F421 Problem Set 4—Due Wed Oct 18 2000

Groups of 1–4 students allowed.
Must use US Standard $8\frac{1}{2} \times 11$ paper.
No colour laser printing. *Neat* handwriting is OK.
Any direct quote (book, notes, *WSJ*...) must be cited.

1 (20) ADR and SPDRs

A. What is an ADR? Give me the definition. [5]

B. Give two examples of well known stocks on the NYSE that are actually ADRs. [5]

C. For the above-mentioned two stocks, what is each ADR composed of? That is, how many units of foreign stock. [5]

D. The spiders mentioned on the last problem set have ticker symbol SPY and are sometimes known as the SPDR. What advantages does buying the SPDR have over buying the Vanguard S&P500 fund? [5] Perhaps the AMEX website would be helpful.

2 (20) T-Bonds/T-bond Futures

It is Monday March 10. You are short a March CBOT T-bond futures contract. The cheapest to deliver (CTD) bond is an $8\frac{1}{2}$ percent coupon bond that matures on Feb 15, 2020. The CTD bond's quoted asking price is 127:06. The CBOT conversion factor for this bond is 1.2518. The March T-bond quoted futures settlement price is 98-24. The next coupon on the CTD bond is due on August 15 (158 days from now). The last coupon on the CTD bond was paid on Feb 15 (23 days ago).If you choose to deliver this bond at these prices, the delivery and settlement date will be Tue March 11 (1 day from today).

A. If you can buy the CTD bond at the above-mentioned prices, what is its cash price? [10]

B. If you deliver the CTD bond to fulfil the T-bond contract, what is the total futures contract invoice price that you receive? [10]

3 (20) Commodities

Table 1 contains genuine prices from an old Wall Street Journal. The table contains spot prices and one-year forward prices for common metals:

Metal	Spot Price of Metal	1-Year Forward Price
Copper	96.00 cents per pound	88.10 cents per pound
Silver	495.25 cents per pound	522.50 cents per pound
Gold	383.35 $ per ounce	397.80 $ per ounce

Table 1: Spot and Forward metals Quotes

A. The prices for gold and silver are higher forward than spot. This seems to be consistent with a positive cost-of-carry. However, the forward price of copper is lower than the spot price. This seems to indicate a negative cost-of-carry for copper. It certainly costs money to finance the purchase and storage of copper for future delivery, so explain how this can be. [15]

B. Explain what a short squeeze is. [5]

4 (40) Bloomberg

Go to the BLOOMBERG terminal and look up Procter and Gamble (PG [equity] [go]). Assume that the options commission charged by your broker is $29 no matter the quantity of the contract that you buy.

A. Print out (and highlight for me) bid and ask prices for call options on PG with strike price 70 maturing in Nov 2000, and in Jan 2003, respectively. [5]

B. Assume you had $2,000 in your brokerage account and bought only Nov 2000 strike 70 call options on PG. How many options can you buy? How many shares of stock do your options cover? [10]

C. Assume you had $2,000 in your brokerage account and bought only Jan 2003 strike 70 call options on PG. How many options can you buy? How many shares of stock do your options cover? [10]

D. Assuming that fair value is mid-spread, what are the total transactions costs of the two options purchasing scenarios above (answer both in dollars and also as a percentage of fair value)? [10]

E. It is now the third Friday in October 2000 (let's assume). If you hold you options to expiration and then sell them, and if PG is now at $75 and grows in price by 0.5% per month, what is the rate of return on your two investment scenarios? Please deduct commissions from your profits, but no other transactions costs. [5]

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