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FX Examples

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1 Introduction

This section contains twenty three example FpML trades related to FX and FX OTC options. Each example illustrates how different product features are modeled in FpML.

The sample xml documents are available for download from the fpml.org website.

2 Example 1 - FX Spot

File: fx_example_1.xml

On 23 October, 2001, Citibank New York and Barclay's London agree to a foreign exchange trade. The terms of the contract are:

- Trade date: 23 October, 2001
- Value date: 25 October, 2001
- Barclays pays 10,000,000 GBP to Citibank
- Citibank pays 14,800,000 USD to Barclays
- Exchange rate equals 1.48 (USD per GBP).

3 Example 2 - FX Spot 'Cross' (non-base currency) with Side Rates

File: fx_example_2.xml

On 23 October, 2001, Chase New York and CSFB New York agree to a foreign exchange trade. The terms of the contract are similar to Example 1, but in this case, the currencies exchanged are EUR and GBP. Both of these institutions are USD-based, so rates against the base currency (USD) have been captured as well. The terms of the contract are:

- Trade date: 23 October, 2001
- Value date: 25 October, 2001
- CSFB pays 100,000,000 EUR to Chase
- Chase pays 6,300,680 USD to CSFB
- Exchange rate equals 0.630068 (GBP per EUR).
- GBPUSD rate equals 1.48, and EURUSD rate equals 0.9325.

4 Example 3 - FX Forward

File: fx_example_3.xml

On 19 November, 2001, ABN Amro and DeutscheBank agree to a one-month forward foreign exchange contract. The terms of the contract are:

- Trade date: 19 November, 2001
- Value date: 21 December, 2001
- DB pays 10,000,000 EUR to ABN
- ABN pays 9,175,000 USD to DB
- Exchange rate equals 0.9175 (USD per EUR).
- Spot rate equals 0.9130, forward points equals 0.0045.

5 Example 4 - FX Forward with specific Settlement Instructions

File: fx_example_4.xml

On 12 November, 2001, UBS Zurich and Citibank New York agree to a foreign exchange contract. The terms of the contract are:

- Trade date: 12 November, 2001
- Value date: 21 December, 2001
- UBS pays 10,000,000 GBP to Citi
- Citi pays 14,643,000 USD to UBS
- Exchange rate equals 1.4643 (USD per GBP).

Settlement is highlighted in this example. In this case, UBS pays the GBP from their account at UBS London to Citi's GBP account at Citi London, with the ultimate beneficiary being Citi New York.

For the USD, Citi pays the USD to ultimate beneficiary UBS Zurich, but in this case, UBS Zurich holds its USD at Citibank, and therefore UBS' account as Citibank is credited.

6 Example 5 - FX Forward identified as using standard settlement instructions

File: fx_example_5.xml

This is identical to Example 3, but the standard settlement scheme is used to highlight that this trade will be paid using standard, pre-agreed settlement instructions.

7 Example 6 - FX Forward with split settlement

File: fx_example_6.xml

On 12 November, 2001, DeutscheBank Frankfurt and ABN Amro Amsterdam agree to a forward foreign exchange contract. The terms of the contract are:

- Trade date: 12 November, 2001
- Value date: 14 February, 2002
- Deutsche pays 13,000,000 USD to ABN
- ABN pays 14,393,600 EUR to Deutsche
- Exchange rate equals 1.1072 (EUR per USD).

In this example, the exchange rate has been quoted as an "inverted" rate.

Split settlement is highlighted in this example in the payment of the USD. Here, the following has been specified:

- 3,000,000 USD is to be paid to ABNAUS33
- 4,000,000 USD is to be paid to ABNAUS4C
- 6,000,000 USD is to be paid to ABNAUS6F

The ultimate beneficiary is ABNANL2A for all USD payments, but 3 different accounts have been specified for settlement.

For the EUR, ABN pays all EUR to Deutsche, but specifies settlement of the EUR via a debit of ABN's account in EUR with Deutsche.

8 Example 7 - Non-deliverable FX Forward

File: fx_example_7.xml

On 09 January, 2002, Chase New York and CSFB New York agree to a FX non-deliverable forward contract. The terms of the contract are:

- Trade date: 9 January, 2002
- Fixing date and time: 9 February, 2002, 14:30 Mumbai time
- Rate source: RBIB
- Settlement currency: USD
- Value date: 13 February, 2002
- CSFB has agreed to notionally purchase 434M INR for 10M USD with Chase.
- Since the contract is non-deliverable, the computed settlement will occur on the fixing date based upon the differential between the agreed-upon trade rate and the observed spot rate on the fixing date.
- Exchange rate equals 43.40 INR per USD.

9 Example 8 - FX Swap

File: fx_example_8.xml

On 23 January, 2002, Chase New York and Deutsche Frankfurt agree to an FX swap contract. The terms of the contract are:

- Trade date: 23 January, 2002
- Value date (near leg): 25 January, 2002
- Value date (far leg): 25 February, 2002
- On January 25, Deutsche pays 10,000,000 GBP to Chase
- On January 25, Chase pays 14,800,000 USD to Deutsche
- On February 25, Chase pays 10,000,000 GBP to Deutsche
- On February 25, Deutsche pays 15,000,000 USD to Chase
- Exchange rates equal 1.48 on near leg, 1.5 on far leg.

10 Example 9 - FX OTC Option - European exercise

File: fx_example_9.xml

On 4 December, 2001, Chase agrees to purchase a standard FX OTC option from ABN Amro. The terms of the contract are:

- Trade date: 4 December, 2001
- Expiry date: 4 June, 2002
- Option buyer: Chase
- Option seller: ABN Amro
- Exercise style: European
- Quote: 75m 6-month AUD Put on 36.9m USD @ strike of 0.4920
- Option premium: 36,900 USD
- Business center: New York
- Cut Name: New York

11 Example 10 - FX OTC Option - American exercise

File: fx_example_10.xml

On 4 December, 2001, Chase agrees to purchase a standard FX OTC option from ABN Amro. The terms of the contract are:

- Trade date: 4 December, 2001
- Expiry date: 4 June, 2002
- Option buyer: Chase
- Option seller: ABN Amro
- Exercise style: American
- Quote: 75m 6-month AUD Put on 36.9m USD @ strike of 0.4920
- Option premium: 36,900 USD
- Business center: New York
- Cut Name: New York

12 Example 11 - Non-deliverable FX OTC Option

File: fx_example_11.xml

On 15 January, 2001, Chase agrees to purchase a non-deliverable FX OTC USD / VEB option from ABN Amro. The terms of the contract are:

- Trade date: 15 January, 2001
- Expiry date: 9 April, 2001
- Expiry time: 10:00 New York time
- Value date: 11 April, 2001
- Option buyer: Chase
- Option seller: ABN Amro
- Exercise style: European
- Call currency: USD
- Call amount: 15,000,000
- Put currency: VEB
- Put amount: 17,250,000
- Strike price: 1.15
- Option premium: 372,750 USD
- Premium payment: 17 January, 2001
- Business center: New York
- Settlement currency: USD
- Primary rate source: VEB BCB28
- Secondary rate source: VEB 01

13 Example 12 - FX OTC Barrier Option

File: fx_example_12.xml

On 16 August, 2001, DB agrees to purchase a EUR call against USD put barrier option with a knock-in

- Trade date: 16 August, 2001
- Expiry date: 6 February, 2002
- Expiry time: 10:00 New York time
- Value date: 8 February, 2002
- Option buyer: DB
- Option seller: Chase
- Exercise style: European
- Call currency: EUR
- Call amount: 5,000,000
- Put currency: USD
- Put amount: 4,500,000
- Strike price: 0.9
- Knockin: 0.8975
- Reference spot: 0.8935
- Option premium: 45,000 USD
- Premium payment: 20 August, 2002
- Business center: New York

14 Example 13 - FX OTC Double Barrier Option

File: fx_example_13.xml

On 3 January, 2001, DB agrees to purchase a 2-month double knockout FX OTC JPY put / USD call option from Chase. The terms of the contract are:

- Trade date: 3 January, 2002
- Expiry date: 4 March, 2002
- Expiry time: 10:00 New York time
- Value date: 6 March, 2002
- Option buyer: DB
- Option seller: Chase
- Exercise style: European
- Call currency: USD
- Call amount: 23,798,191.34
- Put currency: JPY
- Put amount: 2,500,000,000
- Strike price: 105.05
- Knockout: 102
- Knockout: 115
- Option premium: 192,765.35 USD
- Premium payment: 7 January, 2002
- Business center: New York

15 Example 14 - FX OTC Digital/Binary Option -- Euro Binary

File: fx_example_14.xml

On 12 November, 2001, UBS agrees to purchase a two-week GBP/USD European binary option and pays a premium. At expiry, if the spot rate is above the trigger rate, UBS receives a payout.

16 Example 15 - FX OTC Digital/Binary Option -- Euro Range Digital

File: fx_example_15.xml

On 12 November, 2001, UBS agrees to purchase a two-week GBP/USD European range binary option and pays a premium. At expiry, if below the higher trigger rate and above the lower trigger rate, UBS receives a payout.

17 Example 16 - FX OTC Digital/Binary Option -- One-Touch

File: fx_example_16.xml

On 12 November, 2001, UBS agrees to purchase a two-week GBP/USD one-touch option and pays a premium. At any time before expiry, if the spot rate is above the trigger rate, UBS receives a payout, but this payout is deferred until the value date of the option.

18 Example 17 - FX OTC Digital/Binary Option -- No-Touch

File: fx_example_17.xml

On 12 November, 2001, UBS agrees to purchase a two-week GBP/USD no-touch option and pays a premium. If the spot rate remains below the trigger rate at all times until expiry, UBS receives a payout.

19 Example 18 - FX OTC Digital/Binary Option -- Double One-Touch

File: fx_example_18.xml

On 12 November, 2001, UBS agrees to purchase a two-week GBP/USD double one-touch option and pays a premium. UBS receives a payout at maturity if the spot rate has crossed either trigger rate at some time during the lifetime of the option.

20 Example 19 - FX OTC Digital/Binary Option -- Double No-Touch

File: fx_example_19.xml

On 12 November, 2001, UBS agrees to purchase a two-week GBP/USD double no-touch option and pays a premium. If the spot rate remains below the upper trigger rate and above the lower trigger rate at all times until expiry, UBS receives a payout.

21 Example 20 - FX OTC Average Rate Option with Parametric Schedule

File: fx_example_20.xml

On 16 August, 2001, DB agrees to purchase an average rate option from Chase and pays a premium. The terms of the contract are:

- Trade date: 16 August, 2001
- Expiry date:
- Option buyer: DB
- Option seller: Chase
- Put: 5,750,000 MXN
- Call: 585,539.71 USD
- Rate source: BNBX
- Observation start date: 1 November, 2001
- Observation end date: 30 November, 2001
- Observation frequency: Daily, all business days for each currency
-

22 Example 21 - FX OTC Average Rate Option with Specific Date Schedule

File: fx_example_21.xml

This example is identical to Example 20. Instead of using a parametric frequency (e.g., daily), each specific observation date has been specified. All weighting factors are 1.0, since all rates would be weighted evenly when the average rate is computed upon expiry.

23 Example 22 - Straddle (sample usage of Strategy)

File: fx_example_22.xml

On 20 November 2001, Chase agrees to purchase a straddle from ABN Amro. A straddle consists of buying a call and a put for the same currency pair, at the same strike price.

This contains two instances of the `fxSimpleOption` structure within strategy. Note that this is used when a single trade reference number is desired.

24 Example 23 - Delta Hedge (sample usage of Strategy)

File: fx_example_23.xml

On 4 December, 2001, Chase agrees to purchase an FX OTC European option from ABN Amro. At the same time, they agree to hedge their FX spot risk by doing a FX spot transaction. This is all part of a single trade strategy.