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International Finance Formulas

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List of 16 International Finance Formulas

International Finance

1) Annualised Forward Premium

$$fx \quad p = \left(\left(\frac{F_R - S}{S} \right) \cdot \left(\frac{360}{n} \right) \right) \cdot 100$$

[Open Calculator !\[\]\(a870788d6ed9b8fd294b7654a8c8526b_img.jpg\)](#)

$$ex \quad 12.12121 = \left(\left(\frac{102 - 99}{99} \right) \cdot \left(\frac{360}{90} \right) \right) \cdot 100$$

2) Balance of Capital Account

$$fx \quad BOP_{\text{capital}} = NNP_{S/D} + NFA + NCT_r$$

[Open Calculator !\[\]\(c50c8b7b2cc2cf9ff925edec0ee94c0d_img.jpg\)](#)

$$ex \quad 121000 = 45000 + 40000 + 36000$$

3) Balance of Financial Account

$$fx \quad BOF = NDI + NPI + A + E$$

[Open Calculator !\[\]\(f60b7a900783ac3fd531bfd9c111be6d_img.jpg\)](#)

$$ex \quad 140000 = 60000 + 35000 + 30000 + 15000$$



4) Bid Ask Spread

$$fx \quad BA_{spread} = \left(\frac{P_{ask} - P_{bid}}{P_{ask}} \right) \cdot 100$$

[Open Calculator !\[\]\(cbe80b694ebd74fcfe136a095b608235_img.jpg\)](#)

$$ex \quad 35.71429 = \left(\frac{70 - 45}{70} \right) \cdot 100$$

5) Covered Interest Rate Parity

$$fx \quad F = (e_o) \cdot \left(\frac{1 + r_f}{1 + r_d} \right)$$

[Open Calculator !\[\]\(3e2231b1ad3ca8da8658228c00dd08e0_img.jpg\)](#)

$$ex \quad 94.73684 = (150) \cdot \left(\frac{1 + 0.20}{1 + 0.90} \right)$$

6) Current Account Balance

$$fx \quad CAB = X - I + NY + NCT$$

[Open Calculator !\[\]\(0d5ec72f61334709c3fc9450209b754f_img.jpg\)](#)

$$ex \quad 220000 = 500000 - 400000 + 20000 + 100000$$

7) FRA Payoff (Long Position)

$$fx \quad FRA_p = NP \cdot \left(\frac{(r_{exp} - r_{forward}) \cdot \left(\frac{n_{ur}}{360} \right)}{1 + \left(r_{exp} \cdot \left(\frac{n_{ur}}{360} \right) \right)} \right)$$

[Open Calculator !\[\]\(b64b40baaee5acddc1eab8538ba84754_img.jpg\)](#)

$$ex \quad 1793.722 = 50000 \cdot \left(\frac{(52 - 50) \cdot \left(\frac{96}{360} \right)}{1 + \left(52 \cdot \left(\frac{96}{360} \right) \right)} \right)$$



8) Hedge Ratio 

$$\text{fx } \Delta = \frac{HV}{TPV}$$

[Open Calculator !\[\]\(e78f798d4ea5c530c9db49e7d26e6b95_img.jpg\)](#)

$$\text{ex } 0.65 = \frac{6500}{10000}$$

9) International Fischer Effect using Spot Rates 

$$\text{fx } \Delta E = \left(\frac{e_o}{e_t} \right) - 1$$

[Open Calculator !\[\]\(05be7c7a8995decd503647c99211f7c2_img.jpg\)](#)

$$\text{ex } 0.5 = \left(\frac{150}{100} \right) - 1$$

10) International Fisher Effect using Interest Rates 

$$\text{fx } \Delta E = \left(\frac{r_d - r_f}{1 + r_f} \right)$$

[Open Calculator !\[\]\(fe3aebe81acea8d45108cd2768939da7_img.jpg\)](#)

$$\text{ex } 0.583333 = \left(\frac{0.90 - 0.20}{1 + 0.20} \right)$$

11) Optimal Hedge Ratio 

$$\text{fx } \Delta_{\text{optimal}} = \left(\frac{\sigma_s}{\sigma_f} \right) \cdot \rho_{s/f}$$

[Open Calculator !\[\]\(899d8b7697d64725bf017d3296cfcf1b_img.jpg\)](#)

$$\text{ex } 0.166667 = \left(\frac{0.05}{0.09} \right) \cdot 0.3$$



12) Optimal Number of Contracts

$$\text{fx } OC = \frac{\Delta_{\text{optimal}} \cdot NPH}{FCS}$$

[Open Calculator !\[\]\(e2376d476d06eb31946dc01a69a4403a_img.jpg\)](#)

$$\text{ex } 3.06 = \frac{0.17 \cdot 4500}{250}$$

13) Option Premium

fx

$$OPR = \left(\left(\frac{SOW}{NSOW} \right) + \left(PP \cdot \frac{100}{PS} - 100 \right) \right)$$

[Open Calculator !\[\]\(8bba887393ca45b761e5cb49e755e762_img.jpg\)](#)

$$\text{ex } 846.5909 = \left(\left(\frac{500}{55} \right) + \left(1500 \cdot \frac{100}{160} - 100 \right) \right)$$


14) Put-Call Parity

$$\text{fx } c_t = S_t + p_t - \left(\frac{X_s}{\left(1 + \left(\frac{R_f}{100} \right) \right)^{\frac{n_m}{12}}} \right)$$

[Open Calculator !\[\]\(0fb13ad0bfa3d86868cdd3883e5665b3_img.jpg\)](#)


$$\text{ex } 7.292972 = 53 + 4 - \left(\frac{50.1}{\left(1 + \left(\frac{3.2}{100} \right) \right)^{\frac{3}{12}}} \right)$$



15) Relative Strength Index Open Calculator 

$$\text{fx } \text{RSI} = 100 - \left(\frac{100}{1 + \left(\frac{\text{AG}}{\text{AL}} \right)} \right)$$

$$\text{ex } 75 = 100 - \left(\frac{100}{1 + \left(\frac{60}{20} \right)} \right)$$

16) Uncovered Interest Rate Parity Open Calculator 

$$\text{fx } \text{ES}_{t+1} = e_o \cdot \left(\frac{1 + r_d}{1 + r_f} \right)$$

$$\text{ex } 237.5 = 150 \cdot \left(\frac{1 + 0.90}{1 + 0.20} \right)$$



Variables Used

- **A** Asset Funding
- **AG** Average Gain during Up Period
- **AL** Average Loss during Down Period
- **BA_{spread}** Bid Ask Spread
- **BOF** Balance of Financial Account
- **BOP_{capital}** Balance of Capital Account
- **C_t** Call Option Price
- **CAB** Current Account Balance
- **E** Errors and Omissions
- **e_o** Current Spot Exchange Rate
- **e_t** Spot Rate in Future
- **ES_{t+1}** Expected Future Spot Rate
- **F** Forward Exchange Rate
- **F_R** Forward Rate
- **FCS** Futures Contract Size
- **FRA_p** FRA Payoff
- **HV** Hedge Value
- **I** Imports
- **n** No. of Days
- **n_m** No. of Months
- **n_{ur}** Number of Days in Underlying Rate
- **NCT** Net Current Transfers



- **NCT_r** Net Capital Transfers
- **NDI** Net Direct Investment
- **NFA** Non-Financial Assets
- **$NNP_{S/D}$** Surpluses or Deficits of Net Non-Produced
- **NP** Notional Principal
- **NPH** Number of Positions Hedged
- **NPI** Net Portfolio Investment
- **NSOW** Number of Securities Per Option Warrant
- **NY** Net Income Abroad
- **OC** Optimal Number of Contracts
- **OPR** Option Premium
- **p** Annualised Forward Premium
- **P_{ask}** Ask Price
- **P_{bid}** Bid Price
- **p_t** Put Option Price
- **PP** Purchase Price
- **PS** Price Security
- **r_d** Domestic Interest Rate
- **r_{exp}** Underlying Rate at Expiration
- **r_f** Foreign Interest Rate
- **R_f** Risk-Free Rate of Return
- **$r_{forward}$** Forward Contract Rate
- **RSI** Relative Strength Index
- **S** Spot Rate
- **S_t** Spot Price of Underlying Asset



- **SOW** Share Option Warrant
- **TPV** Total Position Value
- **X** Exports
- **X_s** Strike Price
- **Δ** Hedge Ratio
- **Δ_{optimal}** Optimal Hedge Ratio
- **ΔE** Change in Exchange Rate
- **ρ_{s/f}** Correlation of Changes in Spot and Futures Prices
- **σ_f** Standard Deviation of Changes in Futures Price
- **σ_s** Standard Deviation of Changes in Spot Price



Constants, Functions, Measurements used



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