Product Briefing – Forward Rate Agreements

A forward contract is economically equivalent to a futures contract in that it will involve the fixing of a price at the point of execution for delivery at some future date.

An entity trading an over the counter forward will not be faced with the constraints of contract standardization that are a feature of exchange – traded contracts. Forwards allow the user greater flexibility in specifying deal parameters such as transaction size and maturity dates.

Although something of a generalization the majority of forward contracts will be cash settled. So a cash settled bond forward would fix the price of the bond for future delivery but the final settlement would not require the exchange of the asset for cash.

Instead the seller of the contract will pay a cash sum equal to the current market value of the bond and the buyer will pay the fixed price originally agreed upon. A forward deal is a contractual commitment which cannot be terminated unless both parties to the deal agree mutually to end the transaction.

Forward Rate Agreements
A forward rate agreement (FRA) is an over the counter (OTC) transaction that fixes a single interest rate for a single period, at an agreed date in the future. The start of the period the rate will be fixed for, and its length, is negotiated between the contract buyer and seller.

So a FRA transaction that locks in the 3 month rate in 3 months' time is referred to as a 3/6 or 3s6s transaction. The first number indicates the effective date of the transaction, the final number the maturity and the difference between the two indicates the tenor of the interest rate that is being fixed. Interest rate tenors will typically reflect those most commonly traded in the cash markets and so will have a maximum maturity of twelve months. The effective and maturity dates for FRAs could extend as far as five years, depending on the currency.

These instruments have never been adopted by the corporate community to hedge exposures and are arguably most often used by traders as a way of expressing a view on expected short term interest rate movements. I recall a conversation with a FRA trader where the dealer pointed out that he created his quote based on where he thought the Central Bank rate would be at some future date (plus a few basis points to reflect the difference in credit risk).

These instruments are quoted on a bid and offer basis and so a hypothetical quotation could be:

3 / 6	3.11% - 3.12%
6 / 9	3.15% - 3.16%
9 / 12	3.25% - 3.26%

The interpretation of the quotation from a market maker's perspective is:

Bid	Offer
Buy FRA	Sell FRA
Pay fixed rate	Receive fixed rate
Receive LIBOR	Pay LIBOR

From this quoting convention we can start to see that a FRA is a contract for difference, which involves an exchange of cash flows. On the trade date the parties to the deal agree a fixed contract rate for an agreed future period and then will make or receive compensation depending on the actual level at which LIBOR settles. As we will show in the next section, a FRA can be thought of as a single period interest rate swap.

To illustrate the concept consider the following example: Suppose that 3 month inter-bank rates are 3.00% and the market believes that Central Bank rates will increase over the next year. The trader sees the market quoting a 9/12 rate as 3.25% - 3.26%. He believes that actual three month rates in 9 months' time will be lower than this and so decides to sell the FRA at the bid price of 3.25% (he is a market user not a market maker) on a notional of USD 10m. This will contract him to receive 3.25% and pay the prevailing LIBOR rate in 9 months' time. If market rates evolve as per his view (i.e. three month LIBOR is lower than 3.25%) he will end up being a net receiver of cash.

Let us say that 9 months later the 3 month LIBOR rate fixes at 3.20%. The parties to the FRA agreement can calculate the settlement amount due. The market user who sold the contract expects to be a net receiver of 5 basis points per annum on a USD 10 million notional amount. However, there is something of a quirk in the settlement convention.

Normally, interest rate contracts will settle in arrears but in the FRA market the settlement takes place as soon as LIBOR fixes. This means that the recipient of the cash flow has use of the funds in advance of normal market practice and as a result the settlement amount is present valued. The discount rate is the same LIBOR rate used in the numerator of the equation. The contract settles according to the following formula:

$$\frac{\dfrac{(+/-\text{Settlement rate} -/+ \text{FRA Contract rate})}{100} \times \text{Notional amount} \times \dfrac{\text{No. of days}}{\text{Day basis}}}{1 + \left(\dfrac{\text{Settlement rate}}{100} \times \dfrac{\text{No. of days}}{\text{Day basis}}\right)}$$

The use of the + /- signs are used to indicate if the participant is a receiver (+) or payer (-) of a particular rate. This will quickly allow the participants to decide who will be the receiver or payer of the cash settlement. Since interest rates are quoted as a percentage per annum it is necessary to pro rate the settlement according to the tenor of the interest rate. The day basis will either be 360 or 365 depending on the currency of the transaction. So in our example the settlement amount would be:

$$\frac{(-3.20\% + 3.25\%) \times 10,000,000 \times \frac{90}{360}}{1 + \left(3.20\% \times \frac{90}{360}\right)} = \frac{1,250}{1.008} = 1,240.08$$

The calculation assumes an exact 90 day quarter.

Features
- Single period contract
- Contract for difference
- Economically similar to an interest rate swap
- Can be used to speculate on central bank rate movements
- Also used to hedge bank interest rate risk