

**CMA DECEMBER, 2019 EXAMINATION
STRATEGIC LEVEL
SUBJECT: F3. FNS-FINANCIAL STRATEGY**

MODEL SOLUTION

Section A

Solution of the Question No. 01

(g) $YTC = \frac{[(\text{Annual Interest} + ((\text{Call Price} - \text{Bond Price}) / \text{Period to Call}))]}{[(\text{Call Price} + \text{Bond Price})/2]}$
 $= \frac{[80 + ((1050 - 1100)/5)]}{[(1050 + 1100)/2]}$
 $= (80 - 10)/1075$
 $= 6.50\%$

(h) $WACC = K_e (1 - t L)$; where, WACC = Weighted average cost of capital in a levered firm, t = tax rate, L = gearing ratio = Debt/(Debt + Equity)
 $K_e = 11\% / [1 - (0.35)(1.5/2.5)]$
 $= 11\% / 0.79$
 $= 13.92\%$

Section B

Solution of the Question No. 02

2(c)

The cash flows each year will be:

Year 1: $Tk. 7,500,000 (1 + 0.08) = Tk. 8,100,000$
Year 2: $Tk. 7,500,000 (1 + 0.08)^2 = Tk. 8,748,000$
Year 3: $Tk. 7,500,000 (1 + 0.08)^3 = Tk. 9,447,840$
Year 4: $Tk. 7,500,000 (1 + 0.08)^4 = Tk. 10,203,667$
Year 5: $Tk. 7,500,000 (1 + 0.08)^5 = Tk. 11,019,961$
Year 6: $Tk. 7,500,000 (1 + 0.04)^6 = Tk. 11,460,759$

The terminal value is:

$$TV_5 = [Tk. 11,460,759 / (.10 - .04)] = Tk. 191,012,650$$

The value of Arras today is:

$$V_0 = Tk. 8,100,000 / 1.10 + Tk. 8,748,000 / 1.10^2 + Tk. 9,447,840 / 1.10^3 + Tk. 10,203,667 / 1.10^4 + (Tk. 11,019,961 + Tk. 191,012,650) / 1.10^5$$
$$= Tk. 7,363,636 + Tk. 7,229,752 + Tk. 7,098,302 + Tk. 6,969,242 + Tk. 6,842,529 + Tk. 118,603,827$$
$$= Tk. 154,107,288$$

The market value of equity is the market value of the company minus the market value of the debt, or:

$$\text{Value of Stock} = Tk. 154,107,288 - Tk. 25,000,000 = Tk. 129,107,288$$

$$\text{Maximum offer price} = Tk. 129,107,288 / 3,000,000 = Tk. 43.04$$

2(d)

- i. The percentage return reported by the fund:
 $(57.80 - 50 + 2.34)/50 = 20.28\%$.
- ii. The shares cost $\$50 + .04(\$50) = \$52$. When the shares are redeemed, the investor nets $\$58.38(0.99) = \57.80 .

The percentage return is $(\$57.80 - 52 + 2.34)/\$52 = 15.65\%$.

- iii. The load fee charged when the shares are purchased and the exit fee charged when the shares are redeemed decrease the return the investor realizes.

2 (e)

Sales	\$33,000,000
Cost of Goods Sold	<u>19,440,000</u>
Gross Profit	13,560,000
Selling and Administrative Expense	3,600,000
Depreciation Expense	<u>4,400,000</u>
Earnings before Taxes	5,560,000
Taxes (30%)	<u>1,668,000</u>
Earnings after Taxes	3,892,000
Plus Depreciation	<u>4,400,000</u>
Cash Flow	<u>\$8,292,000</u>

Year	Projected Cash Floor (12% Growth)
2	9,287,040
3	10,401,484
4	11,649,662
5	13,047,621
6	14,613,335
7	16,366,935
8	18,330,967
9	20,530,683
10	<u>22,994,364</u>

Year	Projected Cash Flow	10% Discount Rate	Present Value
1	8,292,000	.909	\$7,537,428
2	9,287,040	.826	7,671,095
3	10,401,484	.751	7,811,514
4	11,649,662	.683	7,956,719
5	13,047,621	.621	8,102,573
6	14,613,335	.564	8,241,921
7	16,366,935	.513	8,396,238
8	18,330,967	.467	8,560,562
9	20,530,683	.424	8,705,001
10	22,994,364	.386	<u>8,875,825</u>
Sum of Present Value			\$81,858,876

Sales Price	\$140,000,000
Taxes (15%)	<u>21,000,000</u>
A/T Sales Proceeds	119,000,000
PV Factor ($n = 10, i = 10\%$)	.386
PV of A/T Sales Proceeds	\$45,934,000

Total Proceeds

Sum of Present Value	\$81,858,876
PV of A/T Sales Proceeds	<u>45,934,000</u>
Total Proceeds	\$127,792,876
Total Proceeds	\$127,792,876
- Purchase Price	<u>100,000,000</u>
Positive Return	27,792,876

The company should be purchased based on present value analysis.

Section C

Solution of the Question No. 03

(a) The lease versus buy decision can be evaluated by calculating the present value of the incremental post tax financing cash flows at the post tax cost of debt as shown below:

	Base	0	1	2	3	4	5	6	7
		EUR m	EUR m	EUR m	EUR m	EUR m	EUR m	EUR m	EUR m
Interest Calculation									
Balance b/f			6.00	5.20	4.33	3.38	2.34	1.21	
Interest at 9.0%			0.54	0.47	0.39	0.30	0.21	0.11	
Lease payment	1.34		(1.34)	(1.34)	(1.34)	(1.34)	(1.34)	(1.34)	
Balance c/f			5.20	4.33	3.38	2.34	1.21	(0.02)	
Buy									
Purchase asset		(6.0)							
Tax relief 30%				1.80					
Versus Lease									
Tax relief on depreciation	30% x 6/6			(0.30)	(0.30)	(0.30)	(0.30)	(0.30)	(0.30)
Tax relief on interest				(0.16)	(0.14)	(0.12)	(0.09)	(0.06)	(0.03)
Lease payment			1.34	1.34	1.34	1.34	1.34	1.34	
Net cash flow		(6.0)	1.34	2.68	0.90	0.92	0.95	0.98	(0.33)
Discount factor at 5% (= 7% x (1 - 30%))	5%	1.0	0.952	0.907	0.864	0.823	0.784	0.746	0.711
Discounted cash flow		(6.0)	1.3	2.4	0.8	0.8	0.7	0.7	(0.2)
Total NPV at 5%	0.48								
NPV at 4.9%	0.49								

Conclusion: In this scenario, Scheme A to buy outright is cheaper by EUR 480,000 (based on the present value of incremental cash flows discounted at the post tax cost of debt).

(b) The decision to invest in the equipment being financed will have already been evaluated taking project specific risk into account. The evaluation in (a) is being used to support the financing decision rather than the investment decision. Cash flows should be discounted at either WACC or project specific discount rate when evaluating the investment decision since the project is financed using the company's debt and equity resources. However, the financing decision is a separate decision and the discount rate should be tailored appropriately. In the financing decision, we can use debt as the 'base line' and compare other forms of finance to the cost of debt by using the cost of debt as the discount rate. The post-tax cost of debt is the opportunity cost of leasing and can be used to discount the incremental cash flows arising from leasing as compared to buying outright using this discount rate. Note that it would have been equally acceptable to use leasing as the 'base' instead of debt and hence discount cash flows at the post tax implied cost of leasing. However, it is generally simpler to discount at the post tax cost of debt.

(c) Cost

As seen in (a), the 'buy/borrow' approach is cheaper than a finance lease on the basis of the data provided. This is largely due to the higher implied interest under the finance lease of 9% versus 7% for bank debt. Tax depreciation allowances are also accelerated under the bank debt, with a 100% deduction available in year 1 rather than spread over the 6 year period as in the lease. This may not be an issue, though, if the lessor can also claim a 100% deduction in year one and builds this into the price of the lease rental.

However, it is not clear whether the cost of debt quoted would apply in this case. Indeed, GG may be able to negotiate a lower rate of interest for a loan secured against an asset. The bank may also charge a different rate for a fixed rate 6 year loan.

Timing of funding cash flows

Under the lease, the funding is built into the lease rentals and hence interest is only charged on the outstanding balance at any point in time. If a term loan from a bank is for a fixed principal value for the 6 year term, it will involve higher interest costs than shown in the analysis in requirement (a). An amortizing loan may be charged at a higher interest rate. The evaluation in (a) would need to be adjusted to take this into account.

Ease of arrangement

A bank loan secured against the asset could be costly and time consuming to arrange as the bank assesses the value of the asset. In this case, the vendor of the equipment is offering a finance package to make their product more attractive to potential purchasers. It may therefore be quicker and cheaper to arrange a finance lease than a separate purchase agreement and bank loan in this instance. Additional costs of the bank debt option should therefore be built into the analysis.

Flexibility

Under the buy/borrow approach, GG owns the equipment outright and therefore has the flexibility to dispose of or upgrade the equipment to reflect future changes and the needs of the business. Such flexibility is unlikely to be provided under the finance lease arrangement. However, if the lease arrangement were to include the opportunity to upgrade the equipment, a lease might prove to be more flexible than the buy/borrow approach. Without knowing the details of the lease arrangement, it is not possible to draw any firm conclusions on this issue. **Residual value of the equipment**

Under the buy/borrow approach, GG may benefit from residual value of the equipment at the end of the six years. Although expected to be negligible, the equipment may perform better than expected and have some unexpected residual value at the end of the six year term. This would increase the attractiveness of the buy/borrow approach.

Maintenance

It is not clear from the information whether the leasing company would be responsible for the maintenance of the equipment. Given the level of lease rentals it is unlikely that maintenance costs fees are included, however, it is possible that the leasing company might provide maintenance at an additional cost, which might be cheaper than GG's own cost. Equally it might be that GG would provide maintenance in both situations and therefore this would not be a relevant consideration.

Solution of the Question No. 4

1. a. According to Figure 1, there are 113,640,000 shares of National Brands outstanding. But, A-1 already owns 5% of them, or 5,682,000, so it will only have to buy the remaining 107,958,000. At \$55 each, the total price will be \$5,937,690,000 (a little over \$5.9 billion).
- b. The amount of liquid assets (i.e., cash and equivalents) on hand at National is \$1,153,000,000. If A-1 can use this amount to offset the amount of borrowing required, the total amount it will have to borrow is

$$\$5,937,690,000 - \$1,153,000,000 = \$4,784,690,000$$

- c. After the purchase, A-1's total debt will consist of:

A-1's old debt:	\$1,899,500,000
National's debt:	\$2,110,300,000
Amount borrowed:	<u>\$4,784,690,000</u>
Total:	\$8,794,490,000

Since all the funds to make the purchase were borrowed, A-1's total equity remains \$395,000,000 after the purchase. Its debt to equity ratio after the purchase, therefore, is:

$$\$8,794,490,000 / \$395,000,000 = 22.26 \text{ to } 1!$$

This is astonishing. Such high debt to equity ratios are not normally encountered except in financial institutions, such as banks. (In fact, A-1's balance sheet resembles that of a bank—over 75% of its assets are in cash and equivalents, lending credence to the charge that corporations such as A-1 aren't "real" corporations after all, merely shells, or deposit accounts used by their owners to make acquisitions.)

Given such a high debt to equity ratio, it is difficult to imagine how Mr. O'Brien could finance the purchase of National using debt sources.

- d. In *b*, above, we computed that \$4,784,690,000 was needed to make the purchase. If A-1 issues stock at \$13 a share to raise the funds, it will need to issue 368,053,077 new shares.
- e. The total number of shares outstanding at A-1 after the purchase will be the 61,800,000 old shares plus 368,053,077 newly issued ones. Total expected earnings are the \$152,000,000 A-1 originally expected plus \$400,000,000 from National. So, A-1's EPS after the purchase will be:

$$\begin{aligned} &(\$152,000,000 + \$400,000,000) / (61,800,000 + 368,053,077) \\ &= 552,000,000 / 429,853,077 = \$1.28 \end{aligned}$$

- f. \$1.28 represents a 48% decline from A-1's previous expected EPS of \$2.46 (the decline, of course, was caused by the fact that National's P/E is much higher than A-1's). A-1's stockholders will not be pleased, unless Mr. O'Brien can convince them that they will be better off in the long run (unlikely—National's growth rate is not high enough), or he has some other plan in mind, such as selling off pieces of National at a profit. National's stockholders, on the other hand, will realize an immediate 15% capital gain. $(\$7.12 / \$47.88) = 15$ percent based on the difference between the \$55 offer and the current price of \$47.88. They may be more satisfied, though 15 percent is a relatively small premium.
- g. Employing the Pac Man defense will cost National \$17 a share times the 61,800,000 shares of A-1 outstanding, or \$1,050,600,000.

2. a As a result of A-1's offer to buy National, National's stockholders stand to realize a 15% capital gain, but National's management is against the move and will try to convince the stockholders to reject it. On the other hand, A-1's stockholders stand to realize a 31% capital gain (\$4 to \$13) if National buys A-1, and nothing in the case indicates that Mr. Kelly O'Brien would resist such a deal. Therefore, it seems likely that National's bid to purchase A-1 will prevail. It is tough to dismiss the suggestion that he may have engineered the entire situation merely to elicit the Pac Man response from National. In fact, this suggestion was reported in the press concerning the companies upon which this case is based.

b It is difficult to say whether or not National's stockholders are better off as a result of their company's employment of the Pac Man defense. On the one hand they have been denied the chance for a 15% capital gain. On the other, they have gained a set of assets which may or may not achieve an equal gain, even in the long term. Further, the assets were not purchased as a part of an integrated capital budgeting program, but were obtained under duress. On balance, it would appear that A-1's stockholders would be the big winners in this situation.

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