

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

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

*Section you are registered for:* \_\_\_\_\_

1. (10 pts) Suppose these are today's prices of these Treasury bonds (all mature on Feb 15, 2010, and Feb 05-10 indicates a bond that becomes callable at par on February 15, 2005. Don't worry about accrued interest here.)

	Coupon	Bid	Ask
Feb 10n	6.5%	120:12	120:13
Feb 05-10	11.75%	122:10	122:11
Feb 10 STRIP	0%	77:08	77:12

Do these prices represent an arbitrage opportunity? If so, what does the arbitrage argument depend on, and if not, why not?

2. (10 pts) An entrepreneur has three potential projects, with the following payoffs in depression  $D$  and prosperity  $P$ , which each have probability  $\frac{1}{2}$  of occurring:

<i>Project</i>	<i>D</i>	<i>P</i>
<i>A</i>	0	190
<i>B</i>	50	180
<i>C</i>	70	140

Each project costs 100, and the entrepreneur would like to raise some of that 100 by selling a bond with face value 100. What the bond doesn't raise the entrepreneur must pay in himself. All investors are risk neutral and the discount rate is 0%. After they invest, bondholders will be able to see which project the entrepreneur chooses and will be able to liquidate immediately for 80. What happens?

3. (10 pts) Which costs more: a 40-day Treasury Bill with a discount rate of 6.05%, or a 30-day Treasury Bill with a discount rate of 7.15%?
4. (10 pts) The argument that a company's bank debt should be senior to its bonds follows from
- A) Junior debt often recovers little value in bankruptcy
  - B) Absolute-priority is often violated in bankruptcy
  - C) Managers can choose projects that benefit equity at the expense of debt
  - D) Managers can retain earnings that should be returned to shareholders
  - E) Monitoring is easier for banks than for dispersed bondholders

Choose all that apply, and defend your answer.

5. (10 pts) The headline yesterday at the open of the Repo market was “Current 10-Year Note at Lowest Rate of 0.75%,” meaning that of all Treasury securities, this one had the lowest repo rate (the general-collateral rate was 1.75%). The last auction of a 10-year was August 15, and the next one will be auctioned in a month. What can explain this security’s current repo rate (i.e., why is it so low, not why is it exactly 0.75%), how do you expect its repo rate to move over the next couple months, and why?
6. The convertible issued by eToys, which matures 12/1/04, becomes callable at par in six weeks, on December 1, 2002. The conversion ratio is 13.5323 shares of eToys per \$1000 face value. At the time of issuance, eToys was trading at \$62.625/share.
- (5 pts) What was the conversion premium at issuance?
  - (5 pts) eToys is now trading around \$74/share. Suppose JP Morgan says to eToys, “I see that you will probably want to call your bond in a few weeks, but you’ll be worried investors won’t convert. How about this: if they don’t convert, then I’ll buy the bonds at par, and I’ll convert them.” What option on eToys would Mr. Morgan’s exposure to eToys resemble?
7. (10 pts) Last Friday, Moody’s announced the following ratings of the debt of AES Corp.:
- Senior Unsecured: B3  
Senior Subordinated: Caa1  
Junior Subordinated: Caa2
- Does this support the view that bond ratings are estimates of the probability of default?
8. (10 pts) Amazon currently sells for 18 and in a year it will be either 15 or 25, each with probability  $\frac{1}{2}$ , and you can borrow or lend for a year at 2%. What is the value of a European put on Amazon with strike price 22.5?