

**FUNDING INVESTMENTS
FINANCE 238/738, D. Musto
SECOND TEST, 4/12/06
80 MINUTES / 80 POINTS**

WRITE ALL ANSWERS ON THIS TEST
SHOW ALL YOUR WORK
ANSWER ONLY ON THE FRONT, NOT THE BACK
USE A BLUE BOOK FOR SCRATCH PAPER

Your Name: _____

Your Section: _____

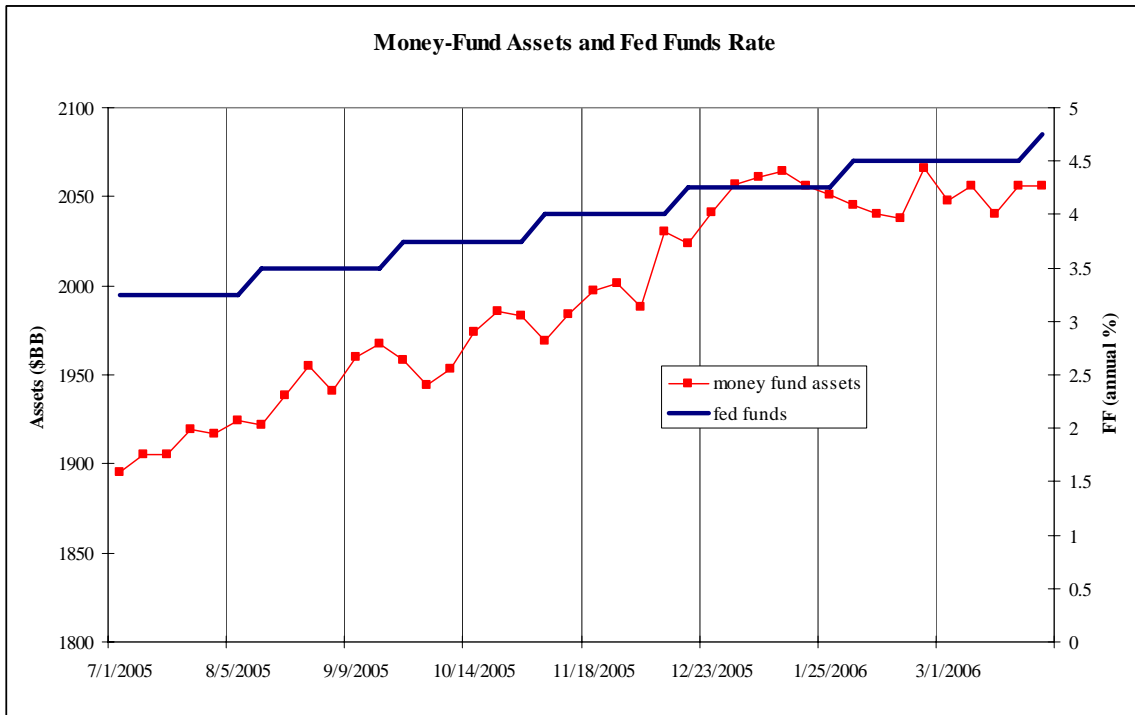
GRADERS WILL NOT READ THE BACK OF THIS SHEET

1. (10 pts) When we compare the performance of open-end mutual funds in the current year to their performance in the next year, we see weak persistence: performance in the next year increases only a little in performance in the current year. What can we conclude about the existence of skilled fund managers? What considerations are important?

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2. (10 pts) You are securitizing a pool of subprime home mortgages and you want one of the mortgage-backed securities to repay its principal between 6-8 years after issuance under a wide range of circumstances, and to have very little credit risk. What would be the key steps in engineering such a security?

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3. (10 pts) This graph shows the fed funds rate, as set by first Alan Greenspan and then Ben Bernanke, over the past few months (right scale, in annual percent) and also the total assets of money market mutual funds (left scale, in \$BB). It shows that investors have put more and more into money funds as rates have gone up, but it also shows that in the weeks when rates go up, money-fund investment actually goes *down*. What could account for this negative correspondence?

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4. (14 pts) The Brazilian Equity Fund had 4,634,004 shares outstanding, and on 6/6/96 announced a rights offering whereby each shareholder would receive 1 non-transferable right for every 3 shares held, and one right granted the option to buy one new share for 90% of the minimum of a) the per-share net asset value on 8/16/96, and b) the average closing price on the five trading days ending 8/16/96. Furthermore, shareholders who exercised their rights on 8/16 could then subscribe to an additional offering of up to 386,167 *more* shares at the same subscription price. On 8/16, the NAV was \$17.24/share, and the average closing price was \$12.32/share.
- a. (3 pts) All of the shares (including the additional offering) were purchased. How much money did this raise for the fund?

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- b. (8 pts) If we take \$12.32 as the fund's market value per share, conditional on all shares being purchased (i.e. the market value of the original fund, plus the value of cash paid in, divided by the post-offering number of shares), then what was the effect of this offering on the wealth of a shareholder who held 1000 shares but did not exercise his rights (i.e. how much higher or lower would his wealth have been had the offering not occurred, so that the market value of the original fund was shared by the pre-offering number of shares)?
- c. (3 pts) Some shareholders litigated, arguing that this offering was "coercive." Do you agree? Explain.

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5. (10 pts) University City High School organizes a 5K race to benefit its marching band, and the *Philadelphia Inquirer* runs a banner headline to that effect. However, there's a typo, so their intended headline **Band Run Today** comes out **Bank Run Today**. If the local banks are solvent, is this a cause for concern? What considerations and policies are relevant? Explain.

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6. (8 pts) Suppose Ford has a bond maturing in one year and that there are exactly two possible states of the world at maturity: in one the price of oil is high, Exxon Mobil trades for \$80/share and Ford is bankrupt, its bond worth 40, and in the other state the price of oil is low, Exxon Mobil trades for \$50/share and Ford's bond pays 108. Currently Exxon Mobil is \$61.75/share and a STRIP paying \$100 in one year costs \$95 today.
- a) What is today's price of Ford's bond, i.e. the price that does not present an arbitrage opportunity?
- b) What would today's price be for a credit derivative that offsets the Ford bond's default risk, i.e. a derivative that pays 68 if Ford goes bankrupt and 0 if it doesn't?

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7. (8 pts) On April 3, 2006, Hercules Inc. priced a tender offer for their 11.125% coupon bond which matures November 15, 2007, and which has \$118,968,000 face value outstanding. For \$1000 face value, bondholders will get \$1087.06 in cash, plus accrued interest. On the same day, we see the following prices in the Treasury market:

<i>Coupon</i>	<i>Maturity</i>	<i>Bid</i>	<i>Ask</i>	<i>Yield</i>
3.00	11/15/07	97:03	97:04	4.87
0.00	11/15/07	92:16	92:17	4.86

Provided all investors tender that day, how many dollars does Hercules save by retiring the bond with the tender offer that day, compared to defeasing it that day?

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8. (10 pts) You are making a market for Amazon stock, and therefore must post prices at which you will execute the next order to buy or sell one share. Competition from other market makers compels you to post quotes at which your expected profit from filling an incoming trade is zero. Everybody knows that Amazon will announce earnings tomorrow, and that they will be either good and Amazon will be worth 40, or they will be bad and Amazon will be worth 30. According to public information, which is all you have, the probability of each scenario is $\frac{1}{2}$. Trades come from three trader types:
- *Insiders*, who already know for sure what Amazon will be worth tomorrow, who account for 10% of trading and who trade only if the expected profit is positive. Insiders know their accuracy is 100%.
 - *Professionals*, who can predict with 60% accuracy what Amazon will be worth (e.g.. if a Professional predicts Amazon is going to 40 then there is a 60% chance that Amazon will go to 40), who account for 20% of trading and who trade only if the expected profit is positive. Professionals know their accuracy is 60%.
 - *Retail Investors*, who account for the remaining 70% of trading, who know only the same public information you know, and who randomly buy and sell for liquidity reasons.
- a. At what Bid and Ask do you break even?
- b. What expected profit does a Professional make on a trade?