

## Assignment 2.2

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**Problem 2.** Futures Contract Profit/Loss (40 Marks)

For each of the following transactions, calculate the profit or loss when the futures position is closed out:

**(a) Corn Futures:** Corn futures trade on the Chicago Board of Trade (which is part of the CME Group). The underlying commodity is corn and each futures contract covers 5,000 bushels of corn (5,000 bushels is about 127 tonnes). You enter one long corn futures contract. The delivery price in your contract (F) is \$5.20 per bushel. When you close out your position, corn futures contracts have a delivery price (F) of \$5.80 per bushel.

*Solution.*

**Long Position : Buy Low (Entry), Sell High (Exit) → Profit**

Profit per corn bushel is the magnitude of the rise in delivery price.

$$\text{Total Profit} = 5,000 \cdot (\$5.80 - \$5.20)$$

$$\text{Total Profit} = 5,000 \cdot \$0.60$$

$$\text{Total Profit} = \mathbf{\$3,000}$$

□

**(b) Coffee Futures:** Coffee futures trade on the New York Mercantile Exchange (which is part of the CME Group). The underlying commodity is Arabica coffee and each futures contract covers 37,500 pounds of coffee. You enter one short Arabica coffee futures contract. The delivery price in your contract (F) is \$1.60 per pound. When you close out your position, Arabica coffee futures contracts have a delivery price (F) of \$1.40 per pound.

*Solution.*

**Short Position : Sell High (Entry), Buy Low (Exit) → Profit**

Profit per corn bushel is the magnitude of the fall in delivery price.

$$\text{Total Profit} = 37,500 \cdot (\$1.60 - \$1.40)$$

$$\text{Total Profit} = 37,500 \cdot \$0.20$$

$$\text{Total Profit} = \mathbf{\$7,500}$$

□

(c) **SPI200 Futures:** SPI200 futures contracts trade on the ASX and the underlying asset is the SP/ASX200 market index. The notional dollar of each SPI200 futures contract is SA25 per index point. You enter 40 short SPI200 futures contracts. The delivery price in the futures contract is 7,500 index points. When you close out your position, SPI200 futures contracts have a delivery price (F) of 7,800 index points.

***Solution.***

**Short Position : Sell Low (Entry), Buy High (Exit) → Loss**

Loss per contract is the notional dollar value of the rise in delivery price.

$$\text{Total Loss} = \text{SA } 25 \cdot 40 \cdot (7,800 - 7,500)$$

$$\text{Total Loss} = \text{SA } 1,000 \cdot 300$$

$$\text{Total Loss} = \text{SA } \mathbf{300,000}$$

□

(d) **Stainless Steel Futures:** Stainless steel futures contracts trade on the Shanghai Futures Exchange. The underlying commodity is stainless steel and each futures contract covers 5 metric tonnes of stainless steel. You enter 3 long stainless steel futures contracts. The delivery price in your contract (F) is RMB 15,000 per metric tonne. When you close out your position, stainless steel futures contracts have a delivery price (F) of RMB 13,500 per metric tonne.

***Solution.***

**Long Position : Buy High (Entry), Sell Low (Exit) → Loss**

Loss per contract is the fall in delivery price.

$$\text{Total Loss} = 3 \cdot 5 \cdot \text{RMB } (15,000 - 13,500)$$

$$\text{Total Loss} = 15 \cdot \text{RMB } 1,500$$

$$\text{Total Loss} = \text{RMB } \mathbf{22,500}$$

□