

BASIC FORMULAS

- Something costs P^d . How much is it in currency f terms?

$$P^f = P^d S^{f/d}$$

- Annualized forward premium/discount for currency f (n is the number of periods within 1 year):

$$\left[\frac{F_t^{d/f} - S_0^{d/f}}{S_0^{d/f}} \right] (n)$$

- Percentage change in currency f :

$$\frac{S_1^{d/f} - S_0^{d/f}}{S_0^{d/f}}$$

- The “inverse change” formula: $(1 + s^{d/f}) = 1/(1 + s^{f/d})$

- Cross exchange rate equilibrium: $S^{d/e} \times S^{e/f} \times S^{f/d} = 1$

- Fisher relation: $(1 + \text{nominal interest rate}) = (1 + \text{inflation rate}) \times (1 + \text{real interest rate})$

- International parity conditions:

$$\frac{F_t^{d/f}}{S_0^{d/f}} = \left[\frac{(1 + i^d)}{(1 + i^f)} \right]^t = \frac{E[S_t^{d/f}]}{S_0^{d/f}} = \left[\frac{(1 + E[p^d])}{(1 + E[p^f])} \right]^t$$

- Real exchange rate is defined by:

$$X_t^{d/f} = \left(\frac{S_t^{d/f}}{S_0^{d/f PPP}} \right) \left[\frac{1 + p_t^f}{1 + p_t^d} \right]$$

- The change in the real exchange rate is approximately equal to: $x_t^{d/f} = s_t^{d/f} + (p_t^f - p_t^d)$

- After-tax version of the Law of One Price:

$$\frac{i^d}{i^f} = \frac{1 - T^f}{1 - T^d}$$