ECON 133 Summer 2009
Quiz 3 : August 17

Name: ______________________________

SID: ______________________________

Score: ______________________________

1. (3 points) Stocks—Companies in the S&P 500 index see a declining dividend payout ratio over time. Which of the following explanations is the LEAST plausible?

   (a) The payout ratio is declining because the companies are making more money over time, while smoothing out dividend payments.

   (b) Since dividends are taxed at a higher tax rate than the capital gain, repurchases of stocks are a better way to return investments to shareholders.

   (c) Because of the high population growth, America is becoming younger. Young generations do not depend on dividends as much as seniors.

   (d) Stock options issued to motivate executives tend to be more valuable when there are no dividends.
   ANS: (c)

2. (9 points) Margin Trading and Short Selling—Use the following IBM stock data to answer the questions.

Date	Price per share	Event
7/31	100	
8/31	40	2:1 stock split (price is after splitting)
9/30	45	

   (a) Mary purchases 100 shares of IBM stocks on margin on 7/31. If the monthly interest rate is 1%, what is the remaining margin in her account on 8/31? If the maintenance margin is 40%, has she already received a margin call?
   ANS:
   Initial margin $= 100 \times 100 \times 50\% = \$5,000$.

Asset	Liability/Equity
$100 \times 2 \times 40 = 8,000$ (stock value)	$5000 \times (1 + 1\%) = 5,050$ (money owed plus interest)
	$8000 - 5050 = 2950$ (equity)

   Margin $= \frac{Equity}{\text{Value of Stock}} = \frac{2950}{8000} = 36.87\%$. (Remaining margin is the equity = \$2,950) She must have received a margin call already.

   (b) What is the monthly rate of return if someone purchases the stock on 7/31 with cash? What is Mary's?
   ANS: Cash purchase: $\frac{40 \times 2 - 100}{100} = -20\%$. Mary's: $\frac{2950 - 5000}{5000} = -41\%$.

   (c) John uses the same broker and has the same initial margin for trading stocks. He short sells 100 shares of IBM on 8/31 (after splitting). No dividends paid during the month of September. Calculate his monthly rate of return. Assume margin does not earn interests.
   ANS:

Asset	Liability/Equity
$100 \times 40 = 4000$ (cash proceeds)	$100 \times 45 = 4500$ (liability)
$4000 \times 0.5 = 2000$ (initial margin)	$4000 + 2000 - 4500 = 1500$ (equity)

   $\frac{1500 - 2000}{2000} = -25\%$.

3. (6 points) Market Indices—Consider the three stocks in the following table. P_t represents price at time t, and Q_t represents shares outstanding at time t. Stock C splits three-for-one in the last period.

	P_0	Q_0	P_1	Q_1	P_2	Q_2
A	100	10	95	10	110	10
B	50	200	80	200	90	200
C	50	50	50	50	30	300

(a) Calculate the rate of return for both a price-weighted and a market value-weighted indices of the three stocks for the first period ($t = 0$ to $t = 1$).
ANS: Price: Index at $t = 0$, $\frac{100+50+50}{3} = 66.67$. Index at $t = 1$, $\frac{95+80+50}{3} = 75$. Return$=\frac{75-66.67}{66.67} = 12.49\%$.
Market value: Index at $t = 0$, $\frac{100\times10+50\times200+50\times50}{d} = 13500/d$. Index at $t = 1$, $\frac{95\times10+80\times200+50\times50}{d} = 19450/d$. Return$=\frac{19450/d-13500/d}{13500/d} = 44\%$.(You can use any divisor. The result is the same.)

(b) What must happen to the divisor for the price-weighted index in year 2?
ANS: Index before stock split $= \frac{110+90+30\times3}{3} = 96.67$. Index after the split $=\frac{110+90+30}{d}$.
To make the two indexes identical, $96.67 = \frac{230}{d} \Rightarrow d = 2.38$.

4. (3 points) Order—When Peter places his market order to purchase 100 shares of ABC, the stock quotes on his real-time trading platform show

Bid	Bid Size	Asked	Asked Size
100.90	100	101.70	1,000

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What is the executed price of his purchase?

(a) 100.90
(b) 101.70
(c) 101.30
(d) No transaction
ANS: (b).

5. (3 points) Money Managers—Which of the following statements is NOT correct?

(a) Carry refers to the profit sharing arrangement between investors and hedge fund managers.
(b) Although some journalists also give out stock tips on business TV programs, they are exempt from registering as an investment adviser representative.
(c) Exchange-trade fund investors do not have worry redemption-caused turnover since redemption risks are carried by fund sponsors/arbitrageurs.
(d) Market timing refers to the speculators' practice to purchase stocks before the mutual funds do.
ANS: (d).

6. (3 points) Investment Banks and Underwriting—Which of the following statements is NOT correct?

(a) Gramm-Leach-Bliley Act of 1999 repealed part of Glass-Steagall Act of 1933 and allowed a bank holding company to have both commercial and investment banking.
(b) Red herring refers to the preliminary prospectus the investment banks file with the SEC for new securities issuance.
(c) Extra collateral demanded by counterparties has the same effect as deposit withdrawals happening in a commercial bank run.
(d) Investment bankers tend to under price IPOs to make sure the issuance is oversubscribed.
ANS: All the statements are correct. Free 3 points to everyone.

7. (3 points) Arbitrage—Royal Dutch Shell is a British-Dutch company. Its stocks are listed both in London and Amsterdam. Suppose one share of Royal Dutch Shell is trading at £2 in London and £2.5 in Amsterdam, after converting euros into the pound sterling. Describe how you conduct an arbitrage.

   ANS: Identical shares are not supposed to have different prices. An arbitrageur will take advantage of the convergence in the long run. Therefore, you should buy the British share and sell the Dutch share short with the same amount of transactions. It does not matter whether Royal Dutch Shell's stock will rise or fall, as long as the British and Dutch shares converge, you will have profits.