

ASSIGNMENT 1

REMARKS:

- This is a group assignment with a maximum of 5 students per group.
- The problems are to be answered in the space provided for them on this booklet.
- Clearly show your working and **encircle the final answer**.
- This assignment is due at the start of class on **Wednesday, Nov 1, 2017**.

Member 1 Name : _____

Student no.: _____ Sec: _____

Member 2 Name : _____

Student no.: _____ Sec: _____

Member 3 Name : _____

Student no.: _____ Sec: _____

Member 4 Name : _____

Student no.: _____ Sec: _____

Member 5 Name : _____

Student no.: _____ Sec: _____

PROBLEM 1 (15 POINTS)

ModMill Real Estate Company is an all-equity firm with 15 million shares of common stock outstanding worth \$32.50 per share. ModMill is planning to purchase a huge track of land in southeastern Texas for \$100 million. The land will subsequently be leased to tenant farmers, increasing ModMill's annual expected pre-tax earnings by \$25 million in perpetuity. The firm's unlevered cost of equity capital is 12.5%. ModMill is subject to a corporate tax rate of 40%. If it were to issue debt, the interest rate on ModMill's bonds would be 8% per annum. Assume that the market is semi-strong form efficient.

(a) Suppose ModMill decides to issue equity in order to finance the purchase.

(i) What is the net present value of the project? **(3 POINTS)**

(ii) ModMill has just announced that the firm will finance the purchase using equity. What is the new price per share of the firm's stock? How many shares will ModMill need to issue in order to finance the purchase? **(5 POINTS)**

PROBLEM 1 CONTINUED

(b) Suppose ModMill decides to issue debt in order to finance the purchase.

(i) What will the market value of ModMill be if the purchase is financed with debt? **(3 POINTS)**

(ii) What is the price per share of the firm's stock after the debt issue? **(4 POINTS)**

PROBLEM 2 (15 POINTS)

Your favorite firm, Zn-g Inc produces zinc. The total value of the firm is \$700 million. This consists of risk-free debt and equity. Market value of debt is \$150 million; and there are 50 million shares outstanding.

At date 1, the company finds reserves of zinc in a Torcouver field that it estimates are worth \$250 million in terms of present value at date 1. Assume that interest rates and all other external factors remain the same; the debt remains risk-free throughout; markets are semi-strong form efficient.

(a) What is the stock price [per share] for Zn-g at date 0? **(2 POINTS)**

(b) At date 1, an announcement concerning the Torcouver find is made. What is the stock price after this announcement? **(3 POINTS)**

(c) At date 2, the firm repurchases 15% of its shares in the open market at the price that prevails in the market. What is the stock price after the repurchase? **(4 POINTS)**

PROBLEM 2 CONTINUED

(d) At date 3, the firm finds that the value of the zinc reserves in the Torcover field is in fact lower by \$150 million than previously announced. What is the stock price at this stage if no announcement is made? **(2 POINTS)**

(e) At date 4, it is announced that the value of the reserves in the Torcover field is \$150 million lower than previously announced. What is the stock price after the announcement? **(4 POINTS)**

PROBLEM 3 (15 POINTS)

Finz is a financial institution that trades on the Toronto Stock Exchange. It is thinking of making a rights issue to raise \$400 million, with a subscription price of \$25 per share. The current price of its stock is \$35 per share; and Finz has 80 million shares outstanding.

(a) What is the ex-rights price of the stock assuming all rights are exercised? **(5 POINTS)**

(b) Now assume that only 85 percent of the rights are exercised. What is the ex-rights price? **(5 POINTS)**

PROBLEM 3 CONTINUED

(c) Suppose that the firm anticipates that only 95 percent of the rights issued will be exercised and adjusts the number of shares that it announces will be made available for sale at the subscription price so that the issue will succeed in raising \$400 million. How many shares will Finz announce for sale? What will be the ex-rights price in this case? **(5 POINTS)**

PROBLEM 4 (10 POINTS)

A convertible bond is selling for \$1,222.70. It has 10 years to maturity, a \$1,000 face value, and a 10% coupon paid semi-annually. Similar non-convertible bonds are priced to yield 8%. The conversion ratio is 40. The stock currently sells for \$30.125 per share. Calculate the convertible bond's option value.