Problem Set 1

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Problem 1.

(a) $E_{\$/\text{mali}} = 56.2$, then

$$E_{\text{mali}/\$}(\$200{,}000) = \left(\frac{1}{56.2}\right)(\$200{,}000) = 3{,}558.72 \text{ mali.}$$

(b) $F_{\$/\text{mali}} = 58.4$, then

$$F_{\text{mali}/\$}(\$50{,}000) + E_{\text{mali}/\$}(\$150{,}000) = \left(\frac{1}{58.4}\right)(\$50{,}000) + \left(\frac{1}{56.2}\right)(\$150{,}000) = 3{,}525.20 \text{ mali.}$$

(c) Call option with strike 52.8. Since

$$E_{\$/\text{mali}} = 56.2 > 52.8,$$

we don't use the option all dollars are purchased at the spot rate:

$$\text{mali needed} = E_{\text{mali}/\$}(\$200{,}000) = \left(\frac{1}{56.2}\right)(\$200{,}000) = 3{,}558.72 \text{ mali.}$$

Problem 2.

$$E_{\text{yen}/\$} = 95, \qquad E_{\text{peso}/\$} = 3.2.$$

Then

$$E_{\yen/\text{peso}} = (E_{\yen/\$})(E_{\$/\text{peso}}) = (95)(\frac{1}{3.2}) = 29.6875$$

Problem 3.

$$S_{\$/\pounds} = 1.95, \qquad F_{\$/\pounds} = 1.90, \qquad S^{3\text{mo}}_{\$/\pounds} = 1.92,$$

with a contract size of £1,000,000.

(a) Since the expected future spot rate exceeds the forward rate,

$$S^{3\text{mo}}_{\$/\pounds} > F_{\$/\pounds},$$

the investor should buy pounds forward.

(b) Expected profit from the forward position is

$$\Pi = \left(S^{3\text{mo}}_{\$/\pounds} - F_{\$/\pounds}\right)(\pounds 1{,}000{,}000) = (1.92 - 1.90)(1{,}000{,}000) = \$20{,}000.$$

(c) If the realized future spot rate is $S^{3\text{mo}}_{\$/\pounds} = 1.86$, profit is

$$\Pi = \left(S^{3\text{mo}}_{\$/\pounds} - F_{\$/\pounds}\right)(\pounds 1{,}000{,}000) = (1.86 - 1.90)(1{,}000{,}000) = -\$40{,}000.$$

Problem 4.

$$S^{\text{bid}}_{\$/\text{jpy}} = 0.080, \qquad S^{\text{ask}}_{\$/\text{jpy}} = 0.085.$$

(a) A Japanese exporter converting \$50,000 into yen must buy yen at the ask rate:

$$= \frac{\$50{,}000}{0.085} = 588{,}235.29 \text{ yen.}$$

(b) A U.S. firm that must immediately pay 100,000 yen also buys yen at the ask rate:

$$= (0.085)(100{,}000) = \$8{,}500.$$