

MAT 1700

Løsningsforslag

Oppgaveseminar #12

Oppgave 1 € 0.75 / \$ \Rightarrow \$ 1.3333 / €

$$(a) \text{ USD-sertifikat} = \frac{10,000}{9615.38} - 1.00 = 0.04$$

$$\text{Tysk- " -} = \frac{10,000}{9433.96} - 1.00 = 0.06$$

$$(b) 1.04 = \frac{1}{1.3333} (1.06) [E(S_0)_{360}] ;$$

$$E[S_0]_{360} = \frac{1.04}{0.75(1.06)} = \text{€ } 0.7644 / \$$$

$$\text{ie. } \frac{1}{\text{€} / \$} = \underline{\underline{\$ 1.3082 / \text{€}}}$$

Higher German interest rate compensates for depreciating € vs. the US over the year!

(c) Dersom USD deprecierer (forventes å deprecierer);
invester i Tysk-sertifikat. \Rightarrow høyere tysk-rente og

(d) samtidig valutagevinst dersom USD deprecierer
over året

$$\text{EUR-investeringen: } \text{€ } 0.75 [1.06] \times \frac{1}{0.72} = \text{€ } 0.7950 \times \frac{\$ 1.3889}{\text{€}} \\ = \underline{\underline{\$ 1.1042}}$$

$$\text{Avkastning} = \underline{\underline{10.42\%}}$$

$\frac{1}{0.72} = \$ 1.3889 / \text{€}$... ie. USD depreciates vs. EUR (€)!
and, simultaneously, $r_{\text{EUR}} > r_{\text{US}}$! Uncovered int. parity doesn't hold!

$$(e) \frac{E[S_0]_{360}}{S_0} \stackrel{?}{=} \frac{1+r_{US}}{1+r_{EUR}}$$

Nei..... $r_{\text{€}} = 10.42\%$ vs. $r_{\text{US}} = 4\%$

er ikke i samsvar med udekket renteparitet

Oppgave 2

BMW 101X: € 35000 (in EUR) = \$ 35000 (in US)

Then, $\Delta S_0 = 1(1.20) = \$ 1.20/\text{€}$

Likvektspriis (basert på relativ kjøpekraftspareitet)

$$= \text{€} 35000 \times \$ 1.20/\text{€} = \$ 42000 \text{ (in US)}$$

Valutakurs-endringen på BMW = $42000 - 35000 = 7000$

Overveltning = $40.000 - 35.000 = \$ 5000$

Overveltn. andel = $5000/7000 = \underline{0.71}$

BMW USA-andel = $2000/7000 = \underline{0.29}$

Oppgave 3

$$S_0 = \text{NOK } 8.0000 / \text{€}$$

(a) Avkastning i Norge = 0.045

$$\begin{aligned} \text{--- " --- " --- Spania} &= \frac{1}{8.000} (1.035) \left[\frac{\text{NOK } 8.2500}{\text{€}} \right] - 1 \\ &= 0.0673 \Rightarrow \text{investér i Spania!} \end{aligned}$$

(b) $\frac{F_{360}}{S_0} = \frac{1 + r_{\text{NOR}}}{1 + r_{\text{EUR}}} \Rightarrow F_{360} = \left(\frac{1.045}{1.035} \right) \frac{\text{NOK } 8.0000}{\text{€}}$

$$\Rightarrow \underline{\underline{F_{360} = \text{NOK } 8.0773 / \text{€}}} \quad \text{Dekket renteparitet!}$$

Oppgave 4

Anta ¥ 100,000,000

for arbitrage-trade

Start
¥ 100,000,000 $\xrightarrow{\times 1.04}$

$$\text{¥ } 104,000,000$$

$$\text{¥ } 105,452,830$$

=

$$F_{360} = 103,50 / \text{#}$$

x

$$= 943.396,23 \times 1,08$$

$$= \text{\# } 1.018,867.93$$

$$\underline{\underline{\text{Arbitrage profit} = \text{¥ } 1452.830}}$$

Oppgave 4. forsettelse

Huskeregul:

$$\left[\frac{r_{\text{home}} - r_{\text{for}}}{1 + r_{\text{for}}} \right] > \frac{F - S}{S} \Rightarrow \text{invest in higher yielding currency}$$

$$\left[\frac{r_{\text{home}} - r_{\text{for}}}{1 + r_{\text{for}}} \right] < \frac{F - S}{S} \Rightarrow \text{invest... lower yielding currency}$$

$$\frac{.04 - .08}{1.08} = - \underline{\underline{0.0370}} < \frac{103.50 - 106}{106} = - \underline{\underline{0.0236}}$$

Oppgave 5

1988 - 2007 = 20 år

$$e_{01/01/2008} = e_0 \left(\frac{1 + i_{NOR}}{1 + i_{SWE}} \right) = 100 \left(\frac{1.0350}{1.0450} \right)^{20} = \underline{\underline{82.51}}$$

Ernding reell valutakurs

$$= e_{01/01/2008} \left[\frac{1 + i_{SWE}}{1 + i_{NOR}} \right]^{20} = 84^{00} \left(\frac{1.0450}{1.0350} \right)^{20} = 84^{00} (1.220) = \underline{\underline{102.80}}$$