LSE Summer School
FM250 – Finance

Classwork 6: Derivatives

Question 1
In July 2004, three-month futures on the Brazilian Ibovespa stock index traded at 21,950. The spot was 21,317. the interest rate was 16% and the dividend yield was about 4%. Were the futures fairly priced?

Question 2
The price of stock ABC is $50 and could either double or drop by 50% in each of the next 6 month periods. A one-year call option on ABC has an exercise price of $50. The interest rate is 25% per year.
(a) What is the value of the ABC call?
(b) Calculate the option delta.
(c) Given the delta, how could you replicate an investment in the stock by a combination of call options and risk-free lending? Show that your strategy does indeed produce the same returns as those from an investment in the stock.

Question 3
It is possible to buy three-month call options and three-month puts on stock Q. Both options have an exercise price of $60 and both are worth $10. Is a six-month call with an exercise price of $60 more or less valuable than a similar six-month put?

Question 4
You have just completed a month long study of energy markets and conclude that energy prices will be much more volatile in the next year than historically. Assuming you are right, what types of option strategies should you undertake? Note: you can buy or sell options on oil-company stocks or on the price of future deliveries of crude oil, natural gas, fuel oil, etc.