

CA



THE INSTITUTE OF
CHARTERED ACCOUNTANTS
OF SRI LANKA

SUGGESTED SOLUTIONS

**KC2 – Corporate Finance & Risk
Management**

June 2016

Answer 01

Relevant Learning Outcome/s:
2.6.2 Calculate "Weighted Average Cost of Capital" (WACC)
2.6.3 Assess the impact on WACC from different capital structures (Ung geared to geared, impact on WASS and value of the business using the above capital structure theory arguments)
4.1.2 Evaluate investment projects using discounting factor/non-discounting factor techniques with. <ul style="list-style-type: none">- Tax- Inflation (monetary and real method)- Unequal life projects (annual equivalent method only)- Asset replacement- Capital rationing (including multi period capital rationing)- Under uncertainty (certainty equivalent, adjusting discounting factors/payback, using probability and sensitivity analysis)- foreign investments (using forward exchange rates or country specific discounting factors)
4.1.4 Evaluate the impact on project appraisal from side effects of financing, using the Adjusted Present Value (APV)

Suggested Detail Answer:

- (a) Weighted average cost of capital (WACC) method is the most widely applied approach to capital budgeting. However, in the given situation, the capital structure is expected to change during the next 5 years and WACC cannot be considered as an appropriate discounting rate. WACC is used under the assumption that capital structure remains unchanged. In addition, in calculating the changing WACC the market values of a firm's debt and equity should be known.
- If the capital structure is expected to change, the adjusted present value (APV) method could be used as it provides a better means of taking into account the effects of using loan finance. Application of (i) marginal cost of capital (ii) different discount rates for different projects is also considered as correct.
- (b) Cannot agree with managing directors argument as an unlevered firm is always valued less compared to a similar company in all aspects other than capital structure. This is because of the tax shield benefit entitled to a levered company.

(c) **Calculation of FCF- Unlevered**

Calculated below is the market value of ABC if continued as unlevered.
The total market value of ABC is only Rs. 17.6 billion without considering the debt element.
Therefore, it is unlikely that the minimum bid price could be met.

Calculation of FCF

Year (Rs. million)	2017	2018	2019	2020	2021
Net operating cash flow before tax and interest	1,954	2,642	2,853	3,128	3,452
Interest expense (unlevered)	-	-	-	-	-
Tax expense	(537)	(710)	(770)	(828)	(966)
Capital expenditure	(470)	(460)	(472)	(484)	(495)
Working capital changes	180	220	(180)	(200)	(225)
Proceeds from sale of assets	3,200	1,625	-	-	-
Unlevered cash flow (UCF)	4,327	3,317	1,431	1,616	1,766

STEP 1 - PV of UCF (2017 - 2021)		2017	2018	2019	2020	2021
Year		2017	2018	2019	2020	2021
UCF		4,327	3,317	1,431	1,616	1,766
Discounting factor (14%)		<u>0.8772</u>	<u>0.7695</u>	<u>0.6750</u>	<u>0.5921</u>	<u>0.5194</u>
PV of UCF		3,796	2,552	966	957	917
Total	9,188					

STEP 2- PV of UCF (2022 onwards)		2017	2018	2019	2020	2021	2022
Year		2017	2018	2019	2020	2021	2022
UCF (Annual) with 3% growth (1,766 x 1.03)							1,819
Sum with 3% growth (1,819/(0.14-0.03))						16,536	
Discounting factor		0.8772	0.7695	0.6750	0.5921	<u>0.5194</u>	
PV						8,588	
Total value of unlevered firm	17,776						

- (d) The tax benefit to a levered company would be the reduction in tax payments, which occurs as a result of interest payments on the debt component. The present value of the tax shield could be considered as a benefit.

The benefit can be calculated in two parts.

- Tax benefit during first 5 years (2017 to 2021)

STEP3 - Value of tax shield - First 5 years						
Year (Rs. million)		2017	2018	2019	2020	2021
Interest		3,046	2,704	2,800	2,965	3,136
Tax benefit (28%)		853	757	784	830	878
Discounting factor (13.5%)		0.8811	0.7763	0.6839	0.6026	0.5309
Present value of tax shield		751	588	536	500	466
Total	2,842 (½)					

- Tax benefit after 2021

WACC Calculation

WACC	%	Cost	
Equity	75%	14.20%	10.65%
Debt 13.5% x (1 - 0.28)	25%	9.72%	<u>2.4300%</u>
			13.08%
Approximately			13.0%

The below gives the tax benefit at the end of year 2021 and 2017 value

Year (Rs. million)		2017	2018	2019	2020	2021	2022
							1,819
Levered company cash flow (Annual) with 3% growth (1,819/(0.13-0.03))						18,190	
Levered company value						18,190	
Unlevered company value						<u>16,536</u>	
Tax benefit						1,654	
Discounting factor at 13.5%	1	0.8811	0.7763	0.6839	0.6026	<u>0.5309</u>	
PV of tax benefit						878	

Final position is as below (a+b)

(after 2021)	878
First 5 year Tax benefit	<u>2,842</u>
Total Tax benefit	<u>3,721</u>

(e) The value calculation could be summarised as below.

The below calculation shows that the PQR company can negotiate up to Rs. 73.94 per share as calculated below.

Assumption – The market value of debt in today's value: Rs. 4.5 billion

	Rs. million	
PV of Tax benefit after 2021	878	
First 5 year Tax benefit	<u>2,842</u>	
Total Tax benefit	<u>3,721</u>	
Add/Unlevered Company Value	<u>17,776</u>	
Total value	<u>21,497</u>	
Less/market value of debt	4,500	
Value for equity holders	16,997	
Number of shares in issue	229,885,057	(20 billion/Rs.87)
Maximum price	73.94	

Answer 02

Relevant Learning Outcome/s:

- 1.1.1 Discuss appropriate strategic objectives, both financial and non-financial, for different types of organisations (profit maximisation, wealth miximisation, value for money, balanced scorecard) and how these objectives can assist in meeting the corporate goals of such organisations
- 1.1.2 Discuss the roles of financial management (financing, investment, and dividends), their interconnections and conflicting stakeholder interest including agency theory.
- 5.2.1 Evaluate business valuation techniques (asset based, earnings based, proxy PE base, cash flow based) for a specific merger or acquisition or divestment.

Suggested Detail Answer:

(a) Strategic Value Creation

What constitutes “strategic value” will depend on stakeholder perception. Various groups of stakeholders in a company could have different goals and values.

For instance:

Shareholders-wealth maximisation

Suppliers- aim to be paid full amount by the date agreed, to continue the long-term trading relationship

Long-term lenders- To receive payment of interest and capital on the due dates

Employees- Maximise rewards paid to them

Government- Sustained economic growth, high employment

Management- Maximising their own rewards

For a generic strategic framework, it is important to conceptualise a generic framework to achieve a target so the value may be created for the firm as a whole, in strict strategic sense. The key to reach this objective and achieve a sustainable competitive advantage is the alignment of business strategy, financial strategy, and technology strategy, marketing strategy and investor strategies.

Firms must be “managed” not only “for shareholders” but “for stakeholders” as well-according to stakeholder theory.

Stakeholder theory has been praised for overcoming the narrow view which says that the company’s sole purpose is to maximise economic value for shareholders. Introducing value creation for all stakeholders broadens the framework of management, bringing it closer to a more realistic economic optimum.

It would result in new cooperative value creation so that all stakeholders, who help to create value, also share its fruits, although in different and changing ways over time, in order that the economic optimum (efficiency criterion) is guaranteed and management is improved for the overall benefit of the society.

- (b) Agency theory and the conflicts of interest between principal and agency is a well-known topic especially in the fields of economics and finance. As per agency theory, conflicting situations arise when managers act as agents for the shareholders using delegated powers to manage the affairs of the company. For businesses to operate in a sustainable manner, it is important to create value for all stakeholders. It is equally important to align the interests of all stakeholders in the same direction.

If the amount of economic value generated in the company increases, some will wonder why they should not have an equitable share and, if not why they shouldn't appropriate their share from others. Conflicting situations arise, when managers act as agents for the shareholders. E.g. managers may require higher perks at the expense of the company. In order to align the management interests to shareholder interests corporates reward management based on the growth of share price, awarding share option schemes etc. So, the criticisms leveled against the stakeholder model seems justified.

(c)

	Bulk	Value added	Total (Rs.)
Sales	4,000,000kg x \$1.75 x 145 Rs. 1,015,000,000	1,000,000 kg = \$1.75 x 1.3 x 145 Rs. 329,875,000	1,344,875,000
Gross profit	152,250,000 (15%)	82,468,750 (25%)	234,718,750
Marketing expenses	(3%)		(40,346,250)
Adm. expenses			(70,000,000)
Depreciation \$ 5,000,000 x 145 10			(72,500,000)
Net operating profit			51,872,500

Less taxation @ 10% (5,187,250)
NOPAT 46,685,250

Stated capital 1,000,000,000 0.58
Debt 725,000,000 0.42
1,725,000,000

Cost of equity= 14.5%
Cost of debt= 0.05(1-t)
= 4.5%

WACC= 0.145*0.58 +0.045*0.42
= 0.0841 +0.0189
= 10.3%

Approximately= 10%

EVA = NOPAT- (WACC * invested capital)
= 46,685,250 - (10% * 1,725,000,000)
= (125,814,750)

Economic value has been destroyed (Rs. 125million)

(d) To : The Board of Directors
 Subject: Cultivation of spices

Dear Sir

The projected financials of cultivating spices is as follows.

	Existing tea (Rs.)	Cinnamon & other spices (Rs.)	Total (Rs.)
Turnover	1,344,875,000	268,975,000	1,613,850,000
Operating profit	51,872,500	47,070,625	98,943,125
Less tax	<u>(5,187,250)</u>	<u>-</u>	<u>(5,187,250)</u>
NOPAT	46,685,250	47,070,625	93,755,875
Invested capital	1,725,000,000	200,000,000	1,925,000,000
Investor expectations	<u>(172,500,000)</u>	<u>(29,000,000)</u>	
Economic value	<u>(125,814,750)</u>	<u>18,070,625</u>	<u>(107,744,125)</u>

Cultivating cinnamon & spices has created positive economic value of Rs. 18 million, although in overall the company is still destroying economic value amounting to Rs. 107 million.

Alternatively

WACC

Stated capital

1,200,000,000 0.62

Debt

725,000,000 0.38

1,925,000,000

$$\text{WACC} = 0.145 \times 0.62 + 0.045 \times 0.38$$

$$\text{WACC} = 0.0899 + 0.0171$$

$$\text{WACC} = 0.107$$

Approximately = 11%

$$\begin{aligned} \text{EVA} &= \text{NOPAT} - (\text{WACC} \times \text{invested capital}) \\ &= 93,755,875 - (0.11 \times 1,925,000,000) \\ &= 93,755,875 - 211,750,000 \\ &= (117,994,125) \end{aligned}$$

Answer 03

Relevant Learning Outcome/s:

- 2.3.1 Identify different types of capital markets (stock market, bond market, and money market), advantages and disadvantages of stock market listing and main stakeholders in the capital market and their functions (including viz. Colombo stock Exchange, Securities and Exchange Commission, issuing house, brokers, primary dealers, money brokers, Central Depository System, underwriters)
- 2.3.2 Analyse various methods (IPO, introduction, private placement, right issues) of issuing instruments to capital markets.
- 5.2.1 Evaluate business valuation techniques (asset based, earnings based, proxy PE base, cash flow based) for a specific merger or acquisition or divestment.
- 1.1.3 Discuss internal resources and business strategy differences (external legislations, regulations, corporate governance, interest rates/yield curve, inflation rates, exchange rates, capital market activities, constraints to financial management.
- 4.1.2 Evaluate investment projects using discounting factor/non-discounting factor techniques with.
 - Tax
 - Inflation (monetary and real method)
 - Unequal life projects (annual equivalent method only)
 - Asset replacement
 - Capital rationing (including multi period capital rationing)
 - Under uncertainty (certainty equivalent, adjusting discounting factors/payback, using probability and sensitivity analysis)
 - foreign investments (using forward exchange rates or country specific discounting factors)
- 6.2.3 Recommend appropriate derivatives to hedge financial risks considering the overall business context

Suggested Detail Answer:

- (a) It has been a common practice to compare the book value per share against the market value in order to gauge how the market perceives the company's past and current performance and the future potential to a certain extent. The market value per share is calculated below based on the book values and is compared with the market price.

The book value per share = Shareholders equity /Average shares outstanding for a period.

Shareholders' equity (Rs.)	6,672,201,000
Number of shares outstanding	50,000,000
Book value per share (Rs.)	133.44
Market value per share (average)(Rs.)	82.5
Value representation	82.5/133
Percentage	62%

Interpretation of the answer above

As explained by the directors the value dilution in market value per share is quite significant which represents around 62% of the book value per share. However, when somebody makes such a comment about the dilution, he/she should be aware of the limitations of such measures in order to manage the situation.

Anyone using this measure should be aware of two issues, which are:

- The **market value per share is a forward-looking measure** of what the investment community believes a company's shares are worth; conversely, the **book value per share is an accounting measure** that is not forward-looking at all. The two measures are based upon different information. Consequently, it is **dangerous to compare** the two measures without understanding the basis of computation.
- **The book value concept tends to undervalue (sometimes to a considerable extent) a number of assets. For example, the value of a brand,** which has been built up through many years of marketing expenditure, may be the primary asset of a company, and yet not appear in the book value figure at all. Similarly, the value of in-house research and development activities could be very high, and yet this expenditure is charged straight to expenses in most cases. These factors may result in a massive disparity between the book value and market value.
- Therefore, the management should evaluate the reasons for either higher book value or lower book value situation and apply required remedy depending on the situation.

RPE's book value is significantly greater than the market value hence the management needs to see the possible reasons for higher capital invested which the market does not see as value creating.

- (b) Possible reasons for the lower market value per share in comparison to the book value in the case of RPE.

The financial market values the company for less than its stated value or net worth. When this is the case, it is usually because the **market has lost confidence in the ability of RPE's assets to generate future profits and cash flows.** In other words, the market does not believe that the company is worth the value on its books.

Given below is an indication of the company's efficiency in managing assets.

Return on assets (ROA) = Net income/Total assets

	2016	2015
Total assets (Rs. million)	12,802	10,483
Net income (Rs. million)	1,107	881
ROA	8.6%	8.4%

When we look at the asset utilisation the company has operated at the same level but the market perceives that the total asset pool is not capable of generating its real value in the future.

The possible reasons are as follows.

- Leisure sector is making losses in which the total assets invested are valued at almost 3 billion, which is almost 23% of the total assets base. There was no major boom in the Sri Lankan leisure sector post war as expected and there is heavy competition among existing players, which curtails higher margins.
- Plantation sector is also making losses, which is unlikely to recover in the near future due to the global commodity market as well as rising cost per kg in the Sri Lankan context.
- Super market chain has failed to achieve its full potential and the competitors are doing better.
- Fluctuations in the price of oil.
- Rupee depreciation adversely affecting the energy sector.
- RPE investing funds in loss making subsidiaries.

Due to the above possible reasons, the market is not seeing the value per share in line with the book value per share.

In addition, it could be a reason that RPE group has not adequately depreciated its assets over time. It would accumulate assets even after its useful time, which would intern lead to a higher book value.

Another reason is that the RPE group may have many idle assets within their asset base.

(c) (i) **Asset based valuation method**

	Rs.
Total assets	790,017,000
Total liabilities	68,736,000
Net assets value before adjustments	721,281,000
<u>Adjustments</u>	
PPE impairment	(105,000,000)
Inventory	(10,000,000)
Trade & other receivables	(25,000,000)
Goodwill	35,000,000
Adjusted company value	<u>616,281,000</u>
Approximately	616,000,000

Earnings based valuation method

	2016 (Rs.)
Average earnings	35 million
Multiple	<u>12</u>
Company value	<u>420</u> million

- (ii) As per the finance director's argument, neither the asset based valuation method nor the earnings based valuation method is easily applicable due to the following.

Asset based approach

This method looks at the financial position of the company and then computes a value to be the value of company. The biggest disadvantage is that it does not take into account future earnings and changes in market conditions. This is not applicable in the case of RPT as the future market conditions are uncertain due to two reasons.

- The world commodity market is facing serious problems in the current market place and no signs of a recovery in the near future.
- The local macro-economic conditions, do not assist the tea industry in terms of labour scarcity and cost per kg produced. Therefore, even if there are assets with the company the return on investment is a big question.

Earnings based approach

This method takes into account the ability of the company to generate earnings and not the assets held by the company. This method is suitable for a stabilized company but when we look at RPT the maturity stage has not been reached. The investment is being made and the earnings are not in a mature state as yet. Therefore, the value computed under this method would not be very appropriate.

Discounted Cash Flow method (DCF)

An alternative method of valuation is the DCF based approach. There again the challenge is to predict accurate cash flows. However, the management would be in a position to make adjustments to the valuation as long as the adjustments are justifiable and close to reality.

This method looks at the future free cash flows that can be generated by the company based on the WACC of the company. The biggest challenge being faced by the company is the uncertainty in predicting future cash flows due to the reason explained above.

In addition, it is strongly suggested that the company could work out the valuation based on the DCF method by factoring in uncertain future market conditions.

- (d)

- Establish solid transfer pricing policies
- Design a transfer-pricing model addressing any risk (or opportunity)
- Consider market prices as transfer pricing benchmarks
- Establish an across-discipline transfer pricing team to monitor policy compliance

- Consider an advance pricing agreement (APA) process
- Execute intercompany agreements for related-party transactions
- Conduct a periodic assessment of possible transfer pricing risks, and consider counter measures.

(e) (i) The NPV analysis of the Bangladesh operation from RPE view point is given below.

BDT '000						
Year		1	2	3	4	5
Royalty		10,360	14,460	19,370	21,630	24,150
Less: WHT 5%		(518.00)	(723.00)	(968.50)	(1081.50)	(1207.50)
		9,842.00	13,737.00	18,401.50	20,548.50	22,942.50
Dividends		-	24,115	71,610	72,380	66,375
Less: WHT 15%		-	(3,617.25)	(10,741.50)	(10,857.00)	(9,956.25)
		-	20,497.75	60,868.50	61,523.00	56,418.75
Total inflows		9,842.00	34,234.75	79,270.00	82,071.50	79,361.25
Average exchange rate 1 BDT= LKR		1.86	1.9	1.94	1.97	2.01
LKR equivalent (Rs.'000)		18,306.12	65,046.03	153,783.80	161,680.86	159,516.11
Investment (Rs.'000)	(500,000.00)					886,200.63
Net cash flow (Rs.'000)	(500,000.00)	18,306.12	65,046.03	153,783.80	161,680.86	1,045,716.74
DCF (18%)	1.000	0.847	0.718	0.609	0.516	0.437
PV of cash flow (Rs.'000)	(500,000.00)	15,505.28	46,703.05	93,654.33	83,427.32	456,978.21
NPV (Rs.'000)	196,268.20					
Terminal value						
Cash flow at year 5 (Rs.'000)	159,516.11					
WACC	0.18					
Terminal value (Rs.'000)	886,200.63					

It looks viable with a positive NPV of 196 million (Approximately).

Calculation of WACC - RPE

$WACC = [(E/V) Re] + [(D/V) Rd * (1-Tc)]$
 Re= cost of equity (expected rate of return on equity)
 Rd = cost of debt (expected rate of return on debt)
 E = market value of company equity
 D = market value of company debt
 V = total capital invested, which equals E + D
 E/V = percentage of financing that is equity
 D/V = percentage of financing that is debt
 Tc = corporate tax rate

Re - Cost of equity

$$\bar{r}_a = r_f + \beta_a(\bar{r}_m - r_f)$$

Where:

r_f = Risk free rate

β_a = Beta of the security

\bar{r}_m = Expected market return

8% + 6%*1.5 = 17% (1 mark)

Cost of debt

12% * (1-0.28) = 8.6% (1 mark)

RPE	
Equity	
Number of shares outstanding	50,000,000
Average price per share	82.5
Market capitalisation (million)	4,125
Debt	
Total debt (375+276)	651
Total market value of capital employed	4,776
WA cost of equity	14.7%
WA cost of debt	0.01
Total WACC	15.7%
Approximately (Local projects)	16%
Premium	2%
WACC for cross border (International)	18%

- (ii) Yes it would be necessary to revisit the answer in part c. The positive NPV value of 196 million shows that the company has got a very good opportunity to reinvest money across border. Hence, when they negotiate the deal to close in RPT it would be necessary to factor this positive Rs.196 million. Hence, this gives some allowance for RPE to come down in its price.

(f) (i)

- A **forward exchange contract** is a contract to buy or sell a specific amount of currency on a specific date at a specific price which is agreed in advance.
- Since the outcome of the contract is known in advance, the company is able to plan its cash movements with a degree of certainty.
- This is a binding contract and it cannot be cancelled unless the parties involved mutually agree to do so.
- However, if the currency markets move in a manner different to that is expected and set out in the agreement, there is a chance to lose out against the spot at the point of conversion.
- **Currency options hedge** is a contract, which provides the right to buy or sell a specific amount of currency on a specific date at a specific rate.
- However, unlike the forward exchange contract, there is no obligation to exercise the option on the due date.
- Therefore the option protects the Company from the effects of the currency strengthening, but it is able to benefit from any weakening.
- The cost of this takes the form of a premium payable on the option contract.
- Options are available either in a tailor-made form specific to the trader's requirements from banks, or in a standard form in certain currencies only from an options exchange.

(ii)

The number of BDT to be received in one year's time would be 9,842,000. The exchange rate with a 6% gain on USD would be 82.68 BDT for each USD resulting in USD 119,037. However, RPE will receive 121,506 USD under the forward contract resulting in a gain of USD 2,469 without considering the FC related bank charges.

Therefore, the forward contract would be a better option.

Today			One year	
BDT - 8%	78	108%	84.24	
			81	Forward Exchange Rate offered by banks
USD - 4%	1	104%	1.04	
If the USD gained by 6% Exchange rate would be			82.68	
Year 1 end total cash inflow (Taken from part e)		BDT	9,842,000	
USD amount receivable under FC			121,506	USD
USD amount receivable without a FC			119,037	USD
Gain			2,469	USD

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