

**CPA PART III
FINANCIAL MANAGEMENT
QUESTIONS**

NUMBER ONE

TD Ltd is comprised of 4 major projects, details of which as follows:

Project with	% of the Co. Market value	% returns p.a.	Risk (%) Std. Deviation	Correlation the market
1	28	10	15	0.55
2	17	18	20	0.75
3	31	15	14	0.84
4	24	13	18	0.62

The risk free rate is 5% and the market return is 14% p.a. The standard deviation of the market return is 13%.

Required:

- Evaluate whether or not the share price of TD Ltd is overvalued or undervalued. (12 marks)
- Discuss why your results in (a) above might not correctly identify whether or not the share price of TD Ltd is undervalued or overvalued. (8 marks)

(Total: 20 marks)

NUMBER TWO

- Define the term “Financial Engineering” and explain 3 main components of financial engineering. (8 marks)
- Explain the factors responsible for financial innovations. (12 marks)

(Total: 20 marks)

NUMBER THREE

TNT Ltd has a paid up share capital of 1.2 million shares of Sh.20 each. The current market price per share is Sh.36. The company has no loan capital. Maintainable earnings before tax are forecast at Sh.4.8 million. The company’s effective tax rate is 40%. The company requires to raise a further Sh.15 million in order to achieve additional earnings of Sh.2.2 million per annum and proposes doing this by means of

a rights issue. Suggested alternative prices for the rights issue are Sh.32 and Sh.25 per share.

Required:

- a) Calculate, when the price is Sh.32 per share, the theoretical market price per share of the enlarged capital after the issue (the ex-rights price) and also the market value of a right. (8 marks)
- b) Calculate as in (a) above when the price is Sh.25 per share. (4 marks)
- c) Suggest, with reasons, what issue price is most likely to be adopted by the company. (4 marks)
- d) What factors might, in practice, invalidate your calculations? (6 marks)

(Total: 22 marks)

NUMBER FOUR

Mr. Mugwe, a director of Dot Limited met Mr. Mweli, a director of Tess Limited during a conference in Mombasa. They had some discussion about their various companies. After flying back to Nairobi, Mr. Mugwe proposed to his board of directors acquisition of Tess Limited.

During his presentation to the board he stated that: “As a result of this takeover we will diversify our operations and our earnings per share will rise by 13%, bringing great benefits to our shareholders”.

No bid has yet been made and Dot Limited currently owns only 2% of Tess Limited. A bid would be based on an exchange of shares between the two companies which would be one Dot share for every six Tess shares. Financial data for the two companies include the following:

	Dot Limited	Tess
Limited	Sh.(million)	Sh.(million)
Turnover	56.0	42.0
Profit before tax	12.0	10.0

Profit available to ordinary shareholders	7.8	6.5
Dividend	<u>3.2</u>	<u>3.4</u>
Retained earnings	<u>4.6</u>	<u>3.1</u>
Issued ordinary shares	20.0	15.0
Market price per share	Sh.3.2	Sh.0.45
Par value per share	Sh.0.5	Sh.0.10

Required:

- Explain whether you agree with Mr. Mugwe when he says that the takeover would bring 'great benefits to our shareholders'. Support your explanation with relevant calculations. State clearly any assumptions made.
(12 marks)
- On the basis of information provided, calculate the likely post acquisition price of a share of Dot Limited if the bid is successful.
(4 marks)
- What alternative forms of payment are available in a bid?
(4 marks)

(Total: 20 marks)

NUMBER FIVE

Your firm is considering the acquisition of a new fork lift truck. It is uncertain about whether to purchase the truck outright or to finance it through a leasing arrangement with Kareb Bank Ltd. The purchase price is Sh.5,200,000 and it will have a salvage value of Sh.400,000 at the end of its 8-year useful life. The annual lease cost would be Sh.996,000 for 8 years.

The company uses the straight-line method for analysis investment decisions.

The company can borrow funds (to purchase the forklift) at 22% and it has an effective tax rate of 35%.

Its after tax cost of capital is 12%.

Required:

- Analyse the decision situation and advise the firm about the appropriate acquisition method.
(15 marks)
- If the company could get a 20% investment allowance on this investment, how would this affect your answer in (a) above?
(5 marks)

(Total: 20 marks)

MOCK 1 ANSWERS

NUMBER ONE

a) Compute the beta of each of the four projects.

$$\text{Beta} = \frac{\text{Correlation } r_{m, r_i} \sigma_i}{\sigma_m}$$

Project	1	Beta =	$\frac{0.55 \times 15}{13}$	=	0.635
	2	Beta =	$\frac{0.75 \times 20}{13}$	=	1.154
	3	Beta =	$\frac{0.84 \times 14}{13}$	=	0.905
	4	Beta =	$\frac{0.62 \times 18}{13}$	=	0.858

Compute the overall portfolio Beta

$$\sum_{t=1}^n B_n w_n$$

Where: B_n = Beta for any project n
 w_n = % weight of project n

Weight	Beta	Weighted Beta
0.28	0.635	0.1778
0.17	1.154	0.1962
0.31	0.905	0.2806
0.24	0.858	<u>0.2059</u>
Portfolio Beta		0.8605
		=====

Using CAPM, return of a portfolio (R_p) = $5\% + (14\% - 5\%)0.8605 = 12.75$

Compute the expected % portfolio return

(E_r) from historical returns

$$(0.28 \times 10\%) + (0.17 \times 18\%) + (0.31 \times 15\%) + (0.24 \times 13\%) = 13.63\%$$

$$R_p = 12.75\%$$

$$E_r = 13.63\% \quad \text{Undervalued shares}$$

b) Reasons why the results may not correctly identify whether the share price is over or undervalued.

Use of historical data on returns, risk and correlation

The market is not fully efficient as assumed by CAPM

Market risk premium ($R_m - R_f$) is not constant since R_m & R_f will vary overtime

Restrictive assumptions of CAPM

CAPM is a single factor model

CAPM is a single period model.

NUMBER TWO

a) Financial Engineering

- Design, development and implementation of innovative financial instruments and processes and the formulation of creative solutions to problems in finance.

It is concerned with three critical issues:

- Securities innovations which would add value to the firm and shareholders e.g issue a security which increases the present value of tax shields available to the issues without increasing the investors tax liability.
- Innovative financial processes e.g on-line banking, use of central depositing system (CDS) in stock market trading to reduce transaction costs etc.
- Creative strategies to corporate finance problem.
- Involves the use of tax-effective cash management strategies and corporate restructuring due to internal and external factors e.g leveraged buyout, sale and lease back, outsourcing of financial services, project finance etc.

b) Factors responsible for financial innovations:

- High level of transaction costs
- Need to reduce agency costs
- Existing opportunities to increase liquidity of assets e.g. factoring of debtors
- Regulatory and legislative changes hence volatility of interest rate and exchange rates

Use of interest rate swaps

- Volatility of securities prices hence the use of futures and options
- Tax asymmetric that can be exploited to produce tax savings for the investors and

Issues of securities.

- Technological advancement and related factors.
- Academic work that results in advance in financial theories or better understanding of the risk – return characteristics of existing securities.

NUMBER THREE

a) If issue price is Sh.32

$$\text{No. of new shares to issue} = \frac{\text{Sh.15 million}}{32}$$

$$= 468,750 \text{ shares} = 0.46875 \text{ shares}$$

Sh.M

$$1.2\text{M shares @ } 361 \text{ each} \quad 43.2$$

$$\underline{0.468750 \text{ shares @ } 32 \text{ each}} \quad \underline{15.0}$$

$$1.66875$$

$$\text{Ex-right MPS} = \frac{\text{Sh.58.2}}{1.66875 \text{ shares}} = 34.88$$

$$\begin{aligned} \text{Value of a right} &= \text{Cum-right MPS} - \text{ex-right MPS} \\ &= 36.00 - 34.88 = \text{Sh.1.12} \end{aligned}$$

b) If issue price is Sh.25:

$$\begin{aligned} \text{New shares issue} &= \frac{\text{Amount of raise}}{\text{Issue price}} = \frac{\text{Sh.15 M}}{\text{Sh.25}} \\ &= 600,000 \text{ shares} \end{aligned}$$

$$1.2\text{M shares @ Sh.36 MPS} = 43.2\text{M}$$

$$\underline{0.6\text{M shares @ Sh.25 issue price}} \quad \underline{15.0}$$

$$\underline{1.8\text{M}} \quad \underline{58.2\text{M}}$$

$$\text{Therefore Ex-right MPS} = \frac{\text{Sh.58.2M}}{1.8\text{M shares}} = \text{Sh.32.33}$$

$$\begin{aligned} \text{Value of a right} &= \text{Cum-right MPS} - \text{Ex-right MPS} \\ &= \text{Sh.36} - \text{Sh.32.33} = \text{Sh.3.67} \end{aligned}$$

c) Issue price to adopt

- A low issue price leads to high number of shares being issued which will lead to dilution in future EPS.
- A high issue price leads to few shares being issued thus less dilution in future EPS.

- Therefore the preferable issue price is Sh.32 since few shares are issued (468,750 shares) and thus lesser dilution in future EPS. The EPS is one of the critical variables which investors look for before making investment decisions.

d) The factors which might invalidate the calculation are as follows:

- If the cum-right MPS was to change
- If floatation costs associated with the issue are considered
- If all the shares are not subscribed for during the rights issue.

NUMBER FOUR

a) The great benefits to shareholders can only be evaluated from the perspective of post-merger EPS.

Determine the current number of ordinary shares:= $\frac{\text{Ordinary share capital}}{\text{Par value per share}}$

	Dot Ltd	Tess Ltd	
No. of ordinary shares	= $\frac{\text{Sh.20M}}{\text{Sh.0.5}}$	= 40M	$\frac{\text{Sh.15 M}}{\text{Sh.0.10}} = 150\text{M}$

Dot Ltd already own 2% of shares of Tess Ltd.

Therefore it can only acquire the remaining 98% i.e 98% x 150M shares = 147M shares.

1 share of Dot Ltd = 6 shares of Tess Ltd.
= 147M shares of Tess

New shares issued by Dot Ltd = $\frac{147\text{M shares} \times 1}{6}$
= 24.5M shares

Current shares of Dot Ltd = 40 M
New shares issued = 24.5M
Total new shares = 64.5M

Profits to ordinary shareholders = 7.8M + 6.5M
= Sh.14.3M – (2% x 6.5M)
= Sh.14.17M

Therefore merger EPS = $\frac{\text{Sh.14.17}}{64.5\text{M shares}}$ = 0.220

Current EPS = $\frac{\text{Sh.7.8M}}{40\text{M shares}}$ = 0.195

New EPS of Dot Ltd = 0.220
Old EPS of Dot Ltd = 0.195

Increase in EPS 0.025

$$\% \text{ increase} = \frac{0.025}{0.195} \times 100 = 12.8\% = 13\%$$

- Apart from increase in EPS, other benefit of diversification would be increased borrowing capacity which increases the interest tax shield to the shareholders of Dot Ltd.

- However, as long as shareholders are holding well-diversified portfolios, diversification through mergers and acquisitions will not be beneficial to them.
- The assumption made is that there are no synergistic effects.

b) Post-merger MPS

$$\begin{aligned} \text{Pre-merger M.V of Dot Ltd} &= 40\text{M shares @ Sh.3.20} &= & \text{Sh.128M} \\ \text{Pre-merger M.V of Tess Ltd} &= 150\text{M shares @ Sh.0.45} &= & \underline{\text{Sh. 67.5}} \\ & & & \text{Sh.195.5} \end{aligned}$$

The market value of Dot Ltd will not change and it is simple equal to the combined market values. There is no synergistic effects.

No. of ordinary shares after merger = 64.5M shares.

$$\text{Post merger MPS} = \frac{\text{Sh.195.5M}}{64.5} = \text{Sh.3.023}$$

c) Other forms of financing the merger are:

Cash

Issue of preference shares

Issue of debentures including mezzanine financial (convertible debentures)

An offer which comprises a combination of the above 3 methods.

NUMBER FIVE

a) Leasing Option

$$\text{After tax lease rentals} = 996,000(1 - 0.35) = 647,400$$

$$\begin{aligned} \text{Discounting rate} &= \text{After tax cost of debt} \\ &= 22\%(1 - 0.35) = 14.3\% \end{aligned}$$

$$\begin{aligned} \text{P.V} &= 647,400 \times \text{PVAF}_{14.3\%,8} \\ &= 647,400 \times 4.593 = \underline{\underline{2,973,508.2}} \end{aligned}$$

Buying Option

$$\text{Depreciation p.a.} = \frac{5,200,000 - 400,000}{8 \text{ yrs}} = 600,000 \text{ p.a.}$$

$$\text{Depreciation tax shield} = 600,000 \times 0.35 = 210,000 \text{ p.a.}$$

Buying price	(5,200,000)	
P.V of depreciation tax shield		
$210,000 \times \text{PVAF}_{14.3\%,8} = 210,000 \times 4.593$		964,530

P.V of salvage value		
$400,000 \times \text{PVAF}_{14.3\%,8} = 400,000 \times 0.343$		<u>137,200</u>
Net cost of buying	<u>(4,098,270)</u>	

Net cost of leasing	(2,973,508.2)	
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$$\text{Net benefit of leasing} = -297,350.2 - -4,098,270 = 1,124,761.8$$

Since net benefit of leasing is positive, lease the asset.

- b) A 20% investment allowance would lead to additional tax shield in addition to the depreciation tax shield.

$$\text{Investment allowance} = 20\% \times 5,200,000 = 1,040,000$$

$$\text{Tax shield} = 1,040,000 \times 0.35 = 364,000$$

Assuming the allowance is granted at end of year 1, the P.V of the tax shield would be

$$364,000 \times \text{PVAF}_{14.3\%,1} = 364,000 \times 0.875 = 318,500$$

This would reduce the net cost of buying new cost = (4,098,270) + 318,500 = (3,779,770)