

**CMA DECEMBER, 2019 EXAMINATION
 PROFESSIONAL LEVEL-IV
 SUBJECT: 401. FINANCIAL MANAGEMENT**

Time: Three hours

Full Marks: 100

- ❖ All questions are to be attempted.
- ❖ Show computations, where necessary.
- ❖ Answer must be brief, relevant, neat and clean.
- ❖ Start answering each question from a fresh sheet.

Q. No. 1

- (a) How do market forces-both shareholder activism and the threat of takeover-act to prevent or minimize the agency problem? What role do institutional investors play in shareholder activism?
- (b) A firm is evaluating an accounts receivable change that would increase bad debts from 2% to 4% of sales. Sales are currently 50,000 units, the selling price is \$20 per unit, and the variable cost per unit is \$15. As a result of the proposed change, sales are forecast to increase to 60,000 units.
- (i) What are bad debts in dollars currently and under the proposed change?
 - (ii) Calculate the cost of the marginal bad debts to the firm.
 - (iii) Ignoring the additional profit contribution from increased sales, if the proposed change saves \$3,500 and causes no change in the average investment in accounts receivable, would you recommend it? Explain.
 - (iv) Considering all changes in costs and benefits, would you recommend the proposed change? Explain.
- (c) Metal Supplies is concerned about its cash management. On average, the day's sales in inventory (duration of inventory on shelf) is 90 days. Accounts receivable are collected in 90 days, while accounts payable are paid in 60 days. Metal Supplies has annual sales of \$14 million, cost of goods sold of \$9.5 million, and purchases of \$5 million. (*Note: Use a 365-day year.*)
- (i) What is Metal Supplies' operating cycle (OC)?
 - (ii) What is Metal Supplies' cash conversion cycle?
 - (iii) What is the amount of resources needed to support Metal Supplies' cash conversion cycle?
 - (iv) What suggestions would you give Metal Supplies to reduce its cash conversion cycle?
- (d) A flower shop is trying to determine the optimal order quantity of the wicker baskets that it places many of its arrangements in. The store thinks it will sell 2,000 of these baskets over the next year. The baskets cost the shop Tk. 2.00 each. The carrying costs of the baskets is Tk. 0.15 each per year. It costs the shop Tk.8.00 to order.
- (i) What is the economic order quantity?
 - (ii) What is the total cost for ordering the baskets once a year? Four times a year?

[Marks: 5+ (2+1+1+2)+(1+1+2+1)+4 = 20]

Q. No. 2

- (a) Carolina Fastener, Inc., makes a patented marine bulkhead latch that wholesales for \$6.00. Each latch has variable operating costs of \$3.50. Fixed operating costs are \$50,000 per year. The firm pays \$13,000 interest and preferred dividends of \$7,000 per year. At this point, the firm is selling 30,000 latches per year and is taxed at a rate of 40%.
- (i) Calculate Carolina Fastener's *operating breakeven point*.
 - (ii) On the basis of the firm's current sales of 30,000 units per year and its interest and preferred dividend costs, calculate its EBIT and earnings available for common.
 - (iii) Calculate the firm's degree of operating leverage (DOL), degree of financial leverage (DFL) and degree of total leverage (DTL).
 - (iv) Carolina Fastener has entered into a contract to produce and sell an additional 15,000 latches in the coming year. Use the DOL, DFL, and DTL to predict and calculate the changes in EBIT and earnings available for common. Check your work by a simple calculation of Carolina Fastener's EBIT and earnings available for common, using the basic information given.

Q. No. 2(cont'd...)

- (b) An investor can control the systematic risk in a portfolio but not the level of unsystematic risk? Do you agree, why or why not? Classify the following events as mostly systematic or mostly unsystematic with explanation:
- (i) Short term interest rates increase unexpectedly
 - (ii) The interest rate a company pays on its short term debt borrowing is increased by its bank
 - (iii) A manufacturer loses a multimillion dollar product liability suit.
 - (iv) A Supreme Court decision substantially broadens producer liability for injuries suffered by product users.
- (c) A project under consideration costs Tk.750,000, has a five year life, and has no salvage value. Depreciation is straight line to zero. The required return is 17 percent, and the tax rate is 34 percent. Sales are projected at 500 units per year. Price per unit is Tk.2,500, variable cost per unit is Tk.1,500, and fixed costs are Tk.200,000 per year. Suppose you think that the unit sales, price, variable cost, and fixed cost projections given here are accurate to within 5 percent. What are the upper and lower bounds for these projections? What is the base case NPV? What are the best and worst case scenario NPVs?
- (d) The MMY Corporation practices a strict residual dividend policy and maintains a capital structure of 60 percent debt, 40 percent equity. Earnings for the year are Tk. 5,000. What is the maximum amount of capital spending possible without selling new equity? Suppose that planned investment outlays for the coming year are Taka 12,000. Will MMY be paying a dividend? If so, how much?

[Marks: (5+5+5+5) = 20]

Q. No. 3

Al Hansen, the newly appointed vice president of finance of Berkshire Instruments, was eager to talk to his investment banker about future financing for the firm. One of Al's first assignments was to determine the firm's cost of capital. In assessing the weights to use in computing the cost of capital, he examined the current balance sheet, presented in Figure 1.

In their discussion, Al and his investment banker determined that the current mix in the capital structure was very close to optimal and that Berkshire Instruments should continue with it in the future. Of some concern was the appropriate cost to assign to each of the elements in the capital structure. Al Hansen requested his administrative assistant provide data on what the cost to issue debt and preferred stock had been in the past. The information is provided in Figure 2.

When Al got the data, he felt he was making real progress toward determining the cost of capital for the firm. However, his investment banker indicated that he was going about the process in an incorrect manner. The important issue is the current cost of funds, not the historical cost. The banker suggested that a comparable firm in the industry, in terms of size and bond rating (Baa), Rollins Instruments, had issued bonds a year and a half ago for 9.3 percent interest at a \$1,000 par value, and the bonds were currently selling for \$890. The bonds had 20 years remaining to maturity. The banker also observed that Rollings Instruments had just issued preferred stock at \$60 per share, and the preferred stock paid an annual dividend of \$4.80.

In terms of cost of common equity, the banker suggested that Al Hansen use the dividend valuation model as a first approach to determining cost of equity. Based on that approach, Al observed that earnings were \$3 a share and that 40 percent would be paid out in dividends (D_1). The current stock price was \$25. Dividends in the last four years had grown from 82 cents to the current value.

The banker indicated that the under-writing cost (flotation cost) on a preferred stock issue would be \$2.60 per share and \$2.00 per share on common stock. Al Hansen further observed that his firm was in a 35 percent marginal tax bracket.

Q. No. 3(cont'd...)

With all this information in hand, Al Hansen sat down to determine his firm's cost of capital. He was a little confused about computing the firm's cost of common equity. He knew there were two different formulas: one: one for the cost of retained earnings and one for the cost of new common stock. His investment banker suggested that he follow the normally accepted approach used in determining the marginal cost of capital. First, determine the cost of capital for as large a capital structure as current retained earnings will support; then, determine the cost of capital based on exclusively using new common stock.

Figure 1

BERKSHIRE INSTRUMENTS			
Statement of Financial Position			
December 31, 2015			
Assets			
Current assets:			
Cash			\$400,000
Marketable securities			200,000
Accounts receivable	\$2,600,000		
Less: Allowance for bad debts	(300,000)		2,300,000
Inventory			<u>5,500,000</u>
Total current assets			\$8,400,000
Fixed Assets:			
Plant and equipment, original cost	30,700,000		
Less: Accumulated depreciation.....	(13,200,000)		
Net plant and equipment			<u>17,500,000</u>
Total assets.....			<u>\$25,900,000</u>
Liabilities and Stockholders' Equity			
Current liabilities:			
Accounts payable.....			\$6,200,000
Accrued expenses			<u>1,700,000</u>
Total current liabilities.....			7,900,000
Long-term financing:			
Bonds payable			\$6,120,000
Preferred stock			1,080,000
Common stock			6,300,000
Retained earnings			<u>4,500,000</u>
Total common equity			10,800,000
Total long-term financing			<u>18,000,000</u>
Total liabilities and stockholders' equity.....			<u>\$25,900,000</u>

Figure 2

Cost of prior issues of debt and	Security	Year of Issue	Amount	Coupon Rate
preferred stock	Bond	2003	\$1,120,000	6.1%
	Bond	2007	3,000,000	13.8
	Bond	2013	2,000,000	8.3
	Preferred stock.....	2008	600,000	12.0
	Preferred stock.....	2011	480,000	7.9

Requirements:

- (i) Determine the weighted average cost of capital based on using retained earnings in the capital structure. The percentage composition in the capital structure for bonds, preferred stock, and common equity should be based on the current capital structure of long-term financing as shown in Figure 1 (it adds up to \$18 million). Common equity will represent 60 percent of financing throughout this case. Use Rollins instruments data to calculate the cost of preferred stock and debt.

Q. No. 3(cont'd...)

- (ii) Recompute the weighted average cost of capital based on using new common stock in the capital structure. The weights remain the same, only common equity is now supplied by new common stock, rather than by retained earnings. After how much new financing will this increase in the cost of capital take place? Determine this by dividing retained earnings by the percent of common equity in the capital structure.
- (iii) Assume the investment banker also wishes to use the capital asset pricing model, to compute the cost (required return) on common stock. Assume $R_f = 6$ percent, β is 1.25, and K_m is 13 percent. What is the value of K_j ? How does this compare to the value of K_e computed in question (i)?

[Marks: (7+7+6) = 20]

Q. No. 4

Baines Investments, Inc. is a private equity investment company located in Dallas, Texas. The firm specializes in investing in privately owned firms that it feels it can sell in the future at a higher price or eventually take public. In most cases, the firm engages in leveraged buyouts, in which it borrows money to buy a publicly traded company with the intention of taking it private. After restructuring the firm by selling off unnecessary assets and tightening budgets to increase profitability, Baines Investments and other participating investing firms eventually hope to take the company back to the public market at a much higher price than they paid to take it private.

An Upcoming Deal - Joel Harlen recently received his CMA from ICMAB and was hired by Baines Investment, Inc. In his first six months on the job, he assisted other analysts in evaluating companies, but now he had an assignment of his own.

The company he was to assess is United Defense Systems (UDS). The firm manufactures warships and cargo ships for the U.S. government. It also produces automatic flight control radar systems and intercept missiles. It is privately traded.

Joel's firm normally took the present value of future dividends, earnings, or cash flow to determine value. In Joel's first analysis he decided to take the present value of future dividends. Because dividends appeared to be growing at a constant rate for the foreseeable future, he decided to use the constant growth rate dividend valuation model in which the price (P_0) or value was equal to

$$P_0 = \frac{D_1}{K_e - g}$$

A careful analysis of company data indicated that D_1 , or the next period's dividend would be \$1.80. The growth rate g appeared to be 5.5 percent. K_e was supposed to represent the cost of common equity and was normally given to him in his classroom exercises while working on his CMA. However, his employer, Baines Investment, Inc., insisted that he use the capital asset pricing model to compute the cost (or required return) on common equity.

The term K_e in the formula above represents the cost of common equity, but can easily be replaced by K_j , the required return on common equity under the capital asset pricing model. Once K_j is computed it is merely substituted for K_e in the prior formula.

Now the formula for K_j .

$$K_j \text{ is equal to } R_f + \beta(K_m - R_f)$$

where:

- K_j = Required return on common stock
 $R_{.f}$ = Risk-free rate - use 6%
 K_m = Market rate of return - use 11%
 β = Beta. The volatility of a stock's return relative to the market's return. To be determined.

Q. No. 4(cont'd...)

A stock with a beta of one would be as volatile as the market. A stock with a beta of 1.20 would be 20 percent more volatile than the market, and a stock with a beta of .80 would be 20 percent less volatile than the market and so on. The beta was normally computed over a five-year period for a publicly traded company.

Because the company (UDS) that Joel Harlen was evaluating was private and had no public stock price, Joel decided to use an alternative method to compute beta. He would take the average beta of five publicly traded companies in the same industry as UDS (Aerospace/defense) . The betas for the five companies are as follows:

<u>Company</u>	<u>Beta</u>
Armour Holdings	1.40
BE Aerospace	1.65
General Dynamics	.85
Lockheed Martin	.80
Northrop Gruman	.80

Requirements:

- (i) Compute the average beta for the five firms in the aerospace/defense industry.
- (ii) Now, compute the required rate of return (K_j) using the capital asset pricing model. R_f is equal to 6 percent and K_m is equal to 11 percent.

Use the formula:

$$K_j \text{ is equal to } R_f + \beta (K_m - R_f).$$

- (iii) Next, compute the stock price (P_0) using the formula:

$$P_0 = \frac{D_1}{K_j - g}$$

Note K_j (the required return on common stock) is being substituted for K_e (the cost of common equity). They both represent the same thing, the return that stockholders demand.

- (iv) Using your answer from question (iii) and assuming earnings per share are \$2.40, what is the P/E ratio?
- (v) Because the firm is privately held and thus there is no public market for its securities, there will be a liquidity discount of 20 percent from the stock price computed in question (iii). What will the adjusted stock price be? What will the adjusted P/E be?
- (vi) Assume that Joel Harlen discovers that UDS is about to win a major new defense department contract on combat radar systems and the Company's value will increase by 40 percent. Ignoring the liquidity discount for this calculation, what will the new stock price and P/E ratio be?
- (vii) Discuss the impact of the company deciding to go public sometime in the future on the liquidity discount.

[Marks: (6 x 3)+2 =20

Q. No. 5

- (a) Acquiring firm stockholders seem to benefit little from takeovers. Why is this finding a puzzle? What are some of the reasons offered for it?
- (b) Fred Nappa is planning to take a wine-tasting tour through Italy this summer. The tour will cost 2,750 euros and includes transportation, hotels, and a guide. Fred estimates that round-trip airfare from his home in North Carolina to Rome, Italy, will be \$1,490; he also will incur another \$300 (U.S.) in incidental travel expenses. Fred estimates the cost of meals in Italy to be about euro 500, and he will take an additional \$1,000 to cover miscellaneous expenditures. Currently the exchange rate is U\$1.3411/euro 1.00 (or euro .7456/US\$1.00).
 - (i) Determine the total dollar cost of the trip to Italy.
 - (ii) Determine the amount of euros Fred will need to cover meals and miscellaneous expenditures.

Q. No. 5(cont'd...)

- (c) Carol Krebs is considering buying 100 shares of Sooner Products, Inc., at \$62 per share. Because she has read that the firm will probably soon receive certain large orders from abroad, she expects the price of Sooner to increase to \$70 per share. As an alternative, Carol is considering purchase of a call option for 100 shares of Sooner at a strike price of \$60. The 90-day option will cost \$600. Ignore any brokerage fees or dividends.
- (i) What will Carol's profit be on the stock transaction if its price does rise to \$70 and she sells?
 - (ii) How much will Carol earn on the option transaction if the underlying stock price rises to \$70?
 - (iii) How high must the stock price rise for Carol to break even on the option transaction?
 - (iv) Compare, contrast, and discuss the relative profit and risk associated with the stock and the option transactions.
- (d) Indicate whether you think the following claims regarding takeovers are true or false. In each case, provide a brief explanation for your answer.
- (i) By merging competitors, takeovers have created monopolies that will raise product prices, reduce production, and harm consumers.
 - (ii) Managers' act in their own interests at times and in reality may not be answerable to shareholders. Takeovers may reflect runaway management.
 - (iii) In an efficient market, takeovers would not occur because market prices would reflect the true value of corporations. Thus, bidding firms would not be justified in paying premiums above market prices for target firms.
 - (iv) Traders and institutional investors, having extremely short time horizons, are influenced by their perceptions of what other market traders will be thinking of stock prospects and do not value takeovers based on fundamental factors. Thus, they will sell shares in target firms despite the true value of the firms.
 - (v) Mergers are a way of avoiding taxes because they allow the acquiring firm to write up the value of the assets of the acquired firm.
 - (vi) Acquisitions analysis frequently focuses on the total value of the firms involved. An acquisition, however, will usually affect relative values of stocks and bonds, as well as their total value.

[Marks: (3+5+6+6) = 20]

= THE END =