

Test 2 (Sample)

Instructions: Answer all questions in both parts. In Part A, show all work, but be precise (there is partial credit for method in this part). All the best!

Name _____ SS No. _____

Part A (4 problems, 80 points)

1. Graphics Unlimited Inc. is financed entirely by common stock which offers a 15 percent expected return at its current price of \$40. The company is considering a buyback of 25 percent of common stock, financed with a new issue of debt yielding 6 percent.
 - a. Suppose that before the refinancing an investor held 12 shares of GUI stock. What should she do if she wishes to ensure that the risk and expected return on her investment are unaffected by the refinancing?
 - b. What is the expected return on the common stock after refinancing?

(20 points)

2. United Airways' balance sheet is as follows:

<u>Book</u>				<u>Market</u>			
\$ millions				\$ millions			
NWC	200	500	D	NWC	200	1000	D
LTA	<u>2300</u>	<u>2000</u>	E	LTA	<u>3300</u>	<u>2500</u>	E
	2500	2500	V		3500	3500	V

Key: NWC = net working capital; LTA = long term assets; D = debt;
E = equity; V = firm value.

Assume that MM's Proposition I with corporate taxes holds and the corporate tax rate is 34%.

- a. What would be the change in company value if UAW issues \$200 million of equity and uses it to make a permanent reduction in the company's debt?
- b. Draw up the new balance sheet of UAW in market value terms.

(20 points)

3. A project costs \$100 million, offers a perpetual cashflow stream of \$15 million a year and adds \$30 million to the firm's debt capacity. The unlevered cost of capital for firms in similar lines of business is 15%. Assume MM's Proposition I with tax holds, and that the corporate tax rate is 34 percent. What is the APV of the project?

(10 points)

4. Use the data in the Table below to answer the following questions. Answer each question independent of all other questions. (30 points)

a. What are the cost and net present value of the combination of Abbott Inc. and Bernie Inc. if, as a result of the merger, the economies expected are \$400,000 and Abbott Inc. plans to pay \$3 million in cash for Bernie?

b. If Abbott acquires Bernie for \$3 million in cash, how will the shareholders of each make out on the deal?

c. If Abbott Inc. merges with Castello Inc., there is no economic gain from the merger, and shareholders of Castello are issued one share of Abbott for each five shares they own. What is the cost of the combination to Abbott, Inc? What is the effect of the merger on stockholders of both firms?

d. Show the results of accounting for the merger between Abbott Inc. and Bernie Inc., using both pooling of interests and a purchase of assets methods, where Bernie is acquired for \$3 million, which is its fair market value.

	Abbot Inc.	Bernie, Inc.	Castello, Inc.
Earnings per share	\$4	\$2	\$2
Price per share	\$64	\$28	\$12
Price-earnings ratio	16	14	6
Number of shares ('000)	200	100	200
Total earnings ('000)	\$800	\$200	\$200

(Values in millions)

Book Values:

	Abbot Inc.	Bernie, Inc.	Castello, Inc.
Net Working Capital	\$1.1	\$0.4	\$0.3
Fixed Assets	2.8	1.0	0.8
Debt	2.0	0.7	0.3
Equity	1.9	0.7	0.8

Part B
Multiple choice problems (10 problems, 2 points each)

Instructions: Circle the *one* correct answer to each problem.

1. A firm has \$1 per share in cash, which it will use either to repurchase shares or to pay a cash dividend. Share price is \$20. Other things equal, will the share price after a repurchase be:
 - a. \$20?
 - b. \$21?
 - c. \$19?

2. Anti-trust legislation:
 - a. no longer applies to business combinations
 - b. does not apply to conglomerate mergers
 - c. is enforced by the Justice Department and the FTC
 - d. a and b
 - e. b and c

3. If a firm borrows \$25 million for one year at an interest rate of 8 percent, what is the present value of the interest tax shield? Assume a 34 percent tax rate.
 - a. \$630,000.
 - b. \$680,000.
 - c. \$1,000,000.

4. Which of the following dividends is/are never in the form of cash?
 - a. Regular dividend.
 - b. Stock dividend.
 - c. Extra dividend.
 - d. Liquidating dividend.

5. You own 500 shares of Tar Heel Shoe, selling at \$35 per share and paying an annual dividend of \$2 per share. You depend on the dividend to pay the rent. Suppose the firm eliminates the dividend and repurchases shares instead. What should you do to replace next year's dividend check?
 - a. Sell 28.6 shares at \$35.
 - b. Share price should rise to \$37. Therefore, sell $1000/37 = 27$ shares.
 - c. Share price should fall to \$33 after the repurchase. Therefore, sell $1000/33 = 30.3$ shares.

6. In economic terms, share repurchase is most similar to:
- a. A stock split.
 - b. Greenmail.
 - c. Payment of a stock dividend.
 - d. A reverse stock split.
 - e. Payment of a cash dividend.
7. Which of the following investors has the strongest tax reason to prefer dividends over capital gains?
- a. Pension funds.
 - b. Private individuals.
 - c. Insurance companies.
 - d. Corporations.
8. Firm A's assets are \$3,000,000. Firm B's assets are \$2,000,000. Firm A acquires Firm B by paying \$2,200,000 in newly issues Firm A stock. Under the purchase/pooling of interest treatment, the assets of the merged firm are valued at:
- a. \$3,000,000/\$4,400,000
 - b. \$3,000,000/\$5,000,000
 - c. \$5,200,000/\$5,000,000
 - d. none of the above
9. Melno, Inc., has acquired Tellmar Company for an exchange of 3 shares of Melno for each share of Tellmar. Melno's post-merger price is \$36.00 per share. There were 2,000,000 shares of Tellmar common stock prior to the merger. What purchase price is implied by this exchange of stock? Melno had 12 million shares outstanding before the merger.
- a. \$110,000,000
 - b. \$216,000,000
 - c. \$150,000,000
 - d. \$372,000,000
10. Leveraged buy-outs almost always involve:
- a. AAA grade debt.
 - b. Issuance of new shares of stock to many investors.
 - c. The existing management team as new shareholders.
 - d. Junk grade debt.
 - e. All of the above.

FORMULAE

1. MMI: $V_U = V_L = \frac{EBIT}{k_{SU}}$

MMII: $k_{SL} = k_{SU} + \frac{D}{S} (k_{SU} - k_D)$

2. MMI^{Tax}: $V_U = \frac{EBIT(1-T)}{k_{SU}}$

$$V_L = V_U + T \cdot D$$

MMII^{Tax}: $k_{SL} = k_{SU} + \frac{D}{S} (k_{SU} - k_D) (1-T)$

$$k_a = WACC = \frac{D}{V} k_D (1-T) + \frac{S}{V} k_{SL}$$

3. PV of tax shield of debt with maturity = M periods:

$$PVTS = \sum_{t=1}^T \frac{k_D \cdot D \cdot T}{(1+k_D)^t} = k_D \cdot D \cdot T \left[\frac{1}{(1+k_D)} + \frac{1}{(1+k_D)^2} + \dots + \frac{1}{(1+k_D)^M} \right]$$

4. APV = NPV at k_{SU} + PV of Financing side effects

5. Adjusted cost of capital (MM Formula), with perpetual debt:

$$k_a = k_{SU} \left(1 - T \cdot \frac{D}{V} \right)$$

Project NPV using $k_a = \frac{EBIT(1-T)}{k_a}$ - Inv., for project with perpetual ~~of~~ earnings

6. PV of a \$1 perpetuity at discount rate $k = \frac{1}{k}$

7. COST of an equity-financed merger = $x \cdot PV_{AB} - PV_B$,

where x = proportion of AB's equity owned by B's stockholders after the merger

A = Acquiring firm

B = Acquired firm

AB = New combined firm.

Solutions to Test 2 (Sample)

Part A

1. Here, $k_{SU} = .15$, $k_D = .06$, $D/S = 25/75 = 1/3$

a. Sell $.25(12) = 3$ shares and use the proceeds to buy the debt of GUI.

Then she will own the same % of the outstanding debt and equity of GUI, so she will receive the same % of total CFs of GUI, i.e., get back to the unlevered CF.

b. $k_{SL} = k_{SU} + (k_{SU} - k_D) D/S = .15 + (.15 - .06) 25/75 = .18$ or 18%

2. a. $\Delta V = -200(.34) = -\68

b.

Assets		Lia.	
NWC	200	D	1,000
LTA	3,300		
PV(TS)	<u>-68</u>	E	<u>2,432</u>
A	3,432	L	3,432

3. $APV = -100 + 15/.15 + 30(.34) = \10.2 m

4. a. Gain = \$400 K

Cost = Cash - $PV_B = 3,000 - 2,800 = \$200$ K

NPV = Gain - Cost = $400 - 200 = \$200$ K

b. Price/sh paid for Bernie = $3,000/100 = \$30$

$$r_{\text{Bernie}} = 30/28 - 1 = .0714 \text{ or } 7.14\%$$

NPV/sh for Abbott SH = $\$200 \text{ K} / 200 \text{ K} = \1

$$r_{\text{Abbott}} = 65/64 - 1 = .0156 \text{ or } 1.56\%$$

c. Gain = 0

of Abbott shs. issued to Castello SH = $200/5 = 40 \text{ K}$

$$x = 40/240 = 1/6$$

$$\text{Cost} = x \text{ PV}_{\text{AC}} - \text{PV}_{\text{C}} = 1/6 (12,800 + 2,400) - 2,400 = \$133 \text{ K}$$

$$\text{NPV} = \text{Gain} - \text{Cost} = 0 - 133 = -\$133\text{K}$$

$$\text{NPV/sh for Abbott SH} = -133/200 = -\$0.67$$

$$r_{\text{Abbott}} = 63.33 / 64 - 1 = -.0105 \text{ or } -1.05\%$$

Value of 1 Castello share (i.e., 1/5 Abbott shs) after merger = $1/5 (63.33) = \$12.666$

$$r_{\text{Castello}} = 12.666/12 - 1 = .0555 \text{ or } 5.55\%$$

d. B/S (Pur.)

	Assets		Lia
		D	2.7
Assets	<u>6.9</u>	E	<u>4.2</u>
A	6.9	L	6.9

Part B

- | | | | |
|----|---|-----|---|
| 1. | A | 6. | E |
| 2. | E | 7. | D |
| 3. | A | 8. | C |
| 4. | B | 9. | B |
| 5. | A | 10. | D |

Solutions to quantitative multiple choice problems in Test 2 (Sample)

3. $25 (.08) (.34) / 1.08 = \0.63 m

4. Annual div = $500(2) = \$1,000$. You can replace it by selling $1000/35 = 28.6$ shares at \$35.

5. Under purchase method, the assets of the target firm appear in the acquirer's books as their fair market value, which from the info given, we can assume is the purchase price. So they will appear at \$2.2 m for a total of \$5.2 m. Under pooling method, they will appear at their book value, for a total of \$5 m.

9. $3 (2) (36) = \$216 \text{ m}$