

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

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

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

1. (10 pts) Your independent TV studio has two ideas for the fall season, *Jane Millionaire* and *Joe Billionaire*. Each costs \$1M to produce, and you want to sell bonds to help pay that cost. Both you and bond investors require a 5% expected return, and you have to pay in the difference between \$1M and what the bonds sell for. Because you have to produce in secrecy, you cannot commit in advance to which idea you will produce after selling the bonds. The bonds will be paid out of the show's proceeds, which depend as follows on whether the number of *other* studios making reality shows is 10, 20 or 30, which each have probability 1/3:

Show	10 studios	20 studios	30 studios
<i>Jane Millionaire</i>	\$1.5M	\$0.9M	\$0.4M
<i>Joe Billionaire</i>	\$1.4M	\$1.2M	\$0.6M

Do you make money if you finance by selling bonds with face value \$1M?

2. Suppose these were the prices of these Treasury securities on this past Thursday, 2/27/03:

<i>Coupon</i>	<i>Maturity date</i>	<i>Bid</i>	<i>Ask</i>
5.625	Feb 15, 2006	110:18	110:19
9.375	Feb 15, 2006	121:10	121:11
0	Feb 15, 2006	94:11	94:13

- (5 pts) Would it be cheaper to buy the 5 5/8 directly, or to instead buy the same cash flows by trading the other two bonds?
- (5 pts) Suppose the 9 3/8 is on special, with a very large specialness. Would this change your mind about whether to buy the 5 5/8 directly?

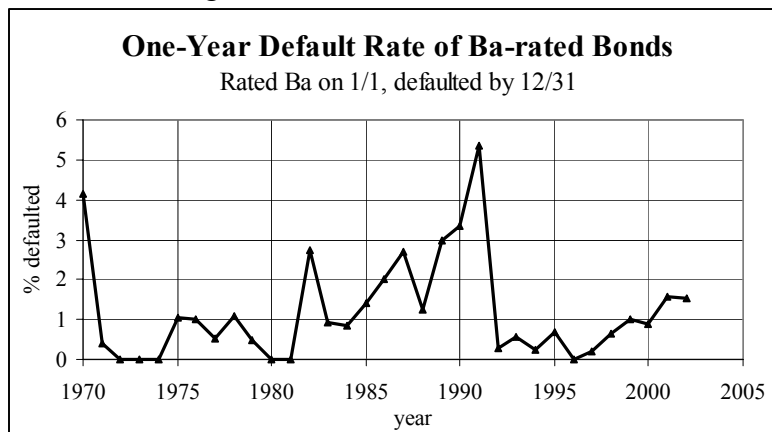
3. (10 pts.) Present graphically the argument that it is easier for issuers and the market to agree on the pricing of a convertible bond than on the pricing of a straight bond.

4. (10 pts.) Here are P-1 CP discount rates as of two recent dates:

<i>date</i>	days to maturity					
	<i>1</i>	<i>7</i>	<i>15</i>	<i>30</i>	<i>60</i>	<i>90</i>
1/29/03	1.24	1.23	1.25	1.25	1.24	1.25
2/28/03	1.34	1.28	1.27	1.25	1.25	1.25

Suppose you bought \$30M face value of 60-day P-1 paper on 1/29/03. How much money would you have made (on paper) on this purchase by 2/28/03?

5. (10 pts.) Amazon currently sells for 23. In one year (2004) it will be either 30 or 20, each with probability  $\frac{1}{2}$ . If it goes to 30 in 2004 then it will be either 40 or 25, each with probability  $\frac{1}{2}$ , in 2005. If it goes to 20 in 2004 then it will be either 25 or 18, each with probability  $\frac{1}{2}$ , in 2005. The one-year interest rate is 2% (and it will be 2% in 2004). What is the value today of an option to buy Amazon for 20 in 2005?
  
6. (10 pts.) Why is there a holdout problem with restructuring bonds outside of bankruptcy? From the course material, describe a couple ways it can be reduced.
  
7. (10 pts.) You want to short a stock, but you can't because your broker can't borrow the shares. Can you get the same exposure using options? That is, if there are traded options on the stock, can you make a trade such that you will make  $n$  dollars if the stock goes down  $n$  dollars, and you will lose  $n$  dollars if the stock goes up  $n$  dollars? How?
  
8. (10 pts.) Last week Moody's reported default rates for 2002. If we add the 2002 figure to the graph of one-year default rates of Ba-rated bonds, i.e., the fraction of the bonds that were rated Ba at the beginning of the year that had defaulted by the end, we get:



What does the recent behavior of this default rate tell us about what exactly it is that bond ratings measure?