

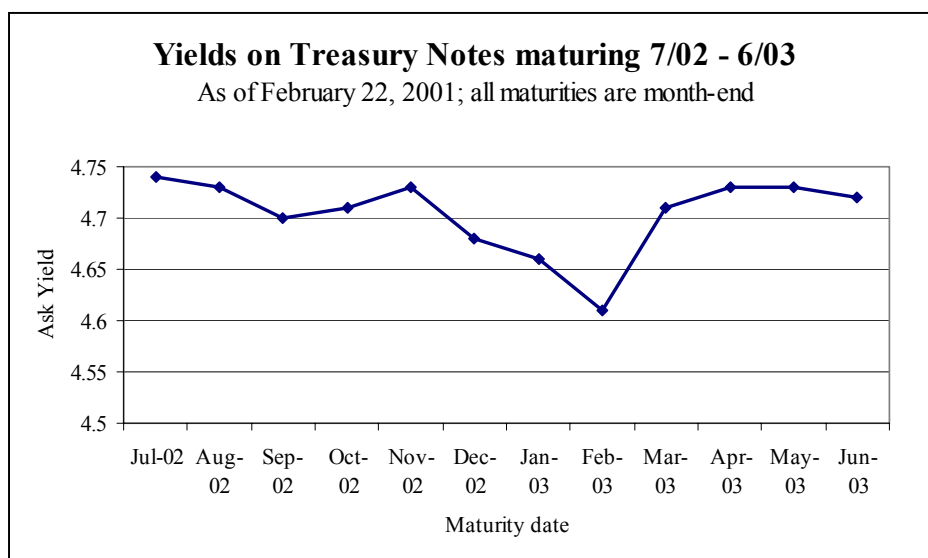
FUNDING INVESTMENTS
FINANCE 238/738, Spring 2001, Prof. Musto
Class 13 – FIRST TEST
80 minutes – 80 points

1. (10 points) Here are some prices from Thursday (2/22/01) (I might have altered them a bit):

<i>cpn</i>	<i>Maturity</i>	<i>Bid</i>	<i>Asked</i>	<i>Ask Yld</i>
7½	Feb 05n	109:06	109:08	4.91
6½	Feb 10n	108:24	108:26	5.26
11¾	Feb 05-10	123:12	123:18	5.13
0	Feb 05	82:09	82:12	4.94
0	Feb 10	62:09	62:14	5.32

Is the callable bond selling at a discount or a premium to the otherwise identical but non-callable synthetic bond (i.e. same final maturity date but not callable before)? If so, how much? (Assume all payment dates are on the 15th of the month. 8/15/01 is 173 days after 2/23/01 and 181 days after 2/15/01).

2. Here are the yields of some Treasury notes on 2/22/2001. All maturities are month-end:



The yield on the 2/28/03 note, which was auctioned last Wednesday, seems out of line with the others.

- a. (6 points) To what might we attribute this misalignment?
- b. (6 points) Does it indicate a trading opportunity? If so, what is the trade and what are the costs and risks?

3. A Movie Star wants to make Mission Impossible 3 (*MI3*). There are two possible plots: plot *A* (*Reservoir Dogs* meets *My Life as a Dog*), and plot *B* (*MII* meets *MI2*, with a heart). The box office receipts of the movie depend on which plot is chosen, as follows (the probabilities of outcomes *L*, *M* and *H* are all 1/3):

<i>Plot</i>	<i>L</i>	<i>M</i>	<i>H</i>
<i>A</i>	0	125	250
<i>B</i>	125	150	175

With either plot, the movie costs 140 to make. The Movie Star wants to raise money by selling debt with face value 100, to be paid out of the box office. The Movie Star makes up the difference between 140 and what the debt sells for, and then gets all the box office that doesn't go to debt. Investors are risk-neutral and their discount rate is 0.

- a. (6 points) Will this work, if the Movie Star can not commit to which plot he will use?
 - b. (6 points) Will this work, if the Movie Star *can* commit to which plot he will use?
4. (All dollar values here are \$US) If a Canadian citizen borrows shares of a Canadian company from a non-Canadian citizen on a dividend record date, then the Canadian citizen makes an after-tax profit equal to 10% of the dividend, due to the Dividend Tax Credit in the Canadian tax code. That is, if a share pays a dividend of d then the Canadian's profit, net of reimbursing d to the lender, is $0.1d$. Tomorrow (Thursday) is the record date for a \$0.35/share dividend from the Canadian company Trizec Hahn, which currently trades at \$16/share. Suppose you (a non-Canadian) own 100,000 shares of Trizec Hahn, which Celine Dion wants to borrow just for tomorrow (a 1-day loan). The current overnight interest rate is 5%, and you require 102% cash collateral on equity loans.
- a. (4 points) With a rebate rate equal to the overnight rate, how much interest would you rebate to Ms. Dion?
 - b. (2 points) What is Ms. Dion's profit due to the Dividend Tax Credit?
 - c. (4 points) What rebate rate gives you half the profit?
5. (12 points) Illustrate, with an example as simple as you like, how prepackaged bankruptcy can solve the holdout problem in a voluntary exchange offer.
6. (12 points) IBM has 3 bonds paying annual coupons: a one-year bond with an 4% coupon and selling at par, a two-year bond paying a 5% coupon, also selling at par, and a two-year bond, callable at par in one year, with a 5% coupon. What should the callable bond sell for if IBM's one-year rate will be either 5%, with probability 1/3, or 6%, with probability 2/3, in a year? Explain your answer.

7. (12 points) Rating agencies are often described as estimating default probabilities, and the ratings they assign to a given bond are considered to be their best estimates of the probability that the bond will default. Discuss (briefly) whether the evidence we've seen supports this view.