Econ435 – Financial Markets and the Macroeconomy
Problem Set 1

Due: Wednesday, July 25

Question 1

One proposal for dealing with the principal-agent problem in corporate finance, partly incorporated in the Sarbanes-Oaxley Act of 2001, is to make CEOs and/or CFOs financially responsible for the accuracy and truthfulness of company reports (to avoid cases like Enron). Its opponents argue that it would make it harder to find good managers, since the possibility of financial or even penal action against them would scare them away. Briefly explain (in at most 2 paragraphs, or with a bullet list) your position on this issue.

Question 2

The prices of stocks X, Y and Z evolved as in the table below. Notice the 3-for-1 stock split for stock X in year 1. Any index includes only these three stocks. Calculate the following:

	Year 0		Year 1	
	Price ($)	Number of shares	Price ($)	Number of shares
Stock X	75	30	28	90
Stock Y	15	130	14	130
Stock Z	105	15	102	15

(i) the price-weighted index in years 0 and 1,

(ii) the value-weighted index in year 1, if the index in year 0 is $I_0 = 10,000$ points.

Question 3

A municipal bond offers a 10% interest rate, while a corporate bond offers a 12% interest. What is the tax rate that makes an investor indifferent between the two bonds? What is the

equivalent taxable yield for an investor facing a 20% tax rate? Would she prefer the muni or the bond?

Question 4

Bob the Investor decides to invest in stock X and instructs his broker to buy $1,000$ shares on margin, with a margin of 60%. The current price of a share of stock X is \$30, the interest rate on loans is 5%, and the maintenance margin is 40%.

(i) How much did Bob borrow from his broker?

(ii) What is the highest price that would trigger a margin call?

(iii) If the price of the stock rises to \$35 after one year and Bob decides to sell, how much is his profit? How much is his rate of return?

(iv) If the price falls to \$15 and Bob's broker issues a margin call. What can Bob do to solve this problem?

(v) (*extra credit*) In the situation described above, if Bob decides to answer the call by buying more shares (to bring the margin back to 60%), how much does he need to buy? What will his profit and rate of return be if, after a year, the price of the stock rises to \$35? (Remember to add the value of these new shares bought to the "initial investment" when calculating the profit and the rate of return.)

Question 5

The Best Investment Fund sells two kinds of shares: Class A, with a front-end load of 5%, and Class B, with no front-end load, but with 12b-1 fees of 0.75% annually and back-end load fees starting at 5% and falling by 1% for each full year the investor holds the portfolio. The rate of return on the fund portfolio, net of operating expenses, is 12% per year.

(i) What will be the value of a $\$1,000$ investment in Class A shares after 1, 4 and 10 years?

(ii) What will be the value of a $\$1,000$ investment in Class B shares after 1, 4 and 10 years?

(iii) Which type of shares would you prefer?