

Hedging a eur exposure (direct hedge, cross hedge, maturity hedge)

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HEDGING A EUR EXPOSURE (DIRECT HEDGE, CROSS HEDGE, MATURITY HEDGE) By Date

Forward Exchange Contract

This kind of currency transaction involves agreements between two exchange parties designated currencies at a specified time in future. After the spot contract settles it's when these contracts takes place. They are mainly used with an aim of protecting a buyer from currency prices fluctuations. A percentage of a foreign currency which is hedged will in most cases be related directly to a foreign currency predictability in terms of cash flow. The percentage of exposure increases as with rise in degree of predictability. As a hedge reaches maturity the next period automatically becomes hedged. Any party involved in hedges a percentage of its future experiences and then adds to future period hedges over time to raise the coverage percentage of in future periods. Historically, of all types of hedges layered hedging offers the furthestmost stable money exchange rates over time.

Direct Hedge

The direct Hedge forward contract is expressed in percent, is calculated as follows; it is note able that all the exchange rates are expressed as amount of foreign currency for 1 unit of hedged currency.

$$F_{\text{(today, t+90)}} = S_{\text{(today)}} * (1+rF) / (1+rF^*)$$

The formula:

T= the index calculation date

S= Spot rate (St)

R= Spot rate of the currency i two business days before the start of the

current

Calculation Example

The following is a simple calculation of a two currency index hedged to GBP/EUR. And the calculations of the hedge for December 31, 2013.

$$F(\text{Dec 31st} + 90) = 341000 * (1 + 0.7355) / (1 + 0.6978)$$

$$= (1.7355 / 1.6978) * 341000$$

$$= 1.022205 * 341000$$

$$= 348571$$

$$\text{Optimal hedge} = 1.022205$$

D)

Forward rate =

Spot rate

D) Scenario: 1

$$F(\text{March 31st} + 90) = 341000 * (1 + 0.6686) / (1 + 0.7355)$$

Scenario 2 GBP/EUR

$$F(\text{March 31st} + 90) = 341000 * (1 + 0.7005) / (1 + 0.7355)$$

Scenario 3 GBP/EUR

$$F(\text{March 31st} + 90) = 341000 * (1 + 0.7355) / (1 + 0.7355)$$

Scenario 4 GBP/EUR

$$F(\text{March 31st} + 90) = 341000 * (1 + 0.7742) / (1 + 0.7355)$$

Scenario 5 GBP/EUR

$$F(\text{March 31st} + 90) = 341000 * (1 + 0.8172) / (1 + 0.7355)$$

Part 2: Gross hedge

The following calculation of a two currency index hedged to JSP/ GBP. And the calculations of the hedge for December 31, 2013.

$$\begin{aligned}
 F(\text{Dec 31st} + 90) &= 341000 * (1+0.0044) / (1+0.0043) \\
 &= (1.0044/1.0043)341000 \\
 &= 1.0000995*341000 \\
 &= 341033.95
 \end{aligned}$$

Optimal hedge= 1.0000995

B): Scenario 1 JSP/GBP

$$F(\text{March 31st} + 90) = 341000 * (1+0.6686) / (1+0.7355)$$

Scenario 2 JSP/GBP

$$F(\text{March 31st} + 90) = 341000 * (1+0.7005) / (1+0.7355)$$

Scenario 3 JSP/GBP

$$F(\text{March 31st} + 90) = 341000 * (1+0.7355) / (1+0.7355)$$

Scenario 4 JSP/GBP

$$F(\text{March 31st} + 90) = 341000 * (1+0.7742) / (1+0.7355)$$

Scenario 5 JSP/GBP

$$F(\text{March 31st} + 90) = 341000 * (1+0.8172) / (1+0.7355)$$

Part 3. Maturity-Hedge:

The following is a simple calculation of a two currency index hedged to GBP/EUR. And the calculations of the hedge for a 6 months maturity rate starting from December 31, 2013.

Calculation example

$$\begin{aligned}
 F(\text{Sep 30th} + 90) &= 341000 * (1+0.6985/1+0.6754) \\
 &= 1.0021638*341000
 \end{aligned}$$

Optimal Hedge= 1.0021638

B) Scenario 1 GBP/EUR

$$F(\text{March 31st} + 90) = 341000 * ((1+0.6686) / (1+0.7355))^2$$

Scenario 2 GBP/EUR

$$F (\text{March 31st} +90) = 341000 * ((1+0.7005) / (1+0.7355)^2)$$

Scenario 3 GBP/EUR

$$F (\text{March 31st} +90) = 341000 * ((1+0.7355) / (1+0.7355)^2)$$

Scenario 4 GBP/EUR

$$F (\text{March 31st} +90) = 341000 * ((1+0.7742) / (1+0.7355)^2)$$

Scenario 5 GBP/EUR

$$F (\text{March 31st} +90) = 341000 * ((1+0.8172) / (1+0.7355)^2)$$

Reference List

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