École de gestion TELFER School of Management

LIÉE au LINKED with LEADERSHIP

ADM 3350 M
Winter 2013

CORPORATE FINANCE
MIDTERM EXAMINATION – February 13th, 2013

Professor: Kaouthar LAJILI, **PhD., CGA** Duration: 1 hour and 30 minutes

INSTRUCTIONS

- **Please answer all questions.**
- **No notes, texts, etc.**
- **Calculators, but not computers, are permitted.**
- **Use three decimals for all calculated results.**
- **Please hand in the entire questionnaire.**
- **No exam book needed.**

Part I	20	
Part II	30	
TOTAL	50	

NAME: _____

STUDENT #: _____

Statement of Academic Integrity
The School of Management does not condone academic fraud, an act by a student that may result in a false academic evaluation of that student or of another student. Without limiting the generality of this definition, academic fraud occurs when a student commits any of the following offences: plagiarism or cheating of any kind, use of books, notes, mathematical tables, dictionaries or other study aid unless an explicit written note to the contrary appears on the exam, to have in his/her possession cameras, radios (radios with head sets), tape recorders, pagers, cell phones, or any other communication device which has not been previously authorized in writing.

Statement to be signed by the student:
I have read the text on academic integrity and I pledge not to have committed or attempted to commit academic fraud in this examination.

Signed:_____

Note: an examination copy or booklet without that signed statement will not be graded and will receive a final exam grade of zero.

PART I: Multiple Choice Questions

(20 points total)

Please circle the correct answer

1. A firm currently has a 36 day cash cycle. Assume that the firm changes its operations such that it decreases its receivables period by 4 days, increases its inventory period by 1 day and decreases its payables period by 2 days. What will the length of the cash cycle be after these changes?

A) 31 days

B) 33 days

C) 35 days

D) 37 days

E) 38 days

2. Delta PDA Distributors has an investment in accounts receivable of $2,750,000. Daily credit sales are $118,280. If 30% of Delta's credit customers receive a discount by paying within 10 days and the remainder of Delta's customers pay in 40 days, what is the net period that Delta maintains?

A) 31 days.

B) 40 days.

C) 37 days.

D) 19 days.

3. For a multi-product firm, if a project's beta is different from that of the overall firm, then:

A) the CAPM can no longer be used.

B) the project should be discounted using the overall firm's beta.

C) the project should be discounted at a rate commensurate with its own beta.

D) the project should be discounted at the market rate in all cases.

E) the project should be discounted at the T-bill rate in all cases.

4. A firm has a debt-to-equity ratio of .5. Its cost of equity is 22%, and its cost of debt is 16%. If the corporate tax rate is .40, what would its cost of equity be if the debt-to-equity ratio were 0?

A) 22.00%.

B) 21.07%.

C) 14.00%.

D) 20.62%.

5. When comparing levered vs. unlevered capital structures, leverage works to increase EPS for high levels of EBIT because:

A) interest payments on the debt vary with EBIT levels.

B) interest payments on the debt stay fixed, leaving less income to be distributed over less shares.

C) **interest payments on the debt stay fixed, leaving more income to be distributed over less shares**.

D) interest payments on the debt stay fixed, leaving less income to be distributed over more shares.

E) interest payments on the debt stay fixed, leaving more income to be distributed over more shares.

6. The cost of equity for Gruwom Corp. is 8.4%. If the return to the market is 10% and the risk-free rate is 5%, then the equity beta is:

A) 0.48.

B) 1.25.

C) 0.68.

D) 1.68

Answer C
Difficulty: Easy
Learning Objective: 13-01

7. Which of the following is not true concerning considerations in setting a credit policy?
A) A firm that supplies a perishable product will tend to offer restrictive credit terms.
B) A firm whose customers are in a high-risk business will tend to offer restrictive credit terms.
C) Lengthening the credit period effectively reduces the price paid by the customer.
D) Small accounts, associated with firms that find it difficult to acquire a line of credit, tend to receive longer credit periods.

Answer D
Difficulty: Medium
Learning Objective: 29-01

8. Managing current assets involves a trade-off between two types of costs. These costs are:
A) carrying costs and opportunity costs.
B) shortage costs and cash-out costs.
C) cash-out costs and stock-out costs.
D) carrying costs and shortage costs.
E) none of the above.

9. A firm that is buying something from a supplier may effectively arrange for the bank to pay the outstanding bill using a:
A) banker's acceptance.
B) certificate of deposit.
C) commercial paper.
D) forward option.
E) letter of payment.

10. Cash cycle equals:
A) inventory period plus accounts receivable period.
B) change in net working capital period.
C) operating cycle plus accounts payable period.
D) operating cycle plus inventory period.
E) none of the above.

11. Bryan invested in Bryco, Inc. stock when the firm was financed solely with equity. The firm is now utilizing debt in its capital structure. To unlever his position, Bryan needs to:
A) borrow some money and purchase additional shares of Bryco stock.
B) maintain his current position as the debt of the firm did not affect his personal leverage position.
C) sell some shares of Bryco stock and hold the proceeds in cash.
D) sell some shares of Bryco stock and loan it out such that he creates a personal debt-equity ratio equal to that of the firm.
E) create a personal debt-equity ratio that is equal to exactly 50% of the debt-equity ratio of the firm.

Answer D
Difficulty: Medium
Learning Objective: 16-03

12. The credit decision usually includes riskier customers. The credit decision should adjust for this by:
A) determining the probability that customers will pay, reducing the expected cash flow.
B) discounting the net cashflows at a higher discount rate.
C) discounting the cash inflow at a higher discount rate.
D) delaying collections on these customers.
E) speeding up deliveries to riskier customers.

13. A key assumption of MMs Proposition I (no taxes) is:
A) that financial leverage increases risk.
B) that individuals can borrow on their own account at rates less than the firm.
C) that individuals must be able to borrow on their own account at rates equal to the firm.
D) managers are acting to maximize the value of the firm.
E) all of the above.

14. Sources of cash do not include:
A) increases in net income.
B) increases in depreciation.
C) decreases in accounts payable.
D) increases in notes payable.
E) increases in taxes payable.

Answer C

Difficulty: Medium
Learning Objective: 27-03

15. The net credit period for a company with terms of 3/10 net 60 is:
A) 50 days. B) 60 days. C) 10 days. D) 57 days. E) none of the above.

16. If the average accounts receivable that a firm holds decreases without any decrease in credit sales, the operating cycle will:
A) stay the same because of no sales change.
B) stay the same because cash collections are sooner and it will affect the cash cycle only.
C) decreases because days sales outstanding decreases.
D) stay the same because accounts receivable are not in the operating cycle.

Answer C

Difficulty: Medium
Learning Objective: 27-03

17. Financial leverage impacts the performance of the firm by:
A) increasing the volatility of the firm's EBIT.
B) decreasing the volatility of the firm's EBIT.
C) decreasing the volatility of the firm's net income.
D) increasing the volatility of the firm's net income

Answer D

Difficulty: Medium
Learning Objective: 16-03

18. The inventory turnover for the Sneeky Company is 8 times and its days sales outstanding is 55. The average payables deferral period (or turnover) is 7.5. What is the cash cycle for Sneeky given a 365-day year.
A) 149.29.
B) 51.96.
C) 58.04.
D) 115.00.

Answer A

Difficulty: Medium
Learning Objective: 27-03

19. In an EPS-EBI graphical relationship, the debt ray and equity cross. At this point the equity and debt are:
A) equivalent with respect to EPS but above and below this point equity is always superior.
B) at breakeven in EPS but above this point debt increases EPS via leverage and decreases EPS below this point.
C) equal but away from breakeven equity is better as fewer shares are outstanding.
D) at breakeven and MM Proposition II states that debt is the better choice.
E) at breakeven and debt is the better choice below breakeven because small payments can be made.
Answer: B

20. The cost of capital for a firm, r_{WACC}, in a zero tax environment is:
A) equal to the expected EBIT divided by market value of the unlevered firm.
B) equal to r_o the rate of return for that business risk class.
C) equal to the overall rate of return required on the levered firm.
D) all of the above.
E) none of the above.

PART II Problems (Total 30 points)

NOTE: ***Solve problems (1) and (2) below and choose one more problem from the following two ((3) and (4)) and solve (total 3 problems)***

Problem 1 Basic Capital Structure (12 points)

Locomotive Corporation is planning to repurchase part of its common stock by issuing corporate debt. As a result, the firm's debt–equity ratio is expected to rise from 20 to 35 percent. The firm currently has $4.7 million worth of debt outstanding. The cost of this debt is 9 percent per year. Locomotive expects to have an EBIT of $2.70 million per year in perpetuity. Locomotive pays no taxes.

A) What is the market value of Locomotive Corporation before the repurchase announcement?

Will the market value of Locomotive Corporation change after the repurchase announcement? **(2 points)**

B) What is the expected return on the firm's equity before the announcement of the stock repurchase plan?

(3 points)

C) What is the expected return on the equity of an otherwise identical all-equity firm? **(3.5 points)**

D) What is the expected return on the firm's equity after the announcement of the stock repurchase plan?

(3.5 points)

Answer

Explanation:
a.

Before the announcement of the stock repurchase plan, the market value of the outstanding debt is $4,700,000. Using the debt-equity ratio, we can find that the value of the outstanding equity must be:

Debt-equity ratio = B / S
0.20 = $4,700,000 / S
S = $23,500,000

The value of a levered firm is equal to the sum of the market value of the firm's debt and the market value of the firm's equity, so:

V_L = B + S
V_L = $4,700,000 + 23,500,000
V_L = $28,200,000

According to MM Proposition I without taxes, changes in a firm's capital structure have no effect on the overall value of the firm. Therefore, the value of the firm will not change after the announcement of the stock repurchase plan.

b.

The expected return on a firm's equity is the ratio of annual earnings to the market value of the firm's equity, or return on equity. Before the restructuring, the company was expected to pay interest in the amount of:

Interest payment = 0.09($4,700,000) = $423,000

The return on equity, which is equal to r_S, will be:

ROE = r_S = ($2,700,000 – 423,000) / $23,500,000
r_S = 0.0969 or 9.69%

c.
According to Modigliani-Miller Proposition II with no taxes:

$r_S = r_0 + (B/S)(r_0 – r_B)$
$0.0969 = r_0 + (0.20)(r_0 – 0.09)$
r_0 = 0.0958 or 9.58%

This problem can also be solved in the following way:

r_0 = Earnings before interest / V_U

According to Modigliani-Miller Proposition I, in a world with no taxes, the value of a levered firm equals the value of an otherwise identical unlevered firm. Since the value of the company as a levered firm is $28,200,000 (= $4,700,000 + 23,500,000) and since the firm pays no taxes, the value of the company as an unlevered firm is also $28,200,000. So:

r_0 = $2,700,000 / $28,200,000
r_0 = 0.0957 or 9.57%

d.
In part *c*, we calculated the cost of an all-equity firm. We can use Modigliani-Miller Proposition II with no taxes again to find the cost of equity for the firm with the new leverage ratio. The cost of equity under the stock repurchase plan will be:

$r_S = r_0 + (B/S)(r_0 – r_B)$
$r_S = 0.0957 + (0.35)(0.0957 – 0.09)$
r_S = 0.0977 or 9.77%

Problem 2 Credit Management (10 points)

Answer (if necessary, you may use the back of the page)

The cash flow from the old policy is:

Cash flow from old policy = ($290 – 230)(1,105)
Cash flow from old policy = $66,300

The Sunscreen Corp. is considering a change in its cash-only policy. The new terms would be net one period. The required return is 4 percent per period. Consider the following additional information.

	Current Policy	New Policy
Price per unit	$ 60	$ 66
Cost per unit	$ 34	$ 34
Unit sales per month	2,900	2,990

A) Calculate the NPV of the decision to change credit policies

B) Should Harrington proceed or not? Explain.

Explanation:
The cash flow from either policy is:

Cash flow = (P – v)Q

So, the cash flows from the old policy are:

Cash flow from old policy = ($60 – 34)(2,900)
Cash flow from old policy = $75,400

And the cash flow from the new policy would be:

Cash flow from new policy = ($66 – 34)(2,990)
Cash flow from new policy = $95,680

So, the incremental cash flow would be:

Incremental cash flow = $95,680 – 75,400
Incremental cash flow = $20,280

The incremental cash flow is a perpetuity. The cost of initiating the new policy is:

Cost of new policy = [PQ + v(Q' – Q)]

So, the NPV of the decision to change credit policies is:

NPV = –[($60)(2,900) + ($34)(2,990 – 2,900)] + $20,280/0.040
NPV = $329,940.00

Problem 3 Short-term Finance (8 points)

The Great West Company has estimated sales for the next four quarters as follows:

	Qtr1	Qtr2	Qtr3	Qtr4
Sales	$510	$870	$450	$600

Accounts receivable at the beginning of the year were $210. Great West has a 60-day accounts receivable collection period. Great West's purchases from suppliers during a quarter are equal to 50% of the next quarter's forecast sales. Projected sales for each quarter of the year following the current one are uniformly 10% higher than the corresponding quarter's forecast sales during the current year. The accounts payable period is 45 days. Wages, taxes, and other expenses are one-third of sales, and interest and dividends are $10 per quarter. No capital expenditures are planned. Great West is required to maintain a $10 minimum compensating balance but currently has a cash balance of $0.

A) Calculate Great West's projected cash collections. **(2.5 points)**
B) Calculate Great West's projected cash outflows. **(2.5 points)**
C) Calculate the net cash inflow and cumulative financing surplus (or deficit) for Great West . What do you observe? Explain. **(3 points)**

Answer (if necessary, you may use the back of the page)

See pdf answer practice prb1

Problem 4 Capital Budgeting under risk (8 points)

An all- equity firm is considering the following projects:

Project	Beta	Expected Return
W	.75	10.0%
X	.90	10.2
Y	1.20	12.0
Z	1.50	15.0

The T- bill rate is 5 percent, and the expected return on the market is 11 percent.

A) Which projects have a higher expected return than the firm's 11 percent cost of -capital? **(1.5 points)**

B) Which projects should be accepted? **(4 points)**

C) Which projects would be incorrectly accepted or rejected if the firm's overall cost of capital was used as a hurdle rate? **(2.5 points)**

Answer (if necessary, you may use the back of the page)

13.15*a.* Projects Y and Z.

b. Using the CAPM to consider the projects, we need to calculate the expected return of each project given its level of risk. This expected return should then be compared to the expected return of the project. If the return calculated using the CAPM is lower than the project expected return, we should accept the project; if not, we reject the project. After considering risk via the CAPM:

E[W] = 0.05 + 0.75(0.11 – 0.05) = 0.0950 < 0.10, so accept W
E[X] = 0.05 + 0.90(0.11 – 0.05) = 0.1040 > 0.102, so reject X
E[Y] = 0.05 + 1.20(0.11 – 0.05) = 0.1220 > 0.12, so reject Y
E[Z] = 0.05 + 1.50(0.11 – 0.05) = 0.1400 < .15, so accept Z

c. Project W would be incorrectly rejected; Project Y would be incorrectly accepted.

Midterm Exam Formula Sheet (ADM 3350)

1. $R_E = D_1 / P_0 + g$

2. $R_E = R_f + \beta_E \times \left[R_M - R_f \right]$

3. $WACC = \left(E/V \right) \times R_E + \left(D/V \right) \times R_D \times \left(1 - T_C \right)$

4. $Yield = \dfrac{Coupon + \left[\left(FV - \mathrm{Price} \right) / \ Maturity \right]}{\left[\left(FV + \mathrm{Price} \right) / 2 \right]}$

5. $NPV = -\left[PQ + v'(Q' - Q) + Q(v' - v) \right] + \dfrac{\left[IncrementalCashFlow \right]}{R}$

6. *APR = periodic rate* 365/ (net period – discount period)*

7. *EAR* = (1 + *(periodic rate))* *to the power* *[(365/ (net period-discount period)]* - 1

SHORT-TERM SOLVENCY RATIOS

Current ratio = Current assets ÷ Current liabilities

Quick ratio = (Current assets - Inventory) ÷ Current liabilities

ACTIVITY RATIOS

Total asset turnover = Total operating revenues ÷ Average total assets

Receivables turnover = Total operating revenues ÷ Average receivables

Average collection period = Days in period ÷ Receivables turnover

Inventory turnover = Cost of goods sold ÷ Average inventory

Days in inventory = Days in period ÷ Inventory turnover

FINANCIAL LEVERAGE RATIOS

Debt ratio = Total debt ÷ Total assets

Debt-equity ratio = Total debt ÷ Total equity

Equity multiplier = Total assets ÷ Total equity

Interest coverage = Earnings before interest and taxes ÷ Interest

PROFITABILITY RATIOS

Net profit margin = Net income ÷ Total operating revenue

Gross profit margin = Earnings before interest and taxes ÷ Total operating revenues

Net return on assets = Net Income ÷ Average Total Assets

Gross return on assets = Earnings before interest and taxes ÷ Average total assets

Net[Gross] Return on assets (ROA) = Net[Gross] Profit margin x Asset Turnover

Return on equity (ROE) = Net income ÷ Average stockholders' equity

Payout ratio = Cash dividends ÷ Net Income

Retention ratio = Retained earnings ÷ Net Income = 1 – Payout ratio

MARKET VALUE RATIOS

Price-to-earnings (P/E) ratio = Market price per share ÷ Earnings per share

Dividend yield = Dividend per share ÷ Market price per share

Market-to-book (M/V) ratio = Market price per share ÷ Book value per share

Tobin's Q ratio = (Market value of debt + equity) ÷ Replacement value of total assets

$$PV \text{ of an Annuity} = \mathrm{PV}(\mathrm{A}, \mathrm{r}, \mathrm{n}) = \mathrm{A} \left[\frac{1 - \dfrac{1}{(1+\mathrm{r})^{\mathrm{n}}}}{\mathrm{r}} \right]$$