797.48	-316,406.25	-52,608.77	17,536.26	281,333.74	281,333.74
	1,318,987.40	-1,000,000.00	318,987.40	-106,329.13	1,212,658.27	

Depreciation		40.00%		Post Tax Return		7.30%
Year	Lease Rental	Depreciation	Taxable Income	Income Tax	After Tax Flows	-1,000,000.00
1.00	263,797.48	-400,000.00	-136,202.52	45,400.84	309,198.32	309,198.32
2.00	263,797.48	-240,000.00	23,797.48	-7,932.49	255,864.99	255,864.99
3.00	263,797.48	-144,000.00	119,797.48	-39,932.49	223,864.99	223,864.99
4.00	263,797.48	-86,400.00	177,397.48	-59,132.49	204,664.99	204,664.99
5.00	263,797.48	-129,600.00	134,197.48	-44,732.49	219,064.99	219,064.99
	1,318,987.40	-1,000,000.00	318,987.40	-106,329.13	1,212,658.27	

Depreciation		50.00%		Post Tax Return		7.60%
Year	Lease Rental	Depreciation	Taxable Income	Income Tax	After Tax Flows	-1,000,000.00
1.00	263,797.48	-500,000.00	-236,202.52	78,734.17	342,531.65	342,531.65
2.00	263,797.48	-250,000.00	13,797.48	-4,599.16	259,198.32	259,198.32
3.00	263,797.48	-125,000.00	138,797.48	-46,265.83	217,531.65	217,531.65
4.00	263,797.48	-62,500.00	201,297.48	-67,099.16	196,698.32	196,698.32
5.00	263,797.48	-62,500.00	201,297.48	-67,099.16	196,698.32	196,698.32
	1,318,987.40	-1,000,000.00	318,987.40	-106,329.13	1,212,658.27	

Depreciation		66.67%		Post Tax Return		8.00%
Year	Lease Rental	Depreciation	Taxable Income	Income Tax	After Tax Flows	-1,000,000.00
1.00	263,797.48	-666,666.60	-402,869.12	134,289.71	398,087.19	398,087.19
2.00	263,797.48	-222,222.24	41,575.24	-13,858.41	249,939.07	249,939.07
3.00	263,797.48	-74,074.10	189,723.38	-63,241.13	200,556.35	200,556.35
4.00	263,797.48	-24,691.37	239,106.11	-79,702.04	184,095.44	184,095.44
5.00	263,797.48	-12,345.69	251,451.79	-83,817.26	179,980.22	179,980.22
	1,318,987.40	-1,000,000.00	318,987.40	-106,329.13	1,212,658.27	

**Annex 1**

Depreciation		100.00%			Post Tax Return	8.51%
Year	Lease Rental	Depreciation	Taxable Income	Income Tax	After Tax Flows	-1,000,000.00
1.00	263,797.48	-1,000,000.00	-736,202.52	245,400.84	509,198.32	509,198.32
2.00	263,797.48	0.00	263,797.48	-87,932.49	175,864.99	175,864.99
3.00	263,797.48	0.00	263,797.48	-87,932.49	175,864.99	175,864.99
4.00	263,797.48	0.00	263,797.48	-87,932.49	175,864.99	175,864.99
5.00	263,797.48	0.00	263,797.48	-87,932.49	175,864.99	175,864.99
	1,318,987.40	-1,000,000.00	318,987.40	-106,329.13	1,212,658.27	