

**FUNDING INVESTMENTS**  
**FINANCE 238/738, D. Musto**  
**FIRST TEST, 2/28/05**  
**80 MINUTES / 80 POINTS**

*Your Name:* \_\_\_\_\_

1. Allied Waste is currently trying to restructure its debt. On 2/22/05 it announced a tender offer and consent solicitation for its bond that matures 1/1/06 and which pays a coupon of  $7 \frac{5}{8}$ . If you tender by the deadline, *and* you vote to remove all the covenants, *and* the vote passes, then you get \$1031.89, plus accrued interest, per \$1000 face value of the bond.

a. (5 pts) Here are the prices of two Treasury securities maturing 12/31/05: a  $1 \frac{7}{8}$  coupon note, and a STRIP:

| Coupon          | Bid   | Ask   |
|-----------------|-------|-------|
| $1 \frac{7}{8}$ | 98:31 | 99:00 |
| 0               | 97:13 | 97:14 |

Assuming everyone tenders, how does the cost to Allied Waste of retiring the bond this way compare to the cost of defeasing the bond? (*don't worry about accrued interest, since that would just wash out of the comparison anyway*).

b. (5 pts) How does the structure of this offer encourage investors to tender?

2. A stock trades for 20 today. In one year it will be either 16 or 24, each with probability  $\frac{1}{2}$ . If it goes to 16 then the next year it will be either 12 or 20, and if it goes to 24 then the next year it will be either 20 or 28. The one-year interest rate is 5% (and it will be 5% next year too).

a. (5 pts) How much is the option to sell the stock for 16 in two years worth today?

b. (5 pts) If you replicate the payoff of this option by trading the stock and the bond, how many shares will you buy or sell, net of what you already hold, in one year if the stock goes to 16?

3. (10 pts) A car maker is issuing bonds to finance its future production, which will cost 100. After it sells the bonds, it will choose between two models to develop: a sport-utility vehicle (SUV), and a minivan. The repayment of the bond will come from the car maker's revenues from the model it chooses, which depend on whether gas prices turn out to be high (H), medium (M) or low (L), which each have probability  $\frac{1}{3}$ :

| Gas Price: | H   | M   | L   |
|------------|-----|-----|-----|
| SUV        | 40  | 90  | 160 |
| Minivan    | 120 | 110 | 90  |

Everybody is risk-neutral, and the discount rate is 0. The car maker is considering issuing a bond with face value 100; if this bond sells for less than 100, the car maker pays in the difference. Would this be profitable for the car maker? If not, what is a face value that *would* be profitable?

4. The supermarket chain Winn Dixie filed bankruptcy on 2/21/05.
- (5 pts) The *Wall Street Journal* reports that, at the same time it filed, Winn Dixie announced a new \$800MM credit line from Wachovia. Also, Winn Dixie now plans to terminate the leases on two warehouses and 150 stores it previously closed, thereby shaving \$60MM from annual expenses. Furthermore, it will sell its manufacturing businesses. Winn Dixie should have done these things before, when they would have helped *avoid* a bankruptcy filing. Discuss.
  - (5 pts) The *Journal* further reports that Winn Dixie had recently been downgraded by rating agencies, and vendors subsequently tightened credit. What concerns would the vendors have had?
5. You are a market maker for a biotech stock, and you know the issuer will announce tomorrow whether the trial for their latest drug was successful or not. If it was successful then the stock will be worth 55, and if it isn't, it will be worth 40. According to public information, which is all you have, the probability of each outcome is  $\frac{1}{2}$ . You have to post a bid and an ask for the stock, and you know that the next trade will come from one of nine traders, with equal probability (i.e. the probability that the trade came from any given trader is  $\frac{1}{9}$ ). Among these nine traders are four hedge-fund managers, who already know whether the trial was successful, and five dentists, who don't know any more than you know.
- (5 pts) What bid and ask do you post?
  - (5 pts) The finance minister of New Zealand recently said,  
*"When coupled with research showing an enforceable insider-trading regime can increase market liquidity, the need to beef up our insider trading legislation becomes very apparent."*  
  
Considering your answer to part (a), do you agree or disagree with the minister's connection between insider trading and liquidity? Explain.

6. On 2/24/05, Bloomberg News reported that the general repo rate was 2.54%, but the repo rate for the current 2-year note, which matures 1/31/07, was 0.40%.
- (5 pts) On 2/24/05 you wish to finance your purchase of \$10MM face value of the 2-year using the repo market. You wish to buy on 2/24/05 and sell four days later. The invoice price is \$9,958,218 at the bid and \$9,961,343 at the ask, and the repo market requires 2% margin: security value = 102% of loan amount. How, in dollars, does the specialness of the note affect your financing cost?
  - (5 pts) On 2/24/05, the 2-year note was near the end of being the current 2-year, because the Treasury issues a new 2-year at the end of each month. How might this relate to the repo rate we observe?
7. Last week, Lions Gate Entertainment raised \$150MM by selling a convertible bond. It matures 3/15/25, pays a 3 5/8% coupon, becomes callable at par as of 3/15/12, and \$1000 face value is convertible into 70.0133 shares of Lions Gate. At the time the convertible was issued, the shares were trading for \$10.35 each.
- (3 pts) What is the conversion premium?
  - (4 pts) This issuance is wise because it allows Lions Gate to pay a below-market coupon for seven years, and then sell equity above today's price. Agree or disagree? Explain.
  - (3 pts) In its press releases, Lions Gate admits that its brand name *is synonymous with original, daring, quality entertainment in markets around the globe*. Does their decision to make this bond convertible increase or decrease their incentive to be daring in the future? Explain.
8. (10 pts) Tower Semiconductor announced recently that its bank lenders had waived its non-compliance with financial ratios and covenants, rather than declare its \$497MM loan in default and demand immediate repayment. Tower Semiconductor's public debt is a \$27MM bond, and the current market value of its equity is \$60MM. Does this capital structure make the banks' decision more or less surprising? Explain.