

THE INSTITUTE OF COST AND MANAGEMENT ACCOUNTANTS OF BANGLADESH
CMA JUNE, 2018 EXAMINATION
STRATEGIC LEVEL
SUBJECT: F3 FINANCIAL STRATEGY

Model Solution

Solution to the question No. 1 (a)

- Capital budgeting
 - What long-term investments or projects should the business take on?
- Capital structure
 - How should we pay for our assets?
 - Should we use debt or equity?
- Working capital management
 - How do we manage the day-to-day finances of the firm?

Capital budgeting

- What is the optimal firm size?
- What specific assets should be acquired?
- What assets (if any) should be reduced or eliminated?

Capital structure

- What is the best type of financing?
- What is the best financing mix?
- How will the funds be physically acquired?

Working capital management

- How do we manage existing assets *efficiently*?
- Greater emphasis on current asset management than fixed asset management
- How much cash and inventory should be kept on hand?
- Should credit terms be extended? If so, what are the conditions?
- How is short-term financing acquired?

Solution to the question No. 1 (b)

(a)

	Year	2015	2016	2017
i	Dividend cover based on profit/(loss)	$2.50 = 300/120$	$1.88 = 300/160$	$(0.59) = (100)/170$
ii	Number of shares	600	$800 = 600 + 600/3$	800 As for 2016
	Dividend per share	$0.20 = 120/600$	$0.20 = 160/800$	$0.21 = 170/800$
iii	Free cash flow	$\$240m = 300 + 100 - 160$	$(\$300m) = 300 + 100 - 700$	$(\$280m) = (100) + 120 - 300$

(b) The above analysis shows a consistency in dividend per share despite large differences in profits and free cash flows from year to year.

It would therefore appear that G is following a policy of constant or constantly growing dividend per share, irrespective of the level of profit or capital expenditure demands on liquidity. This is likely to be the result of having the majority of the company's shares owned by large institutional investors who prefer regular dividends.

(b)

Benefits of the current dividend policy:

- The current dividend policy of a constant dividend per share with a small element of growth allows investors to anticipate the level of cash dividend that they will receive. This is likely to be especially important to institutional investors (which accounts for 2/3rds of G's investors) where certainty of cash flow is important.
- Maintaining a steady dividend also sends a signal to the capital market that G is stable and therefore might encourage new investment or new investors.
- The current policy also allows G to plan its cash flows as the level of dividend to be paid will be known in advance.

Drawbacks of the current dividend policy:

- Paying a constant level of dividend per share could lead to liquidity problems for G if there are insufficient liquid resources to support the dividend payment. If the dividend is financed in part by raising new debt, this could have an impact on the cost of capital of G and therefore its value. • Also, if the dividend payment takes priority then G could miss out on investment opportunities with positive NPV's which could increase the company's value and therefore the share price. Given the market in which G operates it is particularly important that investment is on-going otherwise it could lose competitive advantage.
- Finally, following this policy, despite declining profitability and cash flow, could send a signal to the market that the management of G are not adapting to changing circumstances.

Possible Alternative Policies:

- G could pay a scrip dividend rather than a cash dividend. The dividend record is maintained in nominal terms but cash is conserved for reinvestment in the business.
- G could adopt a residual policy whereby dividends are paid out of the resources available after all necessary and profitable investment opportunities have been taken. This would introduce greater volatility in dividend payments and would have resulted in a dividend of nil in 2016 and 2017 as a result of the negative free cash flow.
- Alternatively, G could follow a policy of paying a certain percentage of profit as a dividend. This would also lead to greater volatility of dividend payments, but has the advantage of linking dividends to profit levels. However, it doesn't allow investment expenditure to be funded by a reduction in dividends. In 2017, a policy of paying a certain percentage of profit as dividend would have led to a dividend of nil.

Solution to the question No. 2

(a)

- Short-term Financing:
 - 1) Spontaneous Financing (trade credit)
 - 2) Negotiated Financing (working capital loans)
 - 3) Factoring Accounts Receivable (A/R discounting)
- Long-term Financing
 - 1) Ordinary Shares (common share issuance)
 - 2) Preference Shares
 - 3) Debentures
 - 4) Term Loan

(b)

i. $Q^* = \frac{\sqrt{2(600,000)(\$800)}}{(.10)(\$3.20)} = 54,772 \text{ lbs.}$

ii. Number of orders placed annually = $\frac{600,000}{54,772} = 10.95$

iii. Average inventory = $\frac{54,772}{2} + 15,000 = 42,386 \text{ lbs.}$

iv. $15,000 \text{ lbs.} + ((600,000/365) \times 6) \text{ lbs.} = 24,863 \text{ lbs.}$

v. Total inventory costs = $(42,386)(.10)(\$3.20) + 10.95(\$800) = \$22,324$

(c)

- i. Short term interest rates increase unexpectedly--- systematic risk (macro/market factor)
- ii. The interest rate a company pays on its short term debt borrowing is increased by its bank--- unsystematic risk (it can be managed or changed by management decision)
- iii. A manufacturer loses a multimillion dollar product liability suit.-- unsystematic risk (business risk)
- iv. A Supreme Court decision substantially broadens producer liability for injuries suffered by product users.—systematic risk (judiciary decision for the whole market)

Solution to the question No. 3 (a)

- (i) The Break Point = $[NI \times (1-DPR)] / W_e$ Where, NI = Net Income, DPR= Dividend Payout Ratio, W_e = Weight of Retained Earnings in the target capital structure

$$\begin{aligned}\text{The Break Point} &= [NI \times (1-DPR)] / W_e \\ &= [\text{Tk.}34,285.72 \times (1 - 0.3)] / 0.6 \\ &= \text{Tk.}40,000\end{aligned}$$

(ii) The cost of each component in the capital structure:

Common Stock:

$$\begin{aligned}K_s &= (D_1/P_0) + g \\ &= [3.60(1.09)/60] + 0.09 \\ &= 0.0654 + 0.09 \\ &= 0.1554 \text{ or } \mathbf{15.54\%}\end{aligned}$$

$$\begin{aligned}K_{n1} &= (D_1/P_n) + g && \text{[new common stock with 10\% floatation cost]} \\ &= [3.60(1.09)/(60-6)] + 0.09 \\ &= 0.0727 + 0.09 \\ &= 0.1627 \text{ or } \mathbf{16.27\%}\end{aligned}$$

$$\begin{aligned}K_{n2} &= (D_1/P_n) + g && \text{[new common stock with 20\% floatation cost]} \\ &= [3.60(1.09)/(60-12)] + 0.09 \\ &= 0.0818 + 0.09 \\ &= 0.1718 \text{ or } \mathbf{17.18\%}\end{aligned}$$

$$\begin{aligned}K_{s1} &= (K_s + K_{n1})/2 \\ &= (15.54\% + 16.27\%)/2 \\ &= \mathbf{15.91\%}\end{aligned}$$

$$\begin{aligned}K_{s2} &= (K_s + K_{n2})/2 \\ &= (15.54\% + 17.18\%)/2 \\ &= \mathbf{16.36\%}\end{aligned}$$

Preferred Stock:

$$K_{ps1} = D_p/N_p = \text{Tk.}11/(\text{Tk.}100-5) = \mathbf{11.58\%} \text{ [at Tk.5 as floatation cost]}$$

$$K_{ps2} = D_p/N_p = \text{Tk.}11/(\text{Tk.}100-10) = \mathbf{12.22\%} \text{ [at Tk.10 as floatation cost]}$$

Debt:

$$K_{dt1} = K_d (1-t) = 12\% (1-.4) = \mathbf{7.2\%} \text{ [debt level from 5001-10,000]}$$

$$K_{dt1} = K_d (1-t) = 14\% (1-.4) = \mathbf{8.4\%} \text{ [debt level over Tk.10,000]}$$

(iii) Weighted average cost of capital(WACC):

$$\begin{aligned}WACC_1 &= (K_{s1} \times W_s) + (K_{ps1} \times W_{ps}) + (K_{kdt1} \times W_d) \\ &= (15.91\% \times 0.6) + (11.58\% \times 0.15) + (7.2\% \times 0.25) \\ &= 9.55\% + 1.74\% + 1.8\% \\ &= \mathbf{13.09\%}\end{aligned}$$

$$\begin{aligned}WACC_2 &= (K_{s2} \times W_s) + (K_{ps2} \times W_{ps}) + (K_{kdt2} \times W_d) \\ &= (16.36\% \times 0.6) + (12.22\% \times 0.15) + (8.4\% \times 0.25) \\ &= 9.82\% + 1.83\% + 2.1\% \\ &= \mathbf{13.75\%}\end{aligned}$$

(b) We have given, $D_0 = \text{Tk.}3.48$, $g_1=15\%$, $g_2 =8\%$, $r=12\%$

$$P_0 = P_6(1+r)^{-6}$$

$$P_6 = D_7/(r-g_2)$$

$$D_7 = D_6(1+g_2)$$

$$D_6 = D_0(1+g_1)^6 = \text{Tk.}3.48(1.15)^6 = \text{Tk.}8.05$$

$$D_7 = D_6(1+g_2) = \text{Tk.}8.05 (1.08) = \text{Tk.}8.69$$

$$P_6 = D_7/(r-g_2) = \text{Tk.}8.69/(0.12-0.08) = \text{Tk.}217.25$$

$$P_0 = P_6(1+r)^{-6} = \text{Tk.}217.25 (1.12)^{-6} = \text{Tk.}217.25 (0.5066) = \text{Tk.}110.06$$

(c) **Bond Value:**

Bond Value (BV_n) = \$1000, Coupon rate (C) = 12%, Annual Coupon Payment (CP_{yearly}) = \$120, Half Yearly Coupon Payment ($CP_{\text{half yearly}}$) = \$60, $N=10$ Years, Half-yearly total period (nm) = $10 \times 2 = 20$, Required rate of return (r) = 16%

Half-Yearly

$$\begin{aligned} BV_0 &= CP (PVIFA_{8\%nm=20}) + BV_n (PVIF_{8\%nm=20}) \\ &= \$60 (9.8182) + \$1000 (0.2145) \\ &= \$589.09 + \$214.5 \\ &= \mathbf{\$803.59} \end{aligned}$$

$$\begin{aligned} BV_0 &= CP (PVIFA_{16\%n=10}) + BV_n (PVIF_{16\%n=10}) \\ &= \$120 (4.8332) + \$1000 (0.2267) \\ &= \$579.98 + \$226.7 \\ &= \mathbf{\$806.68} \end{aligned}$$

Solution to the question No. 4 (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							
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	30% x			(0.30)	(0.30)	(0.30)	(0.30)	(0.30)	(0.30)

on depreciation	6/6								
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).

Solution to the question No. 4 (b)

- i. False. Although the reasoning seems correct, in general, the new firms do not have monopoly power. This is especially true since many countries have laws limiting mergers when it would create a monopoly.
- ii. True. When managers act in their own interest, acquisitions are an important control device for shareholders. It appears that some acquisitions and takeovers are the consequence of underlying conflicts between managers and shareholders.
- iii. False. Even if markets are efficient, the presence of synergy will make the value of the combined firm different from the sum of the values of the separate firms. Incremental cash flows provide the positive NPV of the transaction.
- iv. False. In an efficient market, traders will value takeovers based on “fundamental factors” regardless of the time horizon. Recall that the evidence as a whole suggests efficiency in the markets. Mergers should be no different.
- v. False. The tax effect of an acquisition depends on whether the merger is taxable or non-taxable. In a taxable merger, there are two opposing factors to consider, the capital gains effect and the write-up effect. The net effect is the sum of these two effects.
- vi. True. Because of the coinsurance effect, wealth might be transferred from the stockholders to the bondholders. Acquisition analysis usually disregards this effect and considers only the total value.

Solution to the question No. 5

(a) Factors that are likely to affect the success of the MBO include:

The potential growth of the business

There are high risks involved for both the MBO team and the other main stakeholders, namely the venture capitalist and the bank. If the business fails to realize growth, all these parties could lose significant amounts. It is therefore critical that the MBO team succeeds in growing the business and increasing its value following the MBO. The business plan is likely to depend on the ability to

increase revenue through entering new markets and increasing market share and/or margins in current markets.

The management team believes that there is huge growth potential by developing the brand beyond simply fashion into a lifestyle brand for young families and home furnishings. Breaking into a new market can be a costly exercise and it can take time to build a market presence. Due to the timescales envisaged by the venture capitalist, with an IPO in just 4 years' time, it may not be realistic to be able to successfully move into such new markets and generate high profits from such new areas of business within such a short time frame.

Economic developments

Success of the business is also dependent on the economic environment and how this changes in future years. QQ is a fashion brand aimed at the younger end of the fashion market and so it depends on the younger generation being in employment and having sufficient disposable income to be able to purchase QQ's products.

Ability of the MBO team

The strength of the management team will be critical to the efficient and effective management and development of the business and hence the future prospects of the business. The MBO team also needs to have the ability to take over many head office functions that it may have had little exposure or expertise in to date. It will need to recruit experts in areas such as finance, funding, cash management and human resources. Economies of scale would be lost by having to set up separate head office functions.

Availability of funding

The MBO cannot proceed until appropriate financing has been arranged. Funding needs to be serviced, with sufficient cash available to pay the interest as it falls due and keep within any debt covenants imposed by the bank.

The purchase price

The purchase price is an important contributory factor to the success of the MBO. If the price is unrealistically high, the management team may struggle to realize added value after purchase. The appropriateness of the agreed price of B\$ 450 million is therefore one of the key factors underpinning the success of the MBO.

(b)(i) The VC is making a B\$ 180 million equity investment. To generate a return of 25% a year on a compound basis this investment will need to grow to B\$ 439.5 million (= B\$ 180 million x (1.25)⁴) at the end of 4 years.

The VC investment represents 80% (= 180/(180+45) x 100%) of the equity, therefore the total equity value will need to be B\$ 549.4 million (= B\$ 439.5 million / 0.80).

Alternative approach:

B\$ 549.4 million = B\$ 225 million x (1.25)⁴

(b) (ii) To establish the value of QQ's equity at 30 June 2018 (i.e. in 4 years' time) we need to first calculate the free cash flow after tax and financing costs for the year ended 30 June 2018 as our starting point. This can then be assumed to be equivalent to earnings.

	B\$ million	Workings
Post tax cash flows before financing costs	70.8	B\$ 72 million x 0.7 x (1.12) ³
After tax cost of financing the VC loan	(8.7)	B\$ 112.5 million x 11% x 0.7
After tax cost of financing the bank loan	(5.5)	B\$ 112.5 million x 7% x 0.7
Therefore earnings	56.6	

At P/E of 8.5:

Value of QQ's equity = $8.5 \times \text{B\$ } 56.6 \text{ million} = \text{B\$ } 481 \text{ million}$.

At P/E of 12:

Value of QQ's equity = $12 \times \text{B\$ } 56.6 \text{ million} = \text{B\$ } 679 \text{ million}$.

(c) Acceptability of the proposed financing arrangement to the venture capitalist

Under the proposed financing arrangement the VC would provide 65% of the total level of funding required and hence will be taking the majority of the risk. It would appear that the MBO team has attempted to manage this risk by suggesting that the VC investment be split into equity and debt elements.

The VC debt element would on first impression seem attractive as there would be a certain return of 11% a year on the funds invested and the VC would at least generate some cash return over the four years of its investment. However, it is proposed that this loan is unsecured which means that it would rank behind the secured bank debt which is also being sought by the MBO team. Given the riskiness of this venture, the VC is unlikely to accept either the level of debt suggested or the nature of its security without a significant increase in the return offered.

The VC equity element suggested involves the use of "B" equity shares which have limited voting rights. This enables the MBO team to retain control over the key operating decisions in the business, whilst still giving the VC some say and involvement through representation on the Board. This is not an unusual situation to find where VC investment is involved and is therefore likely to be acceptable.

Another aspect of the VC equity investment is the acceptability of the return that it might generate. That is, whether 25% on a compound basis is likely to be acceptable and also whether a 25% return is actually achievable.

Calculations in part (b) (i) show that QQ's equity needs to have a value of B\$ 549.4 million, on 30 June 2018, in order to satisfy the VC's 25% compound return. However, the calculations in part (b) (ii) show that the anticipated value of QQ's equity on that date could range from B\$ 476.0 million to B\$ 672.0 million depending on the P/E ratio achieved on IPO. Clearly there is therefore a risk that the VC will not be able to achieve a 25% compound return on its equity investment.

Even if the valuation of QQ could be guaranteed at B\$ 549.4 million on 30 June 2018, it is questionable whether the VC would even accept a 25% return on its equity investment. It is more likely that the VC will want an overall return of at least 25% on a compound basis on all of its investment (that is, both the debt and equity element). As it stands the proposal is offering a compound return of 19.8% (see working) which is unlikely to be acceptable.

Working (all workings in B\$ million):

Total return in B\$ million = Return on equity from (b)(i) + return from debt
= $(\text{B\$ } 439.5 \text{ million} - \text{B\$ } 180 \text{ million}) + (\text{B\$ } 112.5 \text{ million} \times 11\% \times 4) = \text{B\$ } 309 \text{ million}$.

Total proceeds from the investment are B\$ 601.5 million over the 4 years.

Workings: $601.5 = 439.5 + 112.5 + (112.5 \times 11\% \times 4)$.

The return on investment ignoring the time value of money on interest receipts is therefore 19.8% $(= (601.5/292.5)^{0.25} - 1)$. In conclusion, it is unlikely that the VC will accept the proposal.

= THE END =