

Finance 40500
Solutions to Group Assignment #6

- 1) Assume that today's settlement price on a EUR futures contract is \$1.3140/EUR. You have a short position in one contract. Your performance bond account currently has a balance of \$1,700. The next three days settlement prices are as follows: \$1.3126, \$1.3133, and \$1.3049. Calculate the changes in the performance account from daily marking to market.

Your initial account balance is \$1,700 and you have just taken a short position on 125,000 Euro at a price of \$1.3140.

Day 1: Closing price = \$1.3126. You post a gain of $(\$1.3140 - \$1.3126)(125,000) = \$175$. This is added to your account. Your current balance is $\$1,700 + \$175 = \$1,875$.

Day 2: Closing price = \$1.3133. You post a loss of $(\$1.3126 - \$1.3133)(125,000) = \$87.50$. This is deducted from your account. Your current balance is $\$1,875 + \$87.50 = \$1,787.50$

Day 3: Closing price = \$1.3049. You post a gain of $(\$1.3133 - \$1.3049)(125,000) = \$1,050$. This is added to your account. Your current balance is $\$1,787.50 + \$1,050 = \$1,837.50$.

- 2) Suppose that June 2005 Mexican Peso futures contracts have a current price of \$.08845/MXP. You believe that the spot price in June will be \$.09500. What speculative position would you take to profit from your beliefs? Calculate your anticipated profits

You should take a long position to profit from the expected price increase. Your expected profits would be (one contract is 500,000 pesos)

$$(\$0.09500 - \$0.08845)(500,000) = \$3,275$$

- 3) You are considering a possible 6 month, \$100M LIBOR based, floating interest rate loan to fund an investment project. Below are the terms of the loan.

September 20: Borrow \$100M at LIBOR +200bps

December 20: Pay first three months interest and roll over the loan at LIBOR + 200bps

March: Pay back principal plus interest.

The current LIBOR rate is 7%, but is anticipated to increase. Show that a Eurodollar hedging strategy would result in a fixed rate loan. Assume that the LIBOR rate increased to 7.8% by December and remained at 7.8% through March.

Initially, you borrow \$100M @ 9% (Libor +200bps) and go short on 100 Libor Futures at a current price of 93 (100 – 7%).

In December, you pay \$2.25M in interest (2.25% = ¼ of the annual 9% rate) and re-contract at an annual rate of 9.8%.

Your profit from the futures contract is (final price of 100-7.8 = 92.2)

$$(93 - 92.2)(100)(25)(100) = \$200,000 \text{ profit.}$$

Your next interest payment is \$2.45M, but the extra \$200,000 in interest is offset by the gain on the future.

- 4) You are considering the purchase of a 3 month Japanese Yen call option with a strike price of 96 cents per 100 Yen. The premium is currently 1.35 cents per 100 Yen.
- Graph the value of the option at expiration.
 - Determine the profit from the option if the Yen appreciates to \$1.00 per 100 Yen.
 - Suppose that 3 month Yen futures are currently trading at 97 cents per 100 Yen. Are you likely to make a profit from this call option? Explain.

The option is placed on 12.5M Yen (125,000 blocks of 100 Y) It will cost $(1.35)(125,000) = \$1,687.50$ up front. The option will not be profitable to exercise until the Yen price hits the strike price of .96 per 100 Yen. It must get to .9735 per 100Yen for the profits of the contract to offset the initial expense. If futures are trading at 97 cents per 100 Yen and futures are unbiased predictors of future spot rates, you are unlikely to make money.

- 5) Suppose that the 3 month dollar LIBOR is 4.5% annualized while the Euro LIBOR rate is 3.75% annualized. If the current spot price of Euro is \$1.25, calculate the price of a 3 month Euro forward contract.

Note: A 4.5% annual rate equals a 1.125% 3 month rate and a 3.75% annual rate equals a .9375% 3 month rate.

$$F = \left(\frac{1+i}{1+i^*} \right) e = \left(\frac{1.01125}{1.009375} \right) 1.25 = 1.2523$$