

Exchange Rates

Arbitrage

- CIP → covered interest rate parity
- UIP } important formulas
- uncovered interest rate parity

Assume you have \$100 to invest

↳ should I leave in USD or not?

factors \rightarrow 2% for USD

① interest rate \rightarrow 3% for pesos

② Value of currency

Riskless arbitrage

Futures contract: fixes the value of an asset for some time in the future

e.g. currency = 2 pesos/\$

\hookrightarrow future could be 2.5 pesos/\$ \rightarrow we expect the peso to depreciate

\rightarrow a way to eliminate the foreign exchange risk

Exchange Rates

$$USD = 100$$

$$i^{US} = 1\%$$

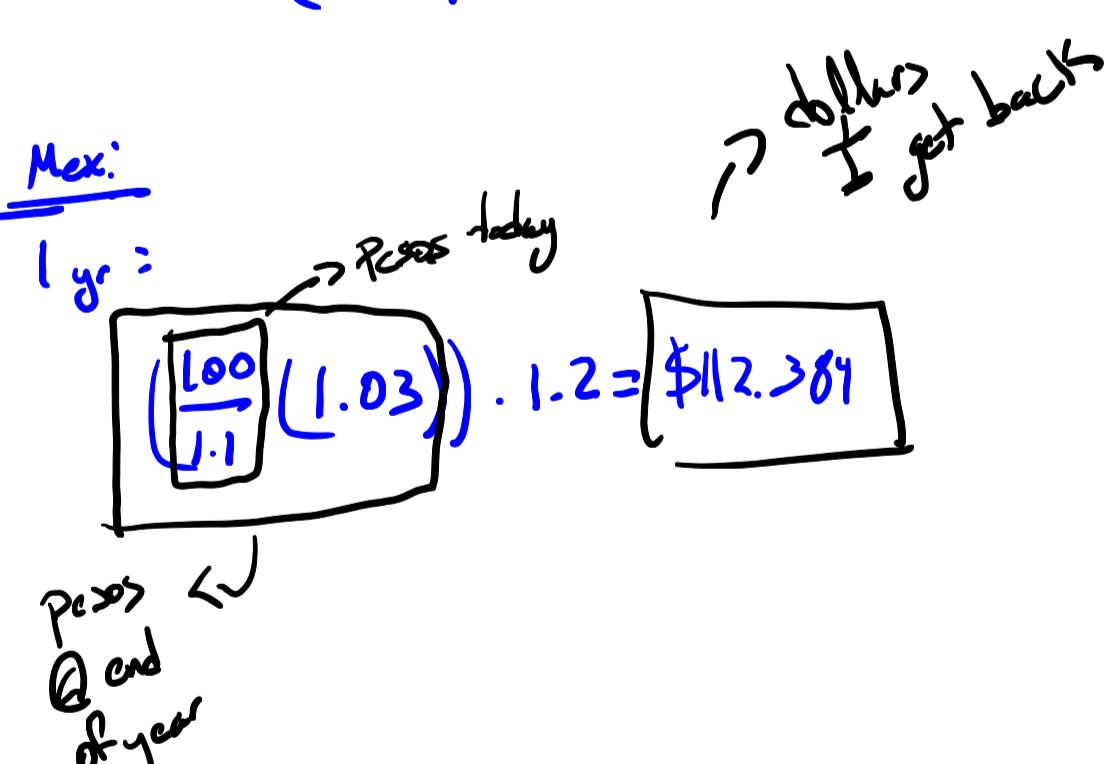
$$i^f = 3\%$$

$$F_{t/\$} = 1.1$$

$$F_{t/\$} = 1.2$$

$$\text{In dollars: } 1 \text{ yr} = 100 (1+0.01) = \$101$$

$$\text{In Mexican pesos: } 1 \text{ yr} =$$



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In general, the formula will be:

$$\text{in \$: } \$100 (1+i^{US})$$

$$\text{in \$: } \left(\frac{100}{E_{t/\$}} \right) (1+i^f) \cdot F_{t/\$}$$

$$\Rightarrow \boxed{1 + i^{US} = \frac{(1 + i^f) F_{t/\$}}{E_{t/\$}}} \quad \text{CIP}$$

holds well in practice
in general: we are
good in long-term
scenarios

U.I.P

this happens when you don't sign a futures contract
↳ rather you use an expectation (\hat{E}^e)

$$(1 + i^{ws}) = (1 + i^f) \frac{\hat{E}^e_{\$/f}}{E_{\$/f}}$$

approx U.I.P:

$$i^{ws} \approx i^f + \text{expected depreciation}$$

$$\hookrightarrow \frac{\hat{E}^e_{\$/f} - E_{\$/f}}{E_{\$/f}}$$

↗ percent change of currency

$$\text{or } \% \Delta \hat{E}^e_{\$/f}$$

if C.I.P & U.I.P both hold, it must be

$$\text{that } \hat{E}^e_{\$/f} = F_{\$/f}$$

↳ this means the forward premium = expected depreciation

$$\frac{F_{\$/f} - E_{\$/f}}{E_{\$/f}} = \frac{\hat{E}^e_{\$/f} - E_{\$/f}}{E_{\$/f}}$$

forward premium expected depreciation