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Forex Management Formulas

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List of 14 Forex Management Formulas

Forex Management

1) Black-Scholes-Merton Option Pricing Model for Call Option

Open Calculator

$$C = P_c \cdot P_{normal} \cdot (D_1) - (K \cdot \exp(-R_f \cdot t_s)) \cdot P_{normal} \cdot (D_2)$$

ex

$$7568.256 = 440 \cdot 0.05 \cdot (350) - (90 \cdot \exp(-0.30 \cdot 2.25)) \cdot 0.05 \cdot (57.5)$$

2) Black-Scholes-Merton Option Pricing Model for Put Option

$$P = K \cdot \exp(-R_f \cdot t_s) \cdot (-D_2) - P_c \cdot (-D_1)$$

Open Calculator

ex $151365.1 = 90 \cdot \exp(-0.30 \cdot 2.25) \cdot (-57.5) - 440 \cdot (-350)$

3) Cumulative Distribution One

Open Calculator

$$D_1 = \frac{\ln\left(\frac{P_c}{K}\right) + \left(R_f + \frac{v_{us}^2}{2}\right) \cdot t_s}{v_{us} \cdot \sqrt{t_s}}$$

ex $$146.2577 = \frac{\ln\left(\frac{440}{90}\right) + \left(0.30 + \frac{(195)^2}{2}\right) \cdot 2.25}{195 \cdot \sqrt{2.25}}$$

4) Cumulative Distribution Two

Open Calculator

fx $$D_2 = D_1 - v_{us} \cdot \sqrt{t_s}$$

ex $$57.5 = 350 - 195 \cdot \sqrt{2.25}$$

5) Fama-French Three-Factor Model

Open Calculator

fx $$Rexc = \alpha i + \beta_F \cdot (R_{mkt} - R_f) + (si \cdot SMB + h_{ml} + E_i)$$

ex $$23.134 = 8 + 0.07 \cdot (6.5 - 0.30) + (2.5 \cdot 3.5 + 4.5 + 1.45)$$

6) Forward Rate

Open Calculator

fx $$F_o = Sp \cdot \ln((r_d - r_f) \cdot T)$$

ex $$40.86411 = 21 \cdot \ln((0.90 - 0.20) \cdot 10)$$

7) Gordon Growth Model

Open Calculator

fx $$P_c = \frac{D}{RR - g}$$

ex $$440 = \frac{22}{0.08 - 0.03}$$

8) Interest Rate Parity

Open Calculator

$$k_f = Sp \cdot \left(\frac{1 + I_Q}{1 + I_B} \right)$$

ex $$27.25191 = 21 \cdot \left(\frac{1 + 16}{1 + 12.1} \right)$$

9) Intrinsic Value

Open Calculator

$$ITV = SP - BSV$$

ex $$1.6 = 1.85 - 0.25$$

10) Payoff for Call Buyer

Open Calculator

$$PCB = \max(0, S_T - X)$$

ex $$3 = \max(0, 29 - 26)$$

11) Position Size in Forex

Open Calculator

$$Pf = \frac{A_E \cdot R_{f\%}}{S_{LP} \cdot P_{VF}}$$

ex $$1200 = \frac{45 \cdot 4}{15 \cdot 0.01}$$

12) Profit for Call Buyer

Open Calculator

fx $$\text{Pft} = \max\left(0, \text{S}_\text{T} - \text{X}\right) - \text{c}_0$$

ex $$1.5 = \max\left(0, 29 - 26\right) - 1.5$$

13) Purchasing Power Parity Theory using Inflation

Open Calculator

fx $$\text{E}_\text{f} = \left(\frac{1 + \text{Ih}}{1 + \text{If}}\right) - 1$$

ex $$0.037313 = \left(\frac{1 + 0.39}{1 + 0.34}\right) - 1$$

14) Vasicek Interest Rate

Open Calculator

fx $$\text{dr}_\text{t} = \text{a} \cdot \left(\text{b} - \text{r}_\text{t}\right) \cdot \text{d} \cdot \text{t} + \sigma \cdot \text{d} \cdot \text{W}_\text{t}$$

ex $$3675 = 12 \cdot \left(6 - 5\right) \cdot 50 \cdot 2 + 9 \cdot 50 \cdot 5.5$$

Variables Used

- **a** Speed of Mean Reversal
- A_E Account Equity
- **b** Long Term Mean
- **BSV** Base Value
- **C** Theoretical Price of Call Option
- c_0 Call Premium
- **d** Derivatives
- **D** Dividend Per Share
- D_1 Cumulative Distribution 1
- D_2 Cumulative Distribution 2
- dr_t Derivative of Short Rate
- E_f Exchange Rate Factor
- E_i Error Term
- F_o Forward Rate
- **g** Constant Growth Rate of Dividend
- h_{ml} Sensitivity of the Asset to HML
- I_B Interest Rate of Base Currency
- I_Q Interest Rate of Quote Currency
- **ITV** Intrinsic Value
- **K** Option Strike Price
- k_f Forward Rate Constant
- **P** Theoretical Price of Put Option

- P_c Current Stock Price
- P_{normal} Normal Distribution
- **PCB** Payoff for Call Buyer
- **Pf** Position Size in Forex
- **Pft** Profit for Call Buyer
- r_d Domestic Interest Rate
- $R_{f\%}$ Risk Percentage in Forex
- r_f Foreign Interest Rate
- R_f Risk Free Rate
- R_{mkt} Return on Market Portfolio
- r_t Short Rate
- **Rexc** Excess Return on Asset
- **RR** Required Rate of Return
- S_{LP} Stop Loss in Pips
- S_T Price of Underlying at Expiration
- **si** Sensitivity of the Asset to SMB
- **SMB** Small Minus Big
- **Sp** Spot Exchange Rate
- **SP** Share Price
- **t** Time Period
- **T** Time to Maturity
- t_s Time to Expiration of Stock
- v_{us} Volatile Underlying Stock
- W_t Random Market Risk

- **X** Exercise Price
- **αi** Asset Specific Alpha
- **β_F** Beta in Forex
- **If** Inflation in Foreign Country
- **Ih** Inflation in Home Country
- **P_{VF}** Pip Value in Forex
- **σ** Volatility at Time

Constants, Functions, Measurements used

- Function: **exp**, exp(Number)
  n an exponential function, the value of the function changes by a constant factor for every unit change in the independent variable.
- Function: **ln**, ln(Number)
  The natural logarithm, also known as the logarithm to the base e, is the inverse function of the natural exponential function.
- Function: **max**, max(a1, …, an)
  Maximum of a function is the highest value that the function can output for any possible input.
- Function: **sqrt**, sqrt(Number)
  A square root function is a function that takes a non-negative number as an input and returns the square root of the given input number.

Check other formula lists

- **Bond Yield Formulas**
- **Forex Management Formulas**
- **Interest Rate Formulas**
- **Return on Investment (ROI) Formulas**

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