Index of /stoneq/products

	Name	Last modified	Size	Description
[DIR]	Parent Directory	15-Apr-2000 22:48	-	
[TXT]	accord.htm	26-Mar-2000 16:46	3k	
[TXT]	arrears.htm	26-Mar-2000 16:46	3k	
[TXT]	asro.htm	26-Mar-2000 16:46	4k	
[TXT]	asset.htm	26-Mar-2000 16:46	5k	
[TXT]	balloon.htm	26-Mar-2000 16:46	2k	
[TXT]	barc.htm	26-Mar-2000 16:46	4k	
[TXT]	barf.htm	26-Mar-2000 16:46	4k	
[TXT]	barropt.htm	27-Mar-2000 11:20	2k	
[TXT]	basis.htm	26-Mar-2000 16:46	4k	
[TXT]	basket.htm	26-Mar-2000 16:46	3k	
[TXT]	bbc.htm	26-Mar-2000 16:46	3k	
[TXT]	bbf.htm	26-Mar-2000 16:46	3k	
[TXT]	boundc.htm	26-Mar-2000 16:46	3k	
[TXT]	boundf.htm	26-Mar-2000 16:46	3k	
[TXT]	break.htm	26-Mar-2000 16:46	4k	
[TXT]	callswap.htm	26-Mar-2000 16:47	5k	
[IMG]	cap.gif	26-Mar-2000 16:47	2k	
[TXT]	cap.htm	26-Mar-2000 16:47	6k	
[TXT]	caption.htm	26-Mar-2000 16:47	5k	
[TXT]	ccs.htm	26-Mar-2000 16:47	11k	
[TXT]	cfc.htm	26-Mar-2000 16:47	4k	
[TXT]	cff.htm	26-Mar-2000 16:47	4k	
[TXT]	chooser.htm	26-Mar-2000 16:47	3k	
[TXT]	cliquet.htm	26-Mar-2000 16:47	4k	

[TXT]	compound.htm	26-Mar-2000 16:47	3k
[TXT]	constant.htm	26-Mar-2000 16:47	7k
[TXT]	conting.htm	26-Mar-2000 16:47	3k
[TXT]	coupe.htm	26-Mar-2000 16:47	4k
[IMG]	credit1.gif	26-Mar-2000 16:47	1k
[TXT]	credit1.htm	26-Mar-2000 16:47	13k
[TXT]	dbo.htm	26-Mar-2000 16:47	5k
[IMG]	digital.gif	26-Mar-2000 16:47	1k
[TXT]	digital.htm	26-Mar-2000 16:47	2k
[TXT]	dirf.htm	26-Mar-2000 16:47	3k
[TXT]	dpa.htm	26-Mar-2000 16:47	5k
[TXT]	extend.htm	26-Mar-2000 16:47	4k
[TXT]	fc.htm	26-Mar-2000 16:47	4k
[TXT]	ff.htm	26-Mar-2000 16:47	4k
[IMG]	floor.gif	26-Mar-2000 16:47	2k
[TXT]	floor.htm	26-Mar-2000 16:47	6k
[TXT]	floort.htm	26-Mar-2000 16:47	5k
[TXT]	fra.htm	26-Mar-2000 16:47	3k
[TXT]	frf.htm	26-Mar-2000 16:47	3k
[TXT]	frpf.htm	26-Mar-2000 16:47	8k
[TXT]	futures.htm	26-Mar-2000 16:47	2k
[TXT]	ifs.htm	26-Mar-2000 16:47	4k
[TXT]	imp-frd.htm	26-Mar-2000 16:47	2k
[TXT]	irca.htm	26-Mar-2000 16:47	5k
[TXT]	ki-cf.htm	26-Mar-2000 16:47	3k
[TXT]	kis.htm	26-Mar-2000 16:47	4k
[TXT]	knockin.htm	26-Mar-2000 16:47	4k
[TXT]	knockout.htm	26-Mar-2000 16:47	5k
[TXT]	ko-cf.htm	26-Mar-2000 16:47	4k

[TXT]	kos.htm	26-Mar-2000 16:47	4k
[TXT]	ladder.htm	26-Mar-2000 16:47	3k
[TXT]	lfls.htm	26-Mar-2000 16:47	4k
[TXT]	lookback.htm	26-Mar-2000 16:47	2k
[TXT]	lrs.htm	26-Mar-2000 16:47	2k
[TXT]	mac.htm	26-Mar-2000 16:47	4k
[TXT]	maf.htm	26-Mar-2000 16:47	4k
[TXT]	mc.htm	26-Mar-2000 16:47	3k
[TXT]	mf.htm	26-Mar-2000 16:47	3k
[TXT]	mmf.htm	26-Mar-2000 16:47	3k
[TXT]	mtmc.htm	26-Mar-2000 16:47	2k
[TXT]	ncap.htm	26-Mar-2000 16:47	2k
[IMG]	onetouch.gif	26-Mar-2000 16:47	2k
[TXT]	onetouch.htm	26-Mar-2000 16:47	3k
[IMG]	par.gif	26-Mar-2000 16:47	2k
[TXT]	par.htm	26-Mar-2000 16:47	7k
[TXT]	payer.htm	26-Mar-2000 16:47	3k
[TXT]	putable.htm	26-Mar-2000 16:47	5k
[TXT]	qcap.htm	26-Mar-2000 16:47	2k
[TXT]	qfloor.htm	26-Mar-2000 16:47	2k
[TXT]	range.htm	26-Mar-2000 16:47	3k
[TXT]	rcf.htm	26-Mar-2000 16:47	3k
[TXT]	reflexc.htm	26-Mar-2000 16:47	3k
[TXT]	reverse.htm	26-Mar-2000 16:47	2k
[TXT]	rollc.htm	26-Mar-2000 16:47	6k
[TXT]	rollf.htm	26-Mar-2000 16:47	6k
[IMG]	rollpf.gif	27-Mar-2000 10:06	2k
[TXT]	rpf.htm	27-Mar-2000 10:35	9k
[TXT]	rs.htm	26-Mar-2000 16:47	3k

[TXT]	sda.htm	26-Mar-2000 16:47	3k
[TXT]	sf.htm	26-Mar-2000 16:47	4k
[TXT]	sfc.htm	26-Mar-2000 16:47	6k
[TXT]	shout.htm	26-Mar-2000 16:47	3k
[TXT]	spread.htm	26-Mar-2000 16:47	5k
[TXT]	struct.htm	26-Mar-2000 16:47	6k
[IMG]	subsid.gif	26-Mar-2000 16:47	4k
[TXT]	subsid.htm	26-Mar-2000 16:47	3k
[TXT]	term.htm	26-Mar-2000 16:47	5k
[TXT]	total.htm	26-Mar-2000 16:47	9k
[IMG]	trs.gif	26-Mar-2000 16:47	1k
[TXT]	zpc.htm	26-Mar-2000 16:47	3k

Apache/1.3.19 Server at my.dreamwiz.com Port 80

ACCORDION SWAP

DESCRIPTION

An Accordion Swap is a modification of an Interest Rate Swap. Once begun, the swap tenor can be shortened or lengthened at the direction of the user. The notional size and/or swap rate is also adjusted such that the net present value of the transaction remains the same after the adjustments. A pay fixed swap "in-the-money" can therefore be shortened in tenor with a corresponding increase in size to provide rate protection on a larger amount for a shorter period. Likewise, the same swap could be lengthened, and the notional reduced to provide an attractive long-term swap. Generally any profit or loss in the original transaction is therefore carried forward into the new swap although it is possible to structure the transaction in such a way that some of the profit or loss is realised at the point of change (see NOTES below). Also known as a Concertina Swap or NPV Swap.

EXAMPLE

A company has a SGD 100mm pay fixed swap on its books with a final maturity in 7 years at a rate of 8.00%. The current 7 year swap rate is 8.75%, so the swap is "in-the-money" by 75bp per annum. Using the Accordion Swap, there are a wide range of alternatives for the company, including:

(a) shorten the swap to say 3yrs, and increase the size to say SGD 220mm, maintaining the rate of 8.00%, below the 3 yr rate of 9.00%
(b) shorten the swap to say 3yrs, and increase the size to say SGD 300mm, but increase the rate to say 8.50%
(c) lengthen the swap to say 10yrs, maintain the size at SGD100mm, but reduce the rate to 7.80%, below the 10yr rate of 8.30%

The key is that the net present value of the swap before and after the changes remains the same, therefore the range of possibilities is almost endless.

PRICING

The pricing is the same as an Interest Rate Swap. At the time of change, the swaps net present value is calculated and the terms of the new swap, specifically tenor, size and rate, are adjusted such that the net present value remains the same. There is no premium payment.

TARGET MARKET

The Accordion Swap is an alternative method for swap users to manage a swap portfolio.

NOTES

By its nature the Accordion Swap allows the user to roll unrealised profits or losses forward or backwards and therefore falls into the category of an Historic Rate Rollover. Due to the accounting and taxation implications, many banks maintain special approvals, rules and limits for the use of such products, which mean that such products may not be appropriate and/or available for all users. Independent tax and accounting advice should be sought before using such products.

ADVANTAGES

- Customised to suit

- No up front premium
- No realisation of profit or loss

DISADVANTAGES

- Taxation and accounting considerations may make this product unsuitable or inappropriate

PRODUCT SUITABILITY

Complex Defensive/Complex Aggressive

Libor Set in Arrears

DESCRIPTION

The floating rate side of an ordinary Swap (I.e. Libor) is reset on each rollover date. Once set, the payment due is calculated and paid at the end of the floating rate period. For example, three month Libor may be set today and therefore the floating rate payment under the swap will be made in three months time.

Under a Libor Set In Arrears Swap, the fixed side of the swap is the same, but the floating side is different. Instead of setting the Libor at the beginning of the rollover or reset period, we set it at the END of the period. The payment is made as normal at the end of the period, which in this case is the same as the setting date.

- Normal: Libor set in advance, paid in arrears.
- Libor in Arrears: Libor set in arrears and paid in arrears.

EXAMPLE

An investor believes that Libor will stay at the same level or fall over the next three years. In this scenario, Libor will be lower at the END of each reset period, than at the BEGINNING. We could enter a Swap where we RECEIVE 6 month Libor for 2 years and PAY 6 month Libor Set In Arrears for 2 years.

In a positively sloped yield curve (long rates higher than short rates), the market is implying that short term rates will rise in the future (see "IMPLIED FORWARDS").

Therefore, the market expects that by setting Libor in arrears, it will result in a HIGHER Libor being set and therefore a HIGHER payment. Because Libor in arrears is expected to be higher than Libor in advance, the market will give the investor an incentive to pay Libor in arrears. If we assume the market is expecting that Libor will on average be HIGHER at the end of each 6 month period by 50 bps, then we could receive Libor and pay Libor Set In Arrears MINUS 50 bps. We therefore make money when Libor falls over the period or rises by LESS 50bp.

PRICING

If the market expects Libor to rise on average by 35bp over each floating period, they will be willing to receive Libor set in arrears LESS 35 bp, instead of Libor. The price adjustment is therefore the present value of the average expected increase in Libor over the period. This can be found by calculating the implied forward Libors for that period.

TARGET MARKET

These transactions allow the investor to take a position purely on the movement of Libor. Ordinary swaps also expose the investor to the movement in the longer part of the yield curve.

ADVANTAGES

- Exposed only to path of Libor
- Easy to calculate break even

- Can be reversed at any time with reference to the then prevailing implied rates

PRODUCT SUITABILITY

Complex Aggressive

AVERAGE STRIKE RATE OPTION

DESCRIPTION

An option where the strike rate equals the average of the underlying index over the life of the option. The strike rate can therefore only be calculated at maturity of the option. Due to the averaging process, the cost of the Average Strike Rate Option is less than a standard at-the-money strike option of the same maturity. The average rate can be calculated using the daily, weekly, monthly or quarterly FX rate at the discretion of the buyer. In fact, the Average Strike Rate Option can use any agreed method for averaging.

EXAMPLE

A multinational GBP based company has a large flow of foreign currency receipts over the year. While each individual receipt is difficult to forecast and only small, over the year the total USD income equals in excess of USD 25 million. The current spot rate is 1GBP = 1.50USD. Given the random timing of the cashflows and the small individual size, traditional FX options have proved to be impractical. The company can consider using an Average Rate Strike Option. The company is comfortable that the total income in one year will exceed USD 25 million. The company could purchase a 1 yr USD 25mm Weekly Average Strike Rate Put option at say 1.75%. Each week the USD/GBP spot rate would be noted from an agreed source at an agreed time. The strike rate for the option is then set at the end of the year at the calculated average rate and used to calculate the value of the option:

USD 25,000,000 * (Spot at Maturity - Average Strike) * days/365

Assuming the average strike equals 1.43 and the USD/GBP spot rate at maturity is 1.60, the option payout would equal:

USD 25,000,000 * (1.60 - 1.43) * 365/365 = USD 4,250,000 or GBP 2,656,250

The company achieves a general hedge against a falling USD at a reasonable cost.

PRICING

The pricing of the Average Strike Rate Option uses the same principals as all options. While the strike rate is not known in advance, the expected strike can be calculated using Implied Forwards and used to calculate the option premium. Of course, the averaging process means that the Average Strike Rate Option premium will always be lower than the standard option premium for an at-the-money strike option of the same maturity. The degree of difference will depend upon the number of averaging periods and more specifically the Implied Forwards and therefore by definition, the interest rate differential between the two currencies.

TARGET MARKET

The Average Strike Rate Option is an alternative to traditional FX options and is particularly appropriate when the foreign currency cashflows being hedged are regular and expected over a defined period of time. The Average Strike Rate Option provides a general rather than a specific hedge against adverse currency moves. The Average Strike Rate Option should be considered when looking to hedge a series of cashflows and individual options are either too expensive or too cumbersome to manage. It may also be appropriate as a low cost position taking tool where the view is that a currency will be higher or lower

than its average at the end of a period.

ADVANTAGES

- Lower premium
- Customised
- General protection of small regular cashflows

DISADVANTAGES

- General protection rather than specific

PRODUCT SUITABILITY

Simple Defensive

ASSET SWAP

DESCRIPTION

An Asset Swap is an Interest Rate Swap or Cross Currency Swap used to convert the cashflows from and underlying security (a Bond or Floating Rate Note), from Fixed coupon to Floating coupon, Floating coupon to Fixed Coupon, or from one currency to another. The terms and conditions of the Asset Swap are the same as for an Interest Rate Swap or Cross Currency Swap. The underlying security and swap may be transacted together (as a package) with the same counterparty or separately with different counterparts. The Asset Swap may be transacted at the time of the security purchase or added to an bond or FRN already owned by the investor. A Fixed Rate Bond plus an Asset Swap converting the bond to floating rate is known as a Synthetic Floating Rate Note. The security plus Asset Swap can be sold as a package, or separately.

EXAMPLE

An investor believes CAD rates will rise over the medium term. They would like to purchase CAD 50million 5yr Floating Rate Notes. There are no 5yr FRNs available in the market in sufficient size. The investor is aware of XYZ Ltd 5yr 6.0% annual fixed coupon Bonds currently trading at a yield of 5.0%. The bonds are currently priced at 104.38. The investor can purchase CAD 50million Fixed Rate Bonds in the market for a total consideration of CAD 51,955,000 plus any accrued interest. They can then enter a 5 year Interest Rate Swap (paying fixed) with the Bank as follows:

Notional:	CAD 50,000,000
Investor Pays:	6.0% annual Fixed (the coupons on the bond)
Investor Receives:	LIBOR plus say 50bp
Up front Payment:	The Bank Pays CAD 1,955,000 plus accrued bond interest to investor

The up front payment compensates the investor for any premium paid for the bonds. Likewise, if the bonds were purchased at a discount, the investor would pay the discount amount to the Bank. This up front payment ensures that the net position created by the Asset Swap is the same as a FRN issued at par so that the initial outlay by the investor is CAD 50million.

PRICING

The Asset Swap is priced using the same methodology as the Interest Rate Swap. From the investors viewpoint, the net cashflows from the Bond plus the Asset Swap are the same as the cashflows from a Floating Rate Note. The yield on the Asset Swap (in the example LIBOR plus 50bp), will depend upon the relationship between the Bond yield and the Swap Yield for that currency. When converting a fixed rate bond to floating rate, LOWER swap rates relative to bond yields will result in HIGHER Asset Swap yields. When converting FRNs to fixed rate, HIGHER swap rates relative to bond yields will result in HIGHER Asset Swap yields.

It is a common mistake to assume that the yield over LIBOR on the Asset Swap (50bp in the example

above) is merely the difference between the Bond Yield (5%) and the 5yr Swap yield. While the two instruments have the same maturity, they have different yields and therefore different durations. It is therefore necessary to price the Asset Swap using a complete Interest Rate Swap pricing model.

TARGET MARKET

Any investor purchasing or holding interest bearing securities. The Asset Swap can either be used to create synthetic securities unavailable in the market, or as an overlay interest rate management technique for existing portfolios. Many investors use Asset Swaps to "arbitrage" the credit markets, as in many instances synthetic FRNs or Bonds produce premium yields compared to traditional securities issued by the same company. It should be noted that some of this premium yield is due to the added complexity of these transactions, albeit slight, and the additional documentation, required (i.e. ISDA).

ADVANTAGES

- Flexibility
- Customised to match underlying securities
- Can be reversed at any time
- Can be traded as a package or separately

DISADVANTAGES

- Requires ISDA documentation

PRODUCT SUITABILITY

Simple Defensive/Simple Aggressive

Balloon Options

DESCRIPTION

A Balloon Option is an option that "Balloons" in size once a certain trigger is reached. It is most commonly used in FX markets but can also be used in interest rate, equity and commodity markets.

EXAMPLE

An investor believes that the USD will strengthen against Yen in the coming months. It is currently trading at 100. The investor also sees 110 as strong resistance, but believes that it will be broken. Rather than buy a straight USD10mm call at the money spot (100) for 6 months, the investor can purchase an at the money Balloon call with a trigger of 110 and a multiple of 2. This means that the investor owns a 100 call in USD10mm. However, if USD/YEN ever trades at or above 110, the notional of the bought 100 call will double to USD20mm.

PRICING

Using the above example, the Balloon 100 call is merely a straight 100 call for USD10mm plus a 100 call in USD10mm that knocks in at 110. The Balloon option premium is therefore the addition of the two premiums and is thereforc always more expensive than a straight call on the original notional but cheaper than a straight call on the ballooned notional. The amount of "ballooning" is determined by the client. Obviously the greater the ballooning the higher the premium. The further the trigger level is away from the at the money, the cheaper the premium. (see "Knock-In Options")

TARGET MARKET

Balloon options are an alternative that appeals to any client considering ordinary calls, but in particular to those who have technically based views.

ADVANTAGES

- The Notional of the option increases when the option is most in the money
- Loss is limited to premium like all bought options
- Cheaper than ordinary options on the ballooned notional.

DISADVANTAGES

- More expensive than straight options (on original notional)

PRODUCT SUITABILITY

Bought balloon options: Simple Aggressive
Sold balloon options: Complex Aggressive

BARRIER CAP

DESCRIPTION

A Barrier Cap is a modified Interest Rate Cap. The Barrier Cap only pays a return to the buyer when the underlying index, usually LIBOR, is above the defined barrier level. When above this level the Barrier Cap payout is the same as the payout on a traditional Interest Rate Cap. The Barrier Cap is therefore cheaper than the traditional Cap. The barrier feature is usually applied to each LIBOR period separately. A traditional Interest Rate Cap can be considered as a Barrier Cap where the Cap strike and Cap barrier are set at the same level. A Barrier Cap with a maximum dollar payout is known as a Bounded Barrier Floor.

EXAMPLE

A company targets a 6% cost of funds. While it can tolerate some excess, it would like to limit this to 1%. The company has considered purchasing a 6%, 3 year Interest Rate Cap for 110bp. Alternatively, it can purchase a Barrier Cap with a 6% strike and say a 7% barrier for only 77bp, a saving of 30%. At each LIBOR reset, the following calculation would occur:

(a) If LIBOR < 6%, no payment under the Barrier Cap
(b) If 6% < LIBOR < 7%, no payment under the Barrier Cap
(c) If LIBOR > 7%, the Barrier Cap buyer receives (LIBOR - 6%) * Notional Amount * Days/360

So when LIBOR is above the barrier, the Barrier Cap behaves like the ordinary Cap, but when it is below the barrier, no payment takes place, therefore resulting in a lower cost. In this example, the company is guaranteed a maximum cost of funds of 7%, and if LIBOR is above 7% on any reset date, the cost of funds will return to its original target of 6%.

PRICING

Lets compare the payout on the above example to a traditional 7% Cap:

	7% Cap	6% Cap with 7% Barrier
LIBOR < 6%	**0**	**0**
LIBOR < 7%	**0**	**0**
LIBOR > 7%	**LIBOR - 7%**	**LIBOR - 6%**

So the payouts are almost the same, except when LIBOR is above the barrier, the Barrier Cap payout is always higher by a fixed amount (Barrier - Cap strike), in this case 1.00%. This fixed amount can be generated by using a Digital Option with a strike of 7% and a payout of 1%. The Barrier Cap is therefore the combination of a traditional Cap struck at the barrier level, and a Digital Option struck at the barrier level with a payout equal to the barrier level less the Barrier Cap strike rate. The Barrier Cap premium is the addition of the two option premiums.

TARGET MARKET

The Barrier Cap is an alternative structure for Cap buyers seeking to reduce the cost of protection. They are particularly suitable in the situation described in the example, where a company has a targeted cost of funds but is willing to bear some excess.

ADVANTAGES

- Lower premium
- Customised
- Once barrier is breached, payout ensures target cost of funds reached
- Barrier only effective one period at a time

DISADVANTAGES

- Less protection than traditional Cap

PRODUCT SUITABILITY

Complex Defensive

BARRIER FLOOR

DESCRIPTION

A Barrier Floor is a modified Interest Rate Floor. The Barrier Floor only pays a return to the buyer when the underlying index, usually LIBOR, is below the defined barrier level. When below this level the Barrier Floor payout is the same as the payout on a traditional Interest Rate Floor. The Barrier Floor is therefore cheaper than the traditional floor. The barrier feature is usually applied to each LIBOR period separately. A traditional Interest Rate Floor can be considered as a Barrier Floor where the floor strike and floor barrier are set at the same level. A Barrier Floor with a maximum dollar payout is known as a Bounded Barrier Floor.

EXAMPLE

An investor targets a 6% return on its cash investments. While it can tolerate some shortfall, it would like to limit this shortfall to 1%. The investor has considered purchasing a 6%, 3 year Interest Rate Floor for 110bp. Alternatively, it can purchase a Barrier Floor with a 6% strike and say a 5% barrier for only 77bp, a saving of 30%. At each LIBOR reset, the following calculation would occur:

(a) If LIBOR > 6%, no payment under the Barrier Floor
(b) If 5% < LIBOR < 6%, no payment under the Barrier Floor
(c) If LIBOR < 5%, the Barrier floor buyer receives (6% - LIBOR) * Notional Amount * Days/360

So when LIBOR is below the barrier, the Barrier Floor behaves like the ordinary Floor, but when it is above the barrier, no payment takes place, therefore resulting in a lower cost. In this example, the investor is guaranteed always to receive a return above 5%, and if LIBOR is below 5% on any reset date, the investor will receive 6%, its original target.

PRICING

Lets compare the payout on the above example to a traditional 5% floor:

	5% Floor	6% Floor with 5% Barrier
LIBOR > 6%	0	0
LIBOR > 5%	0	0
LIBOR < 5%	5% - LIBOR	6% - LIBOR

So the payouts are almost the same, except when LIBOR is below the barrier, the Barrier Floor payout is always higher by a fixed amount (Floor strike - Barrier), in this case 1.00%. This fixed amount can be generated by using a Digital Option with a strike of 5% and a payout of 1%. The Barrier Floor is therefore the combination of a traditional Floor struck at the barrier level, and a Digital Option struck at the barrier level with a payout equal to the Barrier Floor strike rate less the barrier level. The Barrier Floor premium is the addition of the two option premiums.

TARGET MARKET

The Barrier Floor is an alternative structure for floor buyers seeking to reduce the cost of protection. They are particularly suitable in the situation described in the example, where an investor has a targeted return but is willing to bear some shortfall.

ADVANTAGES

- Lower premium
- Customised
- Once barrier is breached, payout ensures target return reached
- Barrier only effective one period at a time

DISADVANTAGES

- Less protection than traditional floor

PRODUCT SUITABILITY

Complex Defensive

BARRIER OPTION

DESCRIPTION

Barrier options are a family of options that either come alive or die when predetermined trigger points (barriers) are reached. There are two major types - Knock Ins and Knock Outs. Knock In options come alive when the barrier is reached and Knock out options die when the barrier is reached. The barrier can be any tradable variable and may or may not be directly related to the underlying of the original option. Most available options can be adapted to be barrier options.

EXAMPLES

Knock In Caps and Floors
Knock Out Caps and Floors
FX Knock In Options
FX Knock Out Options

PRICING

The price of a barrier option depends upon the probability of the barrier being reached, and the value of the underlying option if it is reached. They are therefore very sensitive to volatility.

TARGET MARKET

Barrier options are applicable for any investor or borrower where their underlying rate view (either FX Interest Rate, Equity or Commodity) is dependent upon a trigger level in the same or different market being reached. They are attractive to buyers as they can be considerably cheaper than traditional options.

ADVANTAGES

- Cheaper than standard options
- Flexibility in setting the barrier level and thus the cost of the option
- Can be linked to any underlying
- Customised to clients exposures

DISADVANTAGES

- The rate protection is contingent upon an "independent" event

PRODUCT SUITABILITY

Complex Defensive/Aggressive

BASIS SWAP

DESCRIPTION

An Interest Rate Swap or Cross Currency Swap where both legs are floating rate. These transactions are used to change the floating rate "basis" from one index to another, e.g. 3 month USD LIBOR to 6 month USD LIBOR or 3 month FFR LIBOR to 3 month DEM LIBOR. The floating indices used in these swaps range from LIBORs of different tenors or different currencies to other floating indices such as US Prime, CP, Fed Funds etc. Basis Swaps are an integral building block of many structured transactions (see Examples) and therefore many derivative users may be unaware that as part of the structure purchased, the bank has utilised a Basis Swap. Basis Risk refers to the risk of having assets or liabilities denominated in a different "basis" than that of any benchmark.

EXAMPLE

Investor

A French fund manager is prohibited from assuming foreign exchange risk. While AA rated French floating rate notes are currently yielding FFR LIBOR plus 12, German paper with the same credit quality and tenor is yielding DEM LIBOR plus 20bp. The fund manager can purchase the DEM paper and enter into a Cross Currency Basis Swap paying DEM LIBOR plus 20bp and receiving FFR LIBOR plus 18bp (see Cross Currency Swap for more information regarding the pricing differential). The fund manager has used a basis swap to change the basis of the asset from DEM LIBOR to FFR LIBOR and eliminate foreign currency exposure at the same time.

Corporate

A company uses a wide range of funding mechanisms taking advantage of the most efficient source of funds at the time. It generally can raise 3yr funding at either LIBOR plus 20bp or CP plus 5bp. It needs to be able to convert to the same basis in order to compare the true funding cost of each. If it was to raise funding at CP plus 5bp, it could enter into a Basis Swap, receiving CP plus 5bp and paying LIBOR plus 18bp for three years, thereby saving 2bp per annum. The company can use Basis Swaps to monitor all the alternative sources of funding and achieve the cheapest net cost at any time.

Structuring

A fund manager is looking to swap a 5yr DEM 8% Coupon bond into a floating rate ESP note. While this can be done via one transaction, technically the transaction has two parts:

> (a) Swapping from Fixed DEM to Floating DEM via an Interest Rate Swap, (pay DEM 8% and receive DEM LIBOR) and
> (b) Swapping from Floating DEM to Floating ESP via a Basis Swap (pay DEM LIBOR and receive ESP LIBOR)

Of course in this instance the receive DEM LIBOR leg of swap 1 and pay DEM LIBOR of swap 2 cancel out.

PRICING

Basis Swap pricing is dependant primarily on the relative implied forward yields for the two indices in

question (see Implied Forwards). For example, if USD LIBOR is implied to average 12% over the next 3 yrs and USD Fed Funds 10%, the 3yr LIBOR/Fed Funds Basis Swap will be priced at -2%, i.e. parties can receive Fed Funds for 3yrs and pay LIBOR less 200bp. For Cross Currency Basis Swaps, the issues confronting traditional Cross Currency Swaps also apply (see the Pricing section under Cross Currency Swaps)

TARGET MARKET

The Basis Swap family is a wide one and therefore suitable to a wide range of users as valuable tool in converting floating rate exposure from one basis to another.

ADVANTAGES

- Customised
- No premiums
- Off balance sheet

DISADVANTAGES

- Requires ISDA documentation

PRODUCT SUITABILITY

Simple Defensive/Simple Aggressive

Basket Options

DESCRIPTION

Basket Options are currency-protected options whose return-profile is based upon the average performance of a pre-set basket of underling assets. The baskets can be interest rate, FX, equity or commodity related. The baskets are often regionally based, e.g. Latin American Equity Basket, or OECD Interest Rate Basket.

There are two basic types of basket. A basket of options is made up by purchasing a number of different options. The payout is therefore the addition of each individual options payout. This is the most simple form and the performance is not dependant on the correlation of the components. Basket options are usually referring to an "option on a basket", where the payout is based on the average performance and therefore is highly dependant on the correlation of components.

EXAMPLE

Assume an Investor has a view that "European" 2 year swap rates will fall over the next year more than that implied in the market. Rather than choose a particular market to enter, they might buy the following Basket option:

Maturity:	One year
Strike:	7.00%
Denomination:	USD
Underlying:	Average 2 year Swap rate of following Italian Lira, Spanish Peseta Deutsche Mark, Sterling, French Franc

The client would then profit if at maturity rates are below 7.00%. The payout is calculated as follows: Notional Amount times (7.00 - Basket), subject to a minimum of zero.

PRICING

The Basket is priced with reference to the individual volatility of each component and the correlation between the components. In the above example, the sensitivity of the basket is akin to the sensitivity of a group of Receiver Swaptions (see "Receiver Swaptions")

TARGET MARKET

This is an ideal product for investors who wish broad exposure to a region. Popular baskets include, G7, G10, Europe, Asia Pacific, Latin America etc.

ADVANTAGES

- Limited loss potential (premium)

- Balanced exposure
- Can be customised

DISADVANTAGES

- Averaging effect of Basket can limit upside
- Premium paid upfront

PRODUCT SUITABILITY

Simple Aggressive

BOUNDED BARRIER CAP

DESCRIPTION

A Bounded Barrier Cap has the features of both the Barrier Cap and the Bounded Cap. The Barrier Cap only pays a return to the buyer when the underlying index, usually LIBOR, is above the defined barrier level, but the Bounded Barrier Cap limits this payout to a defined dollar maximum over the life of the Cap. The Bounded Barrier Cap is therefore cheaper than the Barrier Cap and the traditional Interest Rate Cap.

EXAMPLE

Firstly, read the Example under the Barrier Cap. This Barrier Cap can be changed into a Bounded Barrier Cap by placing a dollar limit on the Cap payout, say at USD 1,000,000. So, at each rate reset, the Cap works as per the Barrier Cap and any payouts made. These payouts are deducted from this notional fund of USD 1,000,000. Once the fund is depleted, no further payments are made. The Cap therefore has a simple maximum payout attached. By limiting the payout, the Cap buyer reduces the premium paid.

PRICING

The Bounded Barrier Cap premium is the Barrier Cap premium with a compensating reduction for the limit placed on the maximum payout. Clearly, the lower the maximum payout, the cheaper the premium. As the limit increases, the premium approaches that of the Barrier Cap. The reduction in premium equals the probability that the limit is breached multiplied by the expected payout in the event of a breach. Therefore the more volatile the underlying index, the greater the premium reduction.

TARGET MARKET

The Bounded Barrier Cap is an alternative structure for more aggressive Cap buyers seeking to reduce the cost of protection. It is not suitable where the buyer is seeking a guaranteed downside limit. It may also be of interest to those parties looking to sell Caps. While the premium generated is lower than the Barrier Cap, the maximum payout, and therefore the worst case, is limited.

ADVANTAGES

- Lower premium
- Customised
- Barrier only effective one period at a time
- Limited loss to floor sellers

DISADVANTAGES

- Less protection than traditional Cap
- Less protection than Barrier Cap

PRODUCT SUITABILITY

Complex Defensive

BOUNDED BARRIER FLOOR

DESCRIPTION

A Bounded Barrier Floor has the features of both the Barrier Floor and the Bounded Floor. The Barrier Floor only pays a return to the buyer when the underlying index, usually LIBOR, is below the defined barrier level, but the Bounded Barrier Floor limits this payout to a defined dollar maximum over the life of the floor. The Bounded Barrier Floor is therefore cheaper than the Barrier Floor and the traditional Interest Rate Floor.

EXAMPLE

Firstly, read the Example under the Barrier Floor. This Barrier Floor can be changed into a Bounded Barrier Floor by placing a dollar limit on the floor payout, say at USD 1,000,000. So, at each rate reset, the floor works as per the Barrier Floor and any payouts made. These payouts are deducted from this notional fund of USD 1,000,000. Once the fund is depleted, no further payments are made. The floor therefore has a simple maximum payout attached. By limiting the payout, the floor buyer reduces the premium paid.

PRICING

The Bounded Barrier Floor premium is the Barrier Floor premium with a compensating reduction for the limit placed on the maximum payout. Clearly, the lower the maximum payout, the cheaper the premium. As the limit increases, the premium approaches that of the Barrier Floor. The reduction in premium equals the probability that the limit is breached multiplied by the expected payout in the event of such a breach. Therefore, the more volatile the underlying asset, the greater the reduction in premium.

TARGET MARKET

The Bounded Barrier Floor is an alternative structure for more aggressive floor buyers seeking to reduce the cost of protection. It is not suitable where the buyer is seeking a guaranteed downside limit. They are also attractive to potential Barrier Floor sellers. While the premium generated is lower, the maximum payout, and therefore the worst case, is limited.

ADVANTAGES

- Lower premium
- Customised
- Barrier only effective one period at a time
- Limited loss to floor sellers

DISADVANTAGES

- Less protection than traditional floor
- Less protection than Barrier Floor

PRODUCT SUITABILITY

Complex Defensive

BOUNDED CAP

DESCRIPTION

A Bounded Cap is a modified Interest Rate Cap. The payout on a Bounded Cap is the same as an Interest Rate Cap but the payout over the life of the cap is limited (or Bounded) to a fixed dollar amount. The Bounded Cap is therefore cheaper than an Interest Rate Cap. The Bounded Cap is also known as a B Cap.

EXAMPLE

A Company is considering buying a 3yr Interest Rate Cap struck at 8% for a total premium of say 110bp. This would provide a guaranteed maximum cost of funds of 8%. Alternatively, the company could purchase a 3 yr 8% Bounded Cap, with a maximum payout of say USD 1,000,000 for a premium of say 77bp. So, each reset date, the cap would operate like a traditional cap. Any payout would be deducted from this notional fund of USD 1,000,000. Once depleted, no further payments are made. The buyer is therefore limiting the protection provided by the cap to only USD 1,000,000, and in return saves 33bp or 30% of the premium.

PRICING

The Bounded Cap is driven by the same factors as the Interest Rate Cap with a reduction to compensate the buyer for limiting their upside. Clearly, the lower the limit is set, the cheaper the premium. As the limit is increased, the premium approaches that of the traditional cap. The premium reduction is therefore equal to the probability that the limit is breached multiplied by the expected payout above the limit. The more volatile the underlying, the greater the reduction in premium.

TARGET MARKET

The Bounded Cap is an alternative structure for more aggressive Cap buyers seeking to reduce the cost of protection. It is not suitable where the buyer is seeking a guaranteed downside limit. The Bounded Cap is also of interest to those interested in selling Caps. While the premium generated is lower than a traditional Cap, the maximum payout and therefore the worst case is known. It is therefore a lower risk alternative

ADVANTAGES

- Lower premium
- Customised
- Barrier only effective one period at a time
- Limited loss to Cap sellers

DISADVANTAGES

- Less protection than traditional Cap

PRODUCT SUITABILITY

Complex Defensive

BOUNDED FLOOR

DESCRIPTION

A Bounded Floor is a modified Interest Rate Floor. The payout on a Bounded Floor is the same as an Interest Rate Floor but the payout over the life of the floor is limited (or Bounded) to a fixed dollar amount. The Bounded Floor is therefore cheaper than an Interest Rate Floor. The Bounded Floor is also known as a B Floor.

EXAMPLE

An investor is considering buying a 3yr Interest Rate Floor struck at 8% for a total premium of say 110bp. This would provide a guaranteed minimum return on their assets of 8%. Alternatively, the investor could purchase a 3 yr 8% Bounded Floor, with a maximum payout of say USD 1,000,000 for a premium of say 77bp. So, each reset date, the floor would operate like a traditional floor. Any payout would be deducted from this notional fund of USD 1,000,000. Once depleted, no further payments are made. The buyer is therefore limiting the protection provided by the floor to only USD 1,000,000, and in return saves 33bp or 30% of the premium.

PRICING

The Bounded Floor is driven by the same factors as the Interest Rate Floor with a reduction to compensate the buyer for limiting their upside. Clearly, the lower the limit is set, the cheaper the premium. As the limit is increased, the premium approaches that of the traditional floor. The premium reduction is therefore equal to the probability that the limit is breached multiplied by the expected payout above the limit. The more volatile the underlying, the greater the reduction in premium.

TARGET MARKET

The Bounded Floor is an alternative structure for more aggressive Floor buyers seeking to reduce the cost of protection. It is not suitable where the buyer is seeking a guaranteed downside limit. The Bounded Floor is also of interest to those interested in selling Floors. While the premium generated is lower than a traditional floor, the maximum payout and therefore the worst case is known. It is therefore a lower risk alternative.

ADVANTAGES

- Lower premium
- Customised
- Barrier only effective one period at a time
- Limited loss to floor sellers

DISADVANTAGES

- Less protection than traditional Floor

PRODUCT SUITABILITY

Complex Defensive

BREAK FORWARD

DESCRIPTION

A foreign exchange forward contract where one party has the right, but not the obligation to terminate the contract at one or more pre-determined times during the life of the transaction. Also known as a Cancellable Forward. The interest rate version of the Break Forward is known as a Cancellable Swap.

EXAMPLE

A Belgian company owns a factory in Japan. At the current exchange rate, one Belgian Franc buys 3.5 Yen. There is some concern in the company about Yen depreciation over the medium term. The company has investigated selling Yen forward for 5 years against Francs. The forward exchange rate is 3.2. The forward points are therefore "in-favour" of the company (i.e. the forward exchange rate is "better" than the spot rate). Rather than lock themselves into this forward rate, the company could elect to enter into a Break Forward at say 3.32. While the forward rate is not as attractive, the Break Forward gives the company the right to terminate the contract after 3 years. This option gives the company the flexibility to re-assess the situation in the future. If after three years, they choose to cancel the forward transaction, no payment is necessary.

PRICING

A simple Break Forward (i.e. the right to cancel once only) is a FX Forward plus a bought option. If for example there is the right to cancel a 7 year Forward purchase of DEM vs USD after 3 years, the Break Forward is a 7 year FX Forward (Buying DEM) plus a 3 year put option on 4 year Forward DEM, where the strike rate on the put is equal to the rate quoted on the Break Forward. The worse than market forward rate for the Break Forward is to pay for the purchased put option.

Where there is more than option to cancel, the Break Forward is an FX Forward plus a series of Contingent Options, i.e. the second right to cancel is contingent upon the first right to cancel not being exercised.

In general, the "cost" of the Break Forward (the difference between the Break Forward rate and the market FX Forward rate) is dependent upon four key variables:

(a) Forward point volatility. Higher volatility will lead to higher costs
(b) Number of rights to cancel. Generally, the more rights, the higher the cost.
(c) Time to first right to cancel. Generally, the longer the period, the higher the cost.
(d) The implied movement in forward points. The cost of the option will clearly depend on the relationship between the current forward points and the points implied for the period of the option (see Implied Forwards).

Like all derivatives, particularly options, the Break Forward is priced assuming that the counterparty acts in an economically rational way. With simple Break Forwards (i.e. one right to cancel), if the spot rate has fallen below the original Break Forward rate, it is in the best interest of the company to cancel the Break Forward and replace it with a plain vanilla FX Forward at the then prevailing market rate.

TARGET MARKET

Break Forwards are suitable for any institution interested in forward foreign exchange where there is a desire either to protect against adverse rate movements in the future, or where there is a business reason why the forward contract may need to be cancelled at some point in the future and the company wishes to protect itself against the potential costs of unwind.

ADVANTAGES

- Right to cancel effectively limits downside
- No up front premium
- Written as one contract (i.e. not Forward PLUS Option)
- Customised
- Flexible

DISADVANTAGES

- Worse forward rate than the traditional FX Forward

PRODUCT SUITABILITY

Complex Defensive

CALLABLE SWAP

DESCRIPTION

An Interest Rate Swap where the fixed rate payer has the right, but not the obligation to terminate the swap at one or more pre-determined times during the life of the swap. A Swap where the fixed rate receiver has the right to terminate is known as a Putable Swap. Both the Callable and Putable Swaps are also known as Cancellable Swaps. The foreign exchange version of the Cancellable Swap is known as a Break Forward or Cancellable Forward.

EXAMPLE

An Italian company has recently made a corporate acquisition and funded the purchase by raising floating rate debt at ITL LIBOR plus 50bp. Concerned about the possibility of rate rises in Italy, the company is considering entering into an Interest Rate Swap for 7 years in order to convert the floating rate liability into fixed rate at 8.25%. While the Board of Directors have always intended to retain the business for the long term, there is a 30% chance that they would elect to float the business on the local share market after 3 to 5 years. If they enter the traditional Interest Rate Swap they are concerned about the future potential unwind costs should the early sale proceed (this would result in a loss to the company if rates to the then swap maturity are lower than 8.25%). Alternatively, they could enter the Callable Swap at a rate of 8.75% with the right to cancel the swap at no further cost at the end of 3 years or the end of 5 years. The company will pay the higher than market rate (8.75%) and receive ITL LIBOR. At the end of 3 years, if they choose not to cancel the swap, the Swap continues at these rates and they retain the right to cancel at the end of 5 years. Should the choose to cancel the swap after 3 or 5 years, the swap ceases at that point at no cost to the company.

Callable Swaps are also used by investors to Asset Swap Callable Bonds. If the Bond is called by the issuer, the investor can in turn call (i.e. cancel) the Swap. The Callable swap can also be used merely as a mechanism to protect the fixed rate payer from adverse rate movements in the future. In effect it gives the payer a chance to change their mind about paying fixed.

PRICING

A simple Callable Swap (i.e. the right to cancel once only) is an Interest Rate Swap plus a bought Receiver Swaption. If for example there is the right to cancel a 7 year swap after 3 years, the Callable Swap is a pay fixed 7 year Interest Rate Swap plus a 3 year into 4 year Receiver Swaption where the strike rate on the swaption is equal to the rate quoted on the Callable Swap. The higher than market swap rate for the Callable Swap is to pay for the purchased Receiver Swaption.

Where there is more than option to cancel, the Callable Swap is an Interest Rate Swap plus a series of Contingent Swaptions, i.e. the second right to cancel is contingent upon the first right to cancel not being exercised.

In general, the "cost" of the Callable Swap (the difference between the Callable Swap rate and the market swap rate) is dependent upon four key variables:

(a) Interest rate volatility. Higher volatility will lead to higher costs (see Receiver Swaption Pricing)
(b) Number of rights to cancel. Generally, the more rights, the higher the cost.
(c) Time to first right to cancel. Generally, the longer the period, the higher the cost.

(d) The shape of the yield curve. The cost of the Receiver Swaption will clearly depend on the relationship between the current swap rate and that rate implied for the period of the swaption (see Implied Forwards). If a curve is positively sloped, steeper curves will lead to lower cost as the strike on the Receiver Swaption will tend to be out-of-the-money. For negatively sloped curves, very negative curves will lead to higher costs as the strike on the Receiver Swaption will tend to be in-the-money.

Like all derivatives, particularly options, the Callable Swap is priced assuming that the counterparty acts in an economically rational way. With simple Callable Swaps (i.e. one right to cancel), if rates have fallen below the original Callable Swap rate, it is in the best interest of the company to cancel the swap and replace it with a plain vanilla swap at the then prevailing market rate.

TARGET MARKET

Callable Swaps are suitable for any fixed rate payer where there is a desire either to protect against adverse rate movements in the future, or where there is a business reason why the swap may need to be cancelled at some point in the future and the company wishes to protect itself against the potential costs of unwind. There is also clearly a demand for Callable Swaps from buyers of Callable bonds if they wish to Asset Swap the bonds.

ADVANTAGES

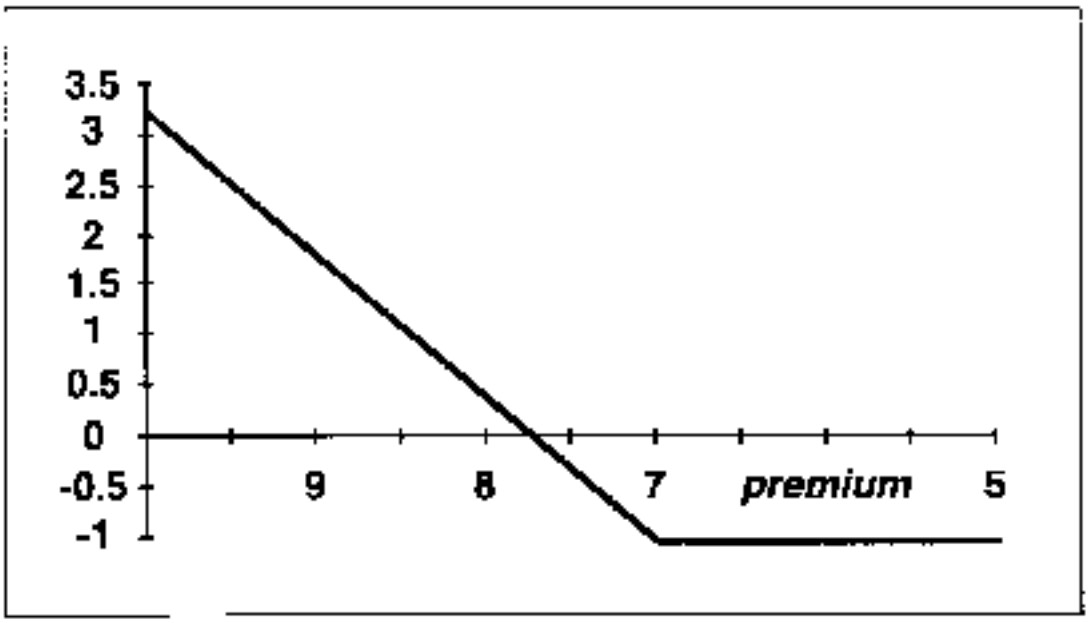
- Right to cancel effectively limits downside
- No up front premium
- Written as one contract (i.e. not Swap PLUS Swaption)
- Customised
- Flexible

DISADVANTAGES

- Higher Swap rate than the traditional swap

PRODUCT SUITABILITY

Complex Defensive


3.5
3
2.5
2
1.5
1
0.5
0
-0.5
-1
9
8
7
premium
5

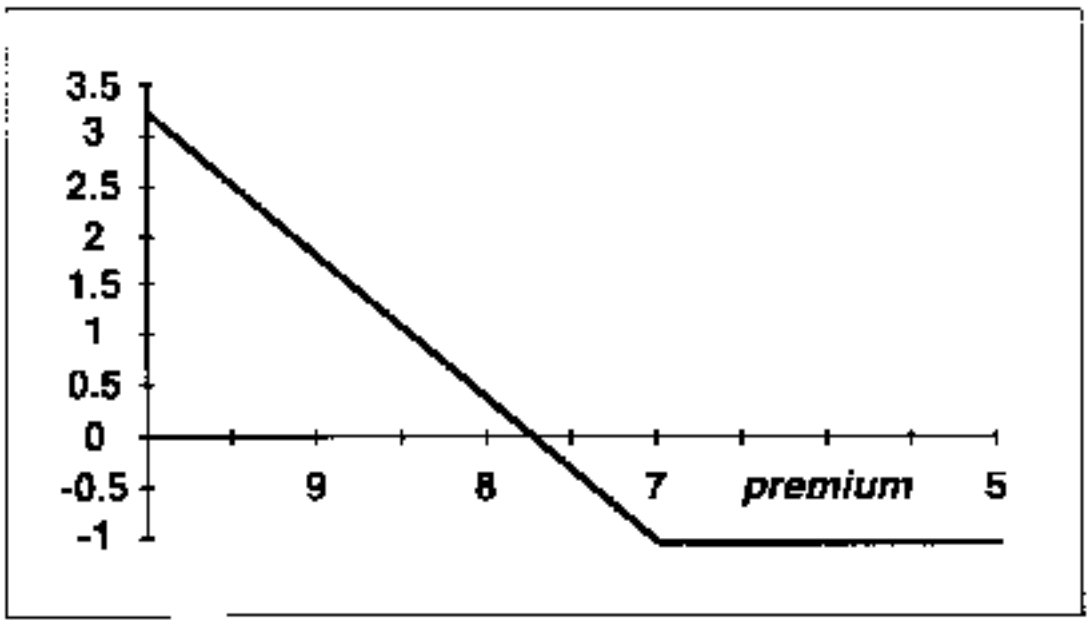
Interest Rate Cap

DESCRIPTION

An Interest Rate Cap is a contract that guarantees a maximum level of Libor. A Cap can be a guarantee for one particular date, known as a Caplet. A series of Caplets, or Cap can extend for up to 10 years in most markets. Caps are also known as Ceilings. In return for making this guarantee, the buyer pays a PREMIUM. Caps generally guarantee a maximum level of either 3 or 6 month Libor or whatever the prevailing floating rate index is in the particular market. The clients maximum loss on a Cap transaction is the premium.

After purchasing the Cap, the buyer can make "claims" under the guarantee should Libor be above the level agreed on the Cap on the settlement dates. A Cap is NOT a continuous guarantee, claims can only be made on specified settlement dates. These dates are selected by the purchaser.

Should the buyer never be required to make a claim under the Cap, the option will expire worthless. At settlement a Caplet has a profit profile as follows:



When Libor is below the strike 7.00%, the Caplet has no value. Claims will only be made when Libor is above 7.00%. The break even is therefore the strike plus the premium.

PRICING/VALUE

The Cap price (premium) has two major components:

(a) Intrinsic Value

When the strike of the Cap is LOWER than the Implied Forward rate, the Cap is said to have Intrinsic Value. The Implied Forward is the market expected rate, and therefore if we seek a guarantee of a lower rate, the expected value of the Cap is positive, so it has Intrinsic Value. A Cap that has a strike lower than the implied forward (i.e. has positive Intrinsic Value), is described as IN THE MONEY. A Cap with

negative Intrinsic Value, is described as OUT OF THE MONEY A Cap set at the implied forward is described as AT THE MONEY FORWARD. A Cap set at the current Libor level is AT THE MONEY SPOT.

Higher Intrinsic Value leads to a higher premium.

The relevant Implied Forward is the Swap rate for the period of the Cap or the FRA rate for a Caplet.

(b) Time Value

The Cap is a guarantee of a future rate. The implied forward rate will change over time as the market changes its view of future rates. The price of the Cap will therefore depend on the likelihood that the market will change its view. This likelihood of change is measured by volatility. An instrument expected to be volatile between entry and maturity will have a higher price than a low volatility instrument. The volatility used in calculating the price should be the expected future volatility. This is based on the historic volatility.

As time goes by, the volatility will have less and less impact on the price, as there is less time for the market to change its view. Therefore, in a stable market, the passing of time will lead to the Cap FALLING in value. This phenomenon is known as Time Decay. This increases in severity as we get closer to maturity.

REVERSING CAPS

Bought Caps can be sold at any time. The value of the Cap will depend on the same factors above, Intrinsic value and Time Value. The Intrinsic Value is calculated by comparing the strike with the Implied Forward levels . The Time Value will depend on the amount of time left before maturity (less time less value) and the volatility of the underlying instrument (high volatility higher value)

TARGET MARKET

Caps have two major Target Markets:

(a) Borrowers - For borrowers who have loans that reset against Libor, Caps offer an ideal method of providing a maximum cost of interest. Here the Cap is used like an insurance policy. The buyer purchases insurance against Libor rising above a certain level and pays a premium.

(b) Speculators - Investors who believe short term rates will rise can buy a Cap. They will profit when rates are above this level and will limit loss to the cost of the premium.

STRATEGY

The further the strike is set OUT OF THE MONEY, the cheaper the Cap, as the probability of payout is less, therefore the Cap is considered to be more LEVERAGED. As rates rise the Cap will increase in value as it becomes closer to
the money.

It is therefore an interesting strategy to buy OUT OF THE MONEY Caps for a small premium which will increase in value dramatically (due to the leverage) as rates rise.

The Cap can then be sold. This is a trading strategy rather than buy and hold strategy.
Sophisticated Investors or Borrowers may like to SELL Caps. This is also known as writing Caps.

In this case the seller is PROVIDING the guarantee and therefore has an unlimited loss potential. The profit from this strategy is limited to the premium earned and will occur when there are no claims against the Cap.

ADVANTAGES

- Limited loss potential (bought Caps only)
- Unlimited upside
- Easy to reverse at any time

DISADVANTAGES

- Upfront cost inform of premium
- Time decay and volatility changes can offset the increase in Intrinsic Value. This can lead to a Cap losing value despite rates rising in line with expectation.

PRODUCT SUITABILITY

Bought Caps: Simple Defensive

Sold Caps : Simple Aggressive

SUMMARY

- HIGHER INTRINSIC VALUE, HIGHER PREMIUM
- HIGHER VOLATIUTY, HIGHER PREMIUM
- LONGER PERIOD OF CAP, HIGHER PREMIUM
- LONGER TIME TO MATURITY, HIGHER PREMIUM

CAPTION

DESCRIPTION

A Caption is simply the right but not the obligation to buy or sell an Interest Rate Cap at some defined point in the future for a defined premium. As an option on an option, it is therefore part of the family of product known as Compound Options. At maturity of the Caption, if the underlying Interest Rate Cap is then cheaper in the market than that premium pre-determined in the Caption agreement, the buyer will let the option expire. If the underlying cap is more expensive in the market, the buyer can elect to buy the cap as described in the Caption agreement. The same agreement, but with reference to a floor, is known as a Floortion. There are four types of Caption:

(a) Buy the right to buy a Cap in the future (i.e. you have the right to buy)
(b) Sell the right to buy a Cap in the future (i.e. the other party can force you to buy)
(c) Buy the right to sell a Cap in the future (i.e. you have the right to sell)
(d) Sell the right to sell a Cap in the future (i.e. the other party can force you to sell)

EXAMPLE

A company is considering a AUD 100 million acquisition over the next 12 months. The company is concerned that by the time the acquisition is agreed, interest rates may be higher. The company is considering the purchase of a 5 year 8% Interest Rate Cap starting in 12 months for a total premium of 360bp. They are concerned that should the acquisition not proceed, they will have no need for the cap and will then be required to sell the cap at then market price that may or may not be at a loss to the company. Alternatively they can consider a Caption. By paying 100bp today, the company could purchase the right to buy a 5 year 8% Interest Rate Cap in 12 months time for say 360bp. The total cost today is 100bp. If at the end of 12 months, the acquisition has been made and interest rates have indeed risen, the company can check the then cost of a 5 year 8% cap in the market and if more than 360bp, can elect to exercise their option and pay the agreed premium amount of 360bp for the cap. The total outlay in this example would be 460bp, 100bp more than the original cap price. If at the end of 12 months, the acquisition did not proceed, the company can elect not to purchase the cap. In this instance the total loss to the company is only 100bp rather than the 360bp they would have lost by purchasing the cap. While the overall cost may be greater (the buyer can end up paying two premiums), the downside is substantially smaller and limited only to the initial Caption premium.

Of course, whether the acquisition proceeds or not, the decision on whether to proceed with the cap or not is purely an economic decision. If at the time, the cap described under the Caption agreement is cheaper than the same cap bought in the market, the company should always exercise their option. If they do not require the cap for their own use, they can sell it immediately in the market and secure a profit.

PRICING

The Caption price is dependent upon the same variables as all options (see Compound Options):

(a) Strike price (in this case the agreed future cap premium)
(b) Volatility (more complex as this is now the volatility of the underlying cap, which in itself is driven by volatility!)
(c) Time to maturity (the longer the option period, the more expensive the option)

For a more detailed discussion of these variables and the impact on option pricing, see the pricing section under Interest Rate Caps.

TARGET MARKET

Captions are a suitable alternative for any potential Interest Rate Cap buyer particularly where the buyer is seeking higher leverage or looking to reduce the initial premium cost. (see Compound Options)

ADVANTAGES

- Lower initial premium
- Increased leverage
- Allows the buyer increased flexibility
- Customised

DISADVANTAGES

- Overall premium may be higher if option exercised
- Requires ISDA documentation

PRODUCT SUITABILITY

Complex Defensive/Complex Aggressive

CROSS CURRENCY SWAP

DESCRIPTION

Similar to an Interest Rate Swap but where each leg of the swap is denominated in a different currency. A Cross Currency Swap therefore has two principal amounts, one for each currency. Normally, the exchange rate used to determine the two principals is the then prevailing spot rate although for delayed start transactions, the parties can either agree to use the forward FX rate or agree to set the rate two business days prior to the start of the deal. With an Interest Rate Swap there is no exchange of principal at either the start or end of the transaction as both principal amounts are the same and therefore net out. For a Cross Currency Swap it is essential that the parties agree to exchange principal amounts at maturity. The exchange of principal at the start is optional (see Corporate example below).

Like all Swaps, a Cross Currency Swap can be replicated using on-balance-sheet instruments, in this case loan and deposits in different currencies. This explains the necessity for principal exchanges at maturity as all loans and deposits also require repayment at maturity. While the corporate or investor counterparty can elect not to exchange principal at the start, the bank needs to. This initial exchange can be replicated by the bank by entering into a spot exchange transaction at the same rate quoted in the Cross Currency Swap.

Loosely speaking, all foreign exchange forwards can be described as Cross Currency Swaps as they are agreements to exchange two streams of cashflows (in this case a stream of one!) in different currencies. Many banks manage Long Term Foreign Exchange Forwards as part of the Cross Currency Swap business given the similarities. Like all FX Forwards, the Cross Currency Swap exposes the user to foreign exchange risk. The swap leg the party agrees to pay is a liability in one currency, and the swap leg they have agreed to receive, is an asset in the other currency.

One of the major market users for Cross Currency Swaps are Debt issuers, particularly in the Euro-markets where issuers sell bonds in the "cheapest" currency and swap their exposure to their desired currency (see Pricing).

A Cross Currency Swap where both legs are floating rate is part of the Basis Swap product family. Cross Currency Swaps are also known as a CIRCA (a Currency and Interest Rate Conversion Agreement).

EXAMPLE

Investor

A fund manager is seeking to purchase 3 yr DEM assets with a minimum credit rating of AA and a yield in excess of LIBOR plus 12. A review of the DEM Floating Rate Note market and even the DEM fixed rate bond market swapped into floating rate using an Asset Swap, shows that no such assets exist in reasonable volume. A 3 yr GBP AA rated Corporate bond can be purchased at a yield of GBP LIBOR plus 18bp for a total price of GBP 10,000,000. The prevailing exchange rate is 2.50. The fund manager can purchase the bond for GBP10,000,000 and simultaneously enter into a Cross Currency Swap agreeing to pay GBP LIBOR plus 18bp and receive DEM LIBOR plus 15bp (see Pricing for an explanation of the price differential). The spot rate is set at 2.50 and the fund manager elects to exchange principal at the start.

The initial cashflows are as follows:

Investor buys bond:	-GBP 10,000,000
Cross Currency Swap:	+GBP 10,000,000
	-DEM 25,000,000

The swap agreement nets out the initial GBP flow and replaces it with an equivalent DEM flow. Over the life of the bond, the fund manager pays the GBP coupons (LIBOR plus 18bp) to the bank counterparty and receives DEM LIBOR plus 15bp. At maturity, the following flows occur irrespective of the prevailing exchange rate:

Bond Redeems to Investor:	+GBP 10,000,000
Cross Currency Swap:	-GBP 10,000,000
	-DEM 25,000,000

Again, the GBP bond flows are cancelled out by the swap flows leaving a DEM redemption to the investor. By using the Cross Currency Swap the fund manager has created a synthetic DEM Floating Rate Asset.

The fund manager does not wear any currency exposure as the currency exposure created by the swap (i.e. de asset, GBP liability) is offset by the currency exposure created by the purchase of the GBP bonds (i.e. GBP asset), leaving a net position only in the base currency of DEM. Of course, the investor bears the full credit risk of the underlying bond and should the bond default, the investor is still obliged to make all remaining payments under the swap or reverse the swap at its then book value.

Issuer

A New Zealand company is looking to raise NZD 100 million by issuing 10 year bonds. In the New Zealand domestic market, it would issue at a yield of LIBOR plus 25bp. Alternatively it can issue in Australia where there is a shortage of quality bonds, at a yield of 7.50%. It can then enter into a 10 year Cross Currency Swap for a notional amount of NZD 100 million agreeing to receive AUD 7.50% and pay NZD LIBOR plus 20bp (see Pricing). The prevailing spot rate is 1NZD = 0.90AUD. The initial cashflows are as follows:

Company issues bond:	+AUD 90,000,000
Cross Currency Swap:	-AUD 90,000,000
	+NZD 100,000,000

The swap agreement nets out the initial AUD flow and replaces it with an equivalent NZD flow which the company can use to fund its operations as planned. Over the life of the bond, the company receives the AUD coupons from the bank counterparty that it owes to the bond investors, and pays instead NZD LIBOR plus 20bp.

At maturity, the company will receive the AUD bond principal amount it owes the Bond investors from the swap counterparty, and in return is required to pay NZD 100 million irrespective of the then spot rate. Using the Cross Currency Swap, the company has created a synthetic NZD liability.

Corporate

A multinational company uses USD as its base currency. The company has assets denominated in many different currencies, but the Board or Directors is particularly concerned about the assets denominated in Spanish Peseta, which represent over 20% of the company. While the assets are intended to be held for the long term the Board is concerned that any fluctuations in the spot rate will lead to an increase in the volatility of earnings. In total, there are ESP 120bn Spanish assets with no corresponding ESP liabilities. The majority of company liabilities are denominated in USD. The currency exchange rate is 1USD = 120ESP. The company has considered raising ESP debt in the Spanish market and repaying USD debt as a way to hedge this exposure, however the company is not well known in Spain and would need to pay LIBOR plus 45bp in order to do so. Alternatively, the company can enter into a Cross Currency Swap as follows:

ESP Principal:	ESP 120 billion
USD Principal:	USD 1 billion
Tenor:	10 years (to match the long term nature of the assets)
Company pays:	ESP LIBOR plus 5 bp
Company receives:	USD LIBOR

In this situation, the company would like to create a synthetic ESP liability to offset the ESP assets it owns. There is no new requirement to generate cash and so the company elects not to exchange principal at the start of the deal, so there are no initial cashflows. In effect, the company has transferred some of its USD liabilities into ESP liabilities to offset the ESP assets it owns and thereby reduce its currency exposure. From this point on, any currency loss on the assets will be offset by a corresponding currency gain on the Cross Currency Swap. In this example, the Cross Currency Swap has been used as an effective Foreign Exchange hedge much like the use of an FX forward contract.

PRICING

The pricing in a Cross Currency Swap reflect that level where the market is indifferent to receiving the cashflows on either leg (see Pricing section in Interest Rate Swap). Each leg of the swap can be considered on its own. At the inception of the swap, the present value of one leg (which is calculated using the prevailing zero coupon yield curve for that currency) must be equal to the present value of the other leg at the then prevailing spot rate. Using this simple logic, it would seem natural that a stream of LIBOR flat payments in one currency could be exchanged for a stream of LIBOR flat payments in another currency. This is not always true and the reason is generally a simple case of supply and demand. Where there is excessive demand for Cross Currency Swaps between two particular currencies (or FX Forwards for that matter), the price will tend to rise, and vice versa. This may or may not be to the advantage of the swap user. In general, the price difference is limited to plus or minus 10bp.

Like FX forwards, three things influence the price and value of a Cross Currency Swap:

(a) The yield on currency one
(b) The yield in currency two

(c) The spot exchange rate

TARGET MARKET

There are three clear target markets:

(a) Investors who wish to purchase foreign assets but seek to eliminate foreign currency exposure
(b) Debt issuers who can achieve more favourable rates by issuing debt in foreign currency
(c) Liability managers seeking to create synthetic foreign currency liabilities

ADVANTAGES

- Off Balance Sheet
- Can be cheaper than the cash markets (i.e. issuing foreign currency bonds directly)
- Can elect to exchange principal at the start if desired
- Simple documentation compared to cash markets (i.e. issuing a bond, arranging a loan)
- Can be customised
- Can be reversed at any time (albeit at a cost or benefit)

DISADVANTAGES

- Unlimited loss potential

PRODUCT SUITABILITY

Simple Defensive/Simple Aggressive

CHOOSER FLEXIBLE CAP

DESCRIPTION

A Chooser Flexible Cap is a modification of the Flexible Cap. While the number of cap "uses" is still limited, the buyer can choose when to use the cap rather than have it automatically exercised. This offers the buyer even more flexibility. If LIBOR is only marginally above the strike rate, the buyer can choose not to utilise the cap and use it potentially at a later date when it may be more valuable. Of course this decision will depend upon a number of factors including the time to maturity, and the number of "uses" left and the expected volatility of the underlying asset. Of course, through this decision process it is possible that the buyer does not utilise the cap to its fullest potential by delaying use to a later date and then it not being required. A Chooser Flexible Cap where the notional amount increases each time the cap is not exercised is known as a Super Flexible Cap.

EXAMPLE

Firstly read the Example under Flexible Cap. With the Chooser Flexible Cap, the buyer has the right to choose when to utilise the cap. If for example the first LIBOR setting is 11.00%, 1% above the strike and with 3 years to run, they would probably choose to utilise the cap. They now have three uses left. If at the next reset, LIBOR is 10.10%, only 10bp above the strike, the buyer may elect not to use the cap but leave it as it may be more valuable at a later date. Of course, it is possible that through the buyers decisions, the full four uses of the cap are not utilised even though they could have been.

PRICING

The Chooser Flexible Cap premium is always less than the premium on a traditional Interest Rate Cap with the same strike. Of course, as the number of choices increase, the premium approaches that of an Interest Rate Cap. In fact, a Chooser Flexible Cap with the number of choices set at the same level as the number of LIBOR resets over the life of the cap, is the same as an Interest Rate Cap. While it is more flexible for the buyer, the Chooser feature may or may not be beneficial as it assumes that the buyer will make optimal decisions. Of course, all derivative pricing assumes rational choice and so the buyer may perceive more value in the Chooser feature than exists economically.

TARGET MARKET

The Chooser Flexible Cap is a suitable alternative to the Interest Rate Cap and Flexible Cap particularly where the view of the buyer is that while there is a risk that rates may rise above the strike, they are unlikely to do so for an extended period of time. They are most suitable for buyers willing to take an active role in risk management as they require on-going management.

ADVANTAGES

- Lower premium than traditional cap
- Customised
- Flexibility
- More targeted rate protection

DISADVANTAGES

- On-going management required
- Risk of sub-optimal decisions

PRODUCT SUITABILITY

Complex Defensive

CHOOSER FLEXIBLE FLOOR

DESCRIPTION

A Chooser Flexible Floor is a modification of the Flexible Floor. While the number of floor "uses" is still limited, the buyer can choose when to use the floor rather than have it automatically exercised. This offers the buyer even more flexibility. If LIBOR is only marginally below the strike rate, the buyer can choose not to utilise the floor and use it potentially at a later date when it may be more valuable. Of course this decision will depend upon a number of factors including the time to maturity, and the number of "uses" left and the expected volatility of the underlying asset. Of course, through this decision process it is possible that the buyer does not utilise the floor to its fullest potential by delaying use to a later date and then it not being required. A Chooser Flexible Floor where the notional amount increases each time the floor is not exercised is known as a Super Flexible Floor.

EXAMPLE

Firstly read the Example under Flexible Floor. With the Chooser Flexible Floor, the buyer has the right to choose when to utilise the floor. If for example the first LIBOR setting is 7.00%, 1% below the strike and with 3 years to run, they would probably choose to utilise the floor. They now have three uses left. If at the next reset, LIBOR is 7.90%, only 10bp below the strike, the buyer may elect not to use the floor but leave it as it may be more valuable at a later date. Of course, it is possible that through the buyers decisions, the full four uses of the floor are not utilised even though they could have been.

PRICING

The Chooser Flexible Floor premium is always less than the premium on a traditional Interest Rate Floor with the same strike. As the number of choices increases, the premium approaches that of an Interest Rate Floor, in fact if the number of choices is the same as the number of LIBOR resets over the life of the floor, it is the same as an Interest Rate Floor. While it is more flexible for the buyer, the Chooser feature may or may not be beneficial as it assumes that the buyer will make optimal decisions. Of course, all derivative pricing assumes rational choice and so the buyer may perceive more value in the Chooser feature than exists economically.

TARGET MARKET

The Chooser Flexible Floor is a suitable alternative to the Interest Rate Floor and Flexible Floor particularly where the view of the buyer is that while there is a risk that rates may fall below the strike, they are unlikely to do so for an extended period of time. They are most suitable for buyers willing to take an active role in risk management as they require on-going management.

ADVANTAGES

- Lower premium than traditional floor
- Customised
- Flexibility
- More targeted rate protection

DISADVANTAGES

- On-going management required
- Risk of sub-optimal decisions

PRODUCT SUITABILITY

Complex Defensive

Chooser Option

DESCRIPTION

A Chooser Option is part of the Compound Option family (see "Compound Options"). At inception, the Chooser Option has a strike, a "chooser" date, and a final maturity date. At the chooser date, the buyer can choose whether the underlying option to final maturity is a Call or Put.

EXAMPLE

A private investor who mainly trades on technical data is convinced that a major movement is about to happen in the FTSE 100 index. On the charts that are available it is clear that the FTSE index is currently trading very close to a major support line at 3000. The investor believes that the support level will not be broken and that the FTSE will move up strongly. On the other hand a breach of the support level is seen as a major turn in market sentiment and will most likely be followed by a sharp drop in the index. The investor traditionally would enter into a straddle (bought Call and bought Put). However, a potentially better strategy is to enter into a 1 month Chooser Option on a 5 month FTSE option with a strike of 3000. At the end of the month, the investor has the choice of a 5 mth 3000 Put or a 5 mth 3000 Call.

PRICING

The main determinant of the price of a Chooser Option will be the volatility level of the underlying asset. The higher the volatility, the more likely the chosen option will be deep in the money, therefore the option will be more expensive. A Chooser Option will be cheaper than a straddle strategy (buying a call and a put at the same strike) as after the chooser date, the buyer has only one option. The Chooser will always be more expensive than a straight Call or Put as the buyer has more flexibility.

TARGET MARKET

A Chooser Option is valid for clients who expect strong volatility in the underlying but who are uncertain about the direction. it is therefore ideal mechanism to take positions on volatility.

ADVANTAGES

- Buyer has the choice of Call or Put
- Cheaper than a straddle
- Directional view is not necessary

DISADVANTAGES

- More expensive than a single call or put

PRODUCT SUITABILITY

Complex Aggressive

Cliquet Options

DESCRIPTION

A Cliquet Option settles periodically and resets the strike at the then spot leyel. It is therefore a series of at-the-money options, but where the total premium is determined in advance. A Cliquet can be thought of as a series of "pre-purchased" at-the-money options. The payout on each option can either be paid at the final maturity, or at the end of each reset period.

EXAMPLE

A three year Cliquet Call on the FTSE with annual resets is a series of three annual at-the-money spot calls. The initial strike is set at say 3000. If at the end of year one, the FTSE closes at 3300, the first call matures 10% in-the-money and this amount is paid to the buyer. The call strike for year 2 is then reset at 3300. If at the end of year 2, the FTSE closes at 2900, the call will expire worthless. The call strike for year 3 is then reset at 2900. The alternative strategy would be to buy a one year at-the-money call and at the end of year one, buy another at-the-money one year call, and so on. The difference is that the cost of the Cliquet is known in advance, whereas the future cost of at-the-money calls is unknown. If volatility is LOWER than expected, the Cliquet will be more expensive than buying the calls annually, if volatility is HIGHER than expected, the Cliquet will be cheaper. A Cliquet option is therefore more attractive when volatility is expected to RISE.

The major advantage of the Cliquet, is that the probability of some payout is high. Over the 3 year period, the chance that the market will close lower for three consecutive years, is much lower than the probability that the market will close lower at the END of three years i.e. there is a high probability that even if the market closes lower after three years, that it will have closed higher in at least one of the three years.

PRICING

A Cliguet is a series of at-the-money options. We can calculate the expected value of these options by generating the implied forward volatility curve (some methodology as generating implied forward interest rates. See "Implied Forwards"). The Cliquet premium is the present value of the premiums for the option series. A Cliquet call is always more expensive than a straight at-the-money call with the same final maturity.

The number of reset periods is determined by the buyer in advance. More resets make the option more expensive. A Coupe is a cheaper alternative to the Cliquet (see "Coupe Options").

TARGET MARKET

The Cliquet is suitable for investors with a medium term investment horizon. It is less risky than ordinary medium term options, as there is less specific risk i.e. the reset facility gives the buyer a "second" and "third" chance. This increases the chance of payout, but must be balanced with the higher premium cost. As a series of "pre-purchased" options, the Cliquet is attractive to passive investors as it requires no intermediate management. They have traditionally been attractive to retail and private investors when embedded in deposits and bonds (see "Structured Assets ") as they provide a low risk (capital

guaranteed) exposure to equity and Bond markets. Sophisticated investors use Cliquets to take advantage of future assumptions about volatility.

ADVANTAGES

- There isa "second chance" as the strike is periodically reset
- Ideal medium term, passive investment
- Locks in the future cost of volatility

DISADVANTAGES

- More expensive than straight options with same final maturity

PROOUCT SUITABILITY

Complex Aggressive/Defensive

Compound Options

DESCRIPTION

A Compound Option is an option where the underlying is another option. This option has two elements: 1) the upfront premium and 2) the strike premium which will have to be paid later if the compound right is exercised. The upfront premium gives the right to buy or sell a specific option at the strike premium.

EXAMPLE

A major contracting company is tendering for the contract to build two hotels in one month time. If they win this contract they would need financing for DEM223.5mm for 3 years. The calculation used in the tender utilises today's interest rates. The company therefore has exposure to an interest rate rise over the next month. They could buy a 3yr interest rate cap starting in one month but this would prove to be very expensive if they lost the tender. The alternative is to buy a one month call option on a 3yr interest cap. If they win the tender, they can exercise the option and enter into the interest rate cap at the predetermined premium. If they lose the tender they can let the option lapse. The advantage is that the premium will be significantly lower.

Compound Options can also be used to take speculative positions. If an investor is bullish on USD/DEM, they can buy a 6mth call option at say 1.60 for 4.00%. Alternatively, they could purchase a 2mth call on a 4mth USD/DEM 1.60 call at 2.50%. This will cost say 2.00% upfront. If after 2mths the USD/DEM is at 1.65, the compound call can be exercised and the investor can pay 2.50% for the 4mth 1.60 call. The total cost has been 4.50%. If the USD/DEM falls, the option can lapse and the total loss to the investor is only 2.00% instead of 4.00% if they had purchased the straight call.

PRICING

Firstly the price of thef orward starting option will be determined, using the implied future rates and volatilities. This option value is then used as the underlying for the compound option. As with normal options, volatility of the underlying will be a key factor of the value. However, with compound options it is more significant as it has a double effect. If volatility rises, this raises the value of the option. With a compound option, an increase in volatility will also increase the value of the underlying asset (another option).

TARGET MARKET

The Compound Option can be used when there is uncertainty about the need for hedging in a certain period. A typical example is the tender for a contract as described above. The structure can also be used to leverage a position; with very little upfront premium it is possible to take substantial positions.

ADVANTAGES

- Large leverage
- Cheaper than straight options

DISADVANTAGES

- If both options get exercised, the total premium for the compound option wiIl be more expensive

than the premium for a single normal option.

PRODUCT SUITABILITY

Complex Defensive/Aggressive

CONSTANT MATURITY SWAP

DESCRIPTION

An Interest Rate Swap where the interest rate on one leg is reset periodically but with reference to a market swap rate rather than LIBOR. The other leg of the swap is generally LIBOR but may be a fixed rate or potentially another Constant Maturity Rate. Constant Maturity Swaps can either be single currency or Cross Currency Swaps. The prime factor therefore for a Constant Maturity Swap is the shape of the forward implied yield curves. A single currency Constant Maturity Swap versus LIBOR is similar to a series of Differential Interest Rate Fix or DIRF in the same way that an Interest Rate Swap is similar to a series of Forward Rate Agreements.

EXAMPLE

Investor

The GBP yield curve is currently positively sloped with the current 6mth LIBOR at 5.00% and the 3yr Swap rate at 6.50%, the 5yr swap at 8.00% and the 7yr swap at 8.50%. The current differential between the 3yr swap and 6mth LIBOR is therefore +150bp. An investor believes that this spread will narrow substantially at some time over the next 2 years. Traditionally, the investor has used the DIRF to take advantage of this view but the DIRF is a "point in time" product. In this instance the investor is unsure as to when the expected flattening will occur, but believes that the differential between 3yr swap and LIBOR (now 150bp) will average 50bp over the next 2 years. In order to take advantage of this view, the investor can use the Constant Maturity Swap. They can enter the following transaction for 2 years:

Investor Receives:	6 month GBP LIBOR
Investor Pays:	GBP 3yr Swap mid rate less 105bp (semi annually)

Each six months, if the 3yr Swap rate is less than 105bp, the investor will receive a net positive cashflow, and if the differential is greater than 105bp, pay a net cashflow. As the current spread is 150bp, the investor will be required to pay 45bp for the first 6 months. It is clear that is the investor is correct and the differential does average 50bp over the two years, this will result in a net flow of 55bp to the investor. The advantage is that the timing of the narrowing within the 2 years is immaterial, as long as the differential averages less than 105bp, the investor "wins".

Corporate

A Swedish company has recently embraced the concept of duration and is keen to manage the duration of its debt portfolio. In the past, the company has used the Interest Rate Swap market to convert LIBOR based funding into fixed rate and as swap transactions mature has sought to replace them with new 3, 5 and 7yr swaps. When the company transacts a 5 year swap, while the duration of the swap starts at around 3.3 yrs, the duration shortens as the swap gets closer to maturity, making it difficult for the company to maintain a stable debt duration. The debt duration of the company is therefore quite volatile as it continues to shorten until new transactions are booked when it jumps higher. The Constant Maturity Swap can be used to alleviate this problem. If the company is seeking to maintain duration at the same

level as say a 5 year swap, instead of entering into a 5 yr swap, they can enter the following Constant Maturity swap:

Corporate Receives:	6 month SEK LIBOR
Corporate Pays:	SEK 5yr Swap mid less say 35bp (semi annually)

The tenor of the swap is not as relevant, and in this case could be for say 5 years. The "duration" of the transaction is almost always at the same level as a 5yr swap and as time goes by, the duration remains the same unlike the traditional swap. So here, the duration will remain around 5yrs for the life of the Constant Maturity Swap, regardless of the tenor of the transaction. The tenor however, may have a dramatic effect on the pricing of the swap, which is reflected in the premium or discount paid (in this example a discount of 35bp).

PRICING

The Constant Maturity Swap is priced in a similar way to both the Interest Rate Swap and DIRF. The "price" is reflected in the premium or discount paid on the "constant maturity" leg of the swap. Simplistically, this premium or discount is close to the weighted average implied forward differential between the "constant maturity" defined, and LIBOR, over the life of the transaction (see Implied Forwards). In order to make an accurate calculation, it is important to take into account the concept of present value (i.e. it is not simply an arithmetic average of the implied differentials as this takes nothing into account for the fact that some of the implied forwards are close, say 6mths, and others are far away, say 3 yrs) The implied forwards, and therefore the Constant Maturity Swap price, are driven by the shape of the yield curve in the same way that the price of a DIRF is. Another way to think about the Constant Maturity Swap price is as a series of DIRF. If a 6mth DIRF between 3yr swap and 10yr swap is say 100bp, and a 12mth DIRF between 3yr swap and 10yr swap is say 150bp, a 1yr Constant Maturity Swap (3yr swap versus 10yr swap) would be priced at around say 117bp. While the arithmetic average is 125bp, we need to weight the averaging to take account of present value, which results in a lower number.

TARGET MARKET

The Constant Maturity Swap is an ideal product for two types of users:

(a) Corporates or Investors seeking to maintain a constant asset or liability duration
(b) Corporates or Investors seeking to take a view in the shape of a yield curve who seek the flexibility that the Constant Maturity Swap provides over the DIRF.

ADVANTAGES

- Maintains constant duration
- User can determine any point on the yield curve as the "constant maturity"
- Not subject to one "point in time" as with DIRF
- Can be booked in same way as an Interest Rate Swap

DISADVANTAGES

- Requires ISDA documentation
- Unlimited loss potential

PRODUCT SUITABILITY

Simple Defensive/Simple Aggressive

CONTINGENT PREMIUM CAP

DESCRIPTION

A Contingent Premium Cap is an interest rate cap where the buyer pays a small up front premium but may have to pay a further premium instalment if LIBOR fixes above a pre-determined "contingency level". The total premium is therefore contingent upon market events. If the contingency level is never reached, the contingent premium cap is cheaper than a traditional cap. If it is reached, the contingent premium cap is more expensive.

EXAMPLE

A borrower could buy a 3 year quarterly AUD cap with an 8.50% strike for 320 bp.

A Contingent Premium Cap with a contingency level of 10.00% and the same strike would cost them only 150 bp up front. If the 90 day Bank Bill rate is higher than 10.00% on any one reset date, an extra premium of 340 bp is paid. If the Bank Bill rate remains below 10.00%, no further cash-flows would be paid. The total premium is therefore either 150bp or 490bp.

PRICING

The normal up front premium of the cap is lowered by selling (writing) a semi-American digital with a strike equal to the contingency level. If the digital is never struck, the premium remains at the up front amount. Should the digital be struck, i.e. the contingency level is breached, there is a loss on the digital which is paid by the digital seller. This becomes the contingent leg of the premium, i.e. the second instalment.

TARGET MARKET

The Contingent Premium Cap is applicable where Borrowers want protection but who expect rates to stay below the contingency level. It may also be applicable for borrowers seeking cheap disaster protection. If the disaster doesn't happen (i.e. rates don't rise above contingency level), we have made a premium saving. In the event of the disaster, we pay more premium, but have full protection.

ADVANTAGES

- Cheaper than normal cap
- Contingency level can be set to own preference

DISADVANTAGES

- Risk of paying a higher premium when the contingent level gets triggered
- Higher break even rate if contingency is triggered

PRODUCT SUITABILITY

Complex Defensive

Coupe Options

DESCRIPTION

A Coupe Option settles periodically and resets the strike at the worst of (a) the then spot level, and (b) the original strike set in period one. It is a series of options, but where the total premium is determined in advance. The payout on each option can be paid at final maturity, or paid at the end of each reset period. A Coupe is a cheaper alternative to a Cliquet (see "Cliquet Options"). The "worst of" feature makes the Coupe a half way alternative between ordinary options and the Cliquet.

EXAMPLE

A three year Coupe Call on the FTSE with annual resets is a series of three annual calls. The initial strike is set at soy 3000. The lowest possible strike for the three calls is therefore 3000. If at the end of year one, the FTSE closes at 3300, the first call matures 300 Points in-the-money and this amount is paid to the buyer. The call strike for year 2 is then reset at 3300, which is the worst of (i.e. higher of) 3000 (original strike) and 3300 (at-the-money spot). If at the end of year 2, the FTSE closes at 3600, the call will expire 300 points in-the-money. The call strike for year 3 is then reset at 3600 which is the worst of 3000 and 3600. Assume that the FTSE closes at 2900 at the end of year 3. The third option will expire worthless. A normal call would have had a 3yr strike of 3000 and expired worthless. The Coupe has delivered an intermediate payout of 300 points in both year one and two. It has therefore outperformed the straight call. There is less "specific" risk with the Coupe as the exposure is split across the three years and not 100% dependent on the final closing level.

PRICING

A Coupe is a series of options either struck at (a) the original strike or (b) at-the-money forward. We can calculate the expected value of these options by generating the implied forward volatility curve and implied forward level of the underlying (same methodology as generating implied forward interest rates. See "Implied Forwards"). Using a binomial tree, we then calculate the probability of strike (a) or (b) being used. We can apply this probability to the forward expected option prices. The Coupe Premium ls the present value of these expected premiums. A Coupe option is always cheaper than a Cliquet option and may be cheaper than a straight option with the same final maturity. The number of reset periods is determined by the buyer in advance. More reset periods make the option more expensive.

TARGET MARKET

The Coupe is suitable for investors with a medium term investment horizon. It is less risky than ordinary medium term options, as there is less specific risk i.e. the reset facility gives the buyer a "second" chance. As a series of "pre-purchased" options, the Coupe is attractive to passive investors as it requires no intermediate management. The Coupe is a cheaper alternative to the Cliquet. As the lowest possible strike for a Coupe call is the original strike, the buyer must have the view that the market will close at least above the original strike for some of the reset periods. With a Cliquet. they must only have the view that the market will close higher for some years whether above the original strike or not.

ADVANTAGES

- There is a "second chance" as the strike is periodically reset

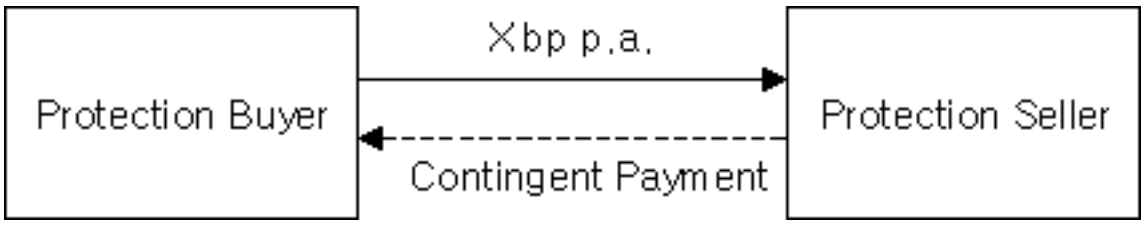
- Ideal medium term, passive investment
- Locks in the future cost of volatility
- Cheaper than Cliquet

DISADVANTAGES

- The strike is reset at the worst of original strike and at-the-money spot

PRODUCT SUITABILITY

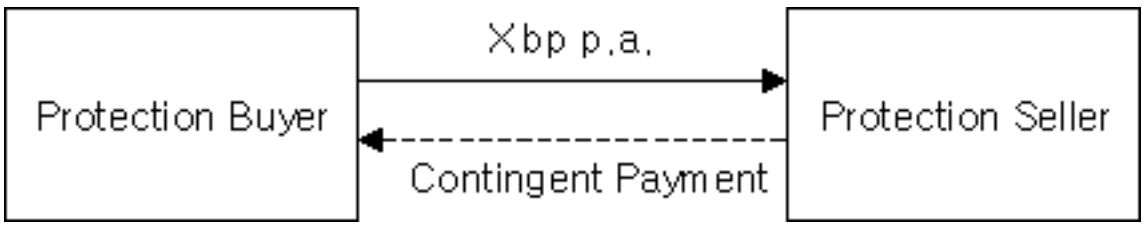
Complex Aggressive/Defensive


Protection Buyer
Xbp p.a.
Contingent Payment
Protection Seller

Credit (Default) Swaps

Extracted from "Credit derivatives: A primer" issued by J.P. Morgan (February 1998)

The Credit Swap or "Credit Default Swap" illustrated in the below chart is a bilateral financial contract in which one counterparty (the Protection Buyer) pays a periodic fee, typically expressed in basis points on the notional amount, in return for a Contingent Payment by the Protection Seller following a Credit Event of a Reference Entity. The definitions of a Credit Event and the settlement mechanism used to determine the Contingent Payment are flexible and determined by negotiation between the counterparties at the inception of the transaction. The International Swap and Derivatives Association (ISDA) has completed a lengthy project to produce a standardized letter confirmation for Credit Swaps transacted under the umbrella of its ISDA Master Agreement. The standardized confirmation allows the parties to specify the precise terms of the transaction from a number of defined alternatives. The evolution of increasingly standardized terms in the credit derivatives market is an important development because it has reduced legal uncertainty that, at least in the early stages, hampered the market's development. This uncertainty originally arose because credit derivatives, unlike many other derivatives, are frequently triggered by a defined (and fairly unlikely) *event* rather than a defined *price* or *rate* move, making the importance of watertight legal documentation for such transactions commensurately greater.



A Credit Event is commonly defined as bankruptcy, insolvency, receivership, material adverse restructuring of debt, or failure to meet payment obligations when due; coupled, where measurable, with a significant price deterioration (net of price changes due to interest rate movements) in a specified Reference Obligation issued or guaranteed by the Reference Entity. This latter requirement is known as a Materiality clause and is designed to ensure that a Credit Event is not triggered by a technical (i.e., non-credit-related) default, such as a disputed or late payment, which would not, presumably, be accompanied by a material price deterioration in the Reference Entity's obligations.

The Contingent Payment is commonly effected by a cash settlement mechanism designed to mirror the loss incurred by creditors of the Reference Entity following a Credit Event. This payment is typically calculated as the fall in price of the Reference Obligation below par (or some other designated reference price or "strike") at some pre-designated point in time after the Credit Event. Counterparties typically wait from one week to three months after default in order to give the Reference Obligation's price time to settle at a new level, or take an average over a similar time period. Typically, the price change is determined by reference to a poll of price quotations from dealers in the Reference Obligation. Since most debt obligations become due and payable in the event of default, plain vanilla loans and bonds will

trade at the same dollar price following a default, reflecting the market's estimate of recovery value, irrespective of maturity or coupon. Alternatively, the Contingent Payment may be fixed as a predetermined sum, known as a "binary" settlement.

Another alternative for the settlement of the Contingent Payment is for the Protection Buyer to make physical delivery of a specified Deliverable Obligation in return for payment of its face amount. Deliverable Obligations may be the Reference Obligation or one of a broad class of obligations meeting certain specifications, such as any senior unsecured claim against the Reference Entity. A key distinction between physical delivery and cash settlement is that, following physical delivery, the Protection Seller has recourse to the Reference Entity and the opportunity to participate in the workout process as owner of a defaulted obligation. The physical settlement option is not always available since Credit Swaps are often used to hedge exposures to assets that are not readily transferable or to create short positions for users who do not own a deliverable obligation. Of course, assuming perfect liquidity in distressed debt markets, a Protection Seller in a cash settled Credit Swap could replicate a physically settled transaction by buying defaulted obligations through the dealer poll process, but this assumption cannot be guaranteed to hold, particularly for larger transactions.

It is interesting to note that while Credit Swaps can be triggered by a Credit Event defined as narrowly as a default on a single specified Reference Obligation, they are commonly triggered by default with respect to any one of a much broader class of obligations. Similarly, while the Contingent Payment can be determined with reference to a specific instrument, it is also commonly determined by reference to any one of a broad class of qualifying obligations. Thus, while some credit derivatives closely resemble the risks of direct ownership of a specific underlying instrument, others are structured to transfer more "macro" exposure to a Reference Entity.

Credit Swaps, and indeed all credit derivatives, are almost exclusively inter-professional (meaning non-retail) transactions. Averaging $25 to $50 million per transaction, they range in size from a few million to billions of dollars. Maturities usually run from one to ten years and occasionally beyond that, although counterparty credit quality concerns frequently limit liquidity for longer tenors. Reference Entities may be drawn from a wide universe including sovereigns, semi-governments, financial institutions, and all other investment or sub-investment grade corporates. While publicly-rated credits enjoy greater liquidity, ratings are not necessarily a requirement. The only true limitation to the parameters of a Credit Swap is the willingness of the counterparties to act on a credit view.

Addressing illiquidity using Credit Swaps

Illiquidity of credit positions can be caused by any number of factors, both internal and external to the organization in question. Internally, in the case of bank loans and derivative transactions, relationship concerns often lock portfolio managers into credit exposure arising from key client transactions. Corporate borrowers prefer to deal with smaller lending groups and typically place restrictions on transferability and on which entities can have access to that group. Credit derivatives allow users to reduce credit exposure without physically removing assets from their balance sheet. Loan sales or the assignment or unwinding of derivative contracts typically require the notification and/or consent of the customer. By contrast, a credit derivative is a confidential transaction that the customer need neither be party to nor aware of, thereby separating relationship management from risk management decisions.

Similarly, the tax or accounting position of an institution can create significant disincentives to the sale of an otherwise relatively liquid position - as in the case of an insurance company that owns a public corporate bond in its hold-to-maturity account at a low tax base. Purchasing default protection via a Credit Swap can hedge the credit exposure of such a position without triggering a sale for either tax or accounting purposes. recently, Credit Swaps have been employed in such situations to avoid unintended adverse tax or accounting consequences of otherwise sound risk management decisions.

More often, illiquidity results from factors external to the institution in question. The secondary market for many loans and private placements is not deep, and in the case of certain forms of trade receivable or insurance contract, may not exist at all. Some forms of credit exposure, such as the business concentration risk to key customers faced by many corporates (meaning not only the default risk on accounts receivable, but also the risk of customer replacement cost), or the exposure employees face to their employers in respect of non-qualified deferred compensation, are simply not transferable at all. In all of these cases, Credit Swaps can provide a hedge of exposure that would not otherwise be achievable through the sale of an underlying asset. Simply put, Credit Swaps deepen the secondary market for credit risk far beyond that of the secondary market of the underlying credit instrument.

Exploiting a funding advantage or avoiding a disadvantage

When an investor owns a credit-risky asset, the return for assuming that credit risk is only the net spread earned after deducting that investor's cost of funding the asset on its balance sheet. Thus, it makes little sense for an A-rated bank funding at LIBOR flat to lend money to a AAA-rated entity that borrows at LIBID: After funding costs, the A-rated bank takes a loss but still takes on risk. Consequently, entities with high funding levels often buy risky assets to generate spread income. However, since there is no up-front principal outlay required for most Protection Sellers when assuming a Credit Swap position, these provide an opportunity to take on credit exposure in off balance-sheet positions that do not need to be funded. Credit Swaps are therefore fast becoming an important source of investment opportunity and portfolio diversification for banks, insurance companies (both monolines and traditional insurers), and other institutional investors who would otherwise continue to accumulate concentrations of lower-quality assets due to their own high funding costs.

On the other hand, institutions with low funding costs may capitalize on this advantage by funding assets on the balance sheet and purchasing default protection on those assets. The premium for buying default protection on such assets may be less than the net spread such a bank would earn over its funding costs. Hence a low-cost investor may offset the risk of the underlying credit but still retain a net positive income stream. Of course, the counterparty risk to the Protection Seller must be covered by this residual income. However, the combined credit quality of the underlying asset and the credit protection purchased, even from a lower-quality counterparty, may often be very high, since two defaults (by both the Protection Seller and the Reference Entity) must occur before losses are incurred, and even then losses will be mitigated by the recovery rate on claims against both entities.

A note on terminology

Given that the payout of a Credit Swap is option-like, with the Protection Seller receiving a premium in return for taking the risk of having to make a large (although capped) payout, terminology is frequently a

source of some confusion. Why would an option-like contract be referred to as a swap? In fact, while Credit Swap certainly share characteristics with option-like products, they should not be confused with what derivatives traders think of as true "Credit Options"; that is, options on credit-risky instruments, such as a bond or loan, or on credit spreads. In the same way that receiving fixed in an interest rate swap is the duration equivalent of a long (financed) position in a bond, selling protection in a Credit Swap (or, for that matter, being TR Receiver in a TR Swap) is the credit-risk equivalent of a long (financed) position in a bond. The origin of the "swap" terminology derives from this analogy. It is intended to convey the fact that the Credit Swap (and TR Swap) are effectively swaps of positions in credit-risky assets, rather than options on positions in credit-risky assets. The latter are referred to as "Credit Options" and, just like any other option in which the contingency is a market price development rather than a remote Credit Event, they derive their value from the expected forward value and volatility of market prices (i.e., credit spreads). If an institution is capable of "pricing" a position in a loan or a bond, by extension, given financing costs (and counterparty charges), it is also capable of pricing a Credit Swap. To price a Credit Option, on the other hand, requires additional information beyond that required to price a loan or a bond, namely information about volatilities and implied forward credit spreads.

DOUBLE BARRIER OPTION

DESCRIPTION

A Double Barrier Option is a hybrid of the Barrier Option family. In order to receive the option payout, the underlying must not breach either of two defined barriers at any time during the life of the transaction. Generally, the barriers are used to define a range within which the underlying index must remain for the life of the transaction in order to receive the option payout. For most underlying indices, the index is measured once a day at a fixed time (say 12.00 London time) and with reference to an agreed source, probably a Reuters or Telerate page. If the index as measured on any day is outside the defined range, the payout is zero, i.e. the buyer has been knocked out. The payout for the Double Barrier Range Option is usually a fixed amount and hence also known as a Binary Knockout Range. Other products that allow investors to take advantage of range related views are Range Floaters. (or Daily Range Accruals)

EXAMPLE

An investor believes that the USD/DEM exchange rate, currently at 1.50, will remain within the range 1.40 to 1.60 over the next 6 months. They can purchase a 6 month, 1.40/1.60 Double Barrier Option with a payout of say USD 100,000. The premium cost is say USD 60,000. The premium is usually expressed as the number of basis points paid in order to receive a 100bp payout, so in this example, the premium is 60bp. If over the 6 mths, the USD/DEM exchange rate remains within the 1.40/1.60 range, the investor will receive the payout, if not, zero. The Double Barrier Option is therefore very similar to an FX Knockout Option.

PRICING

A Double Barrier Option is NOT the addition of two Knockout Options. If this was the case, once one barrier had been breached the other would still be "alive". It is the addition of two "contingent" Knockout Options, i.e. the "survival" of each barrier is contingent upon the other barrier having not being breached. Should one barrier be breached, the other barrier option also dies. The above example is therefore the combination of:

(a) A sold One Touch Digital struck at 1.40 with a Knockout at 1.60, payout USD 100,000, and
(b) A sold One Touch Digital struck at 1.60 with a Knockout at 1.40, payout USD 100,000.

The net premium generated is USD 40,000 (future value) which is NOT paid directly to the buyer. Should the barriers not be struck, at the end of the transaction the buyer receives the USD 40,000 plus the initial premium paid of USD 60,000 being a total of USD 100,000 (of course in reality both amounts are adjusted for interest, so the initial premium would be less than USD 60,000). If the USD/DEM trades below 1.40, the sold 1.60 One Touch Digital is knocked out, and the sold 1.40 One Touch Digital results in a loss of USD 100,000 to the buyer, which is covered by the initial premium of USD 60,000 plus the net premium generated of USD 40,000. The net result is the payments described in the example above.

As with all options, the Double Barrier Option is driven by three factors:

(a) Tenor. In this case, the longer, the cheaper as the more likely the barrier will be breached.
(b) "In-the-Moneyness". The closer the barriers to the implied forwards, the cheaper the

option, as the more likely the barrier will be breached.
(c) Volatility. The higher the volatility of the underlying, the cheaper the option as the more likely the barrier will be breached.

TARGET MARKET

Double Barrier Options are an ideal method for investors in particular to take advantage of markets expected to trade within a range. Most common in foreign exchange, they are available in most underlying markets, including commodities, interest rate and equity markets.

ADVANTAGES

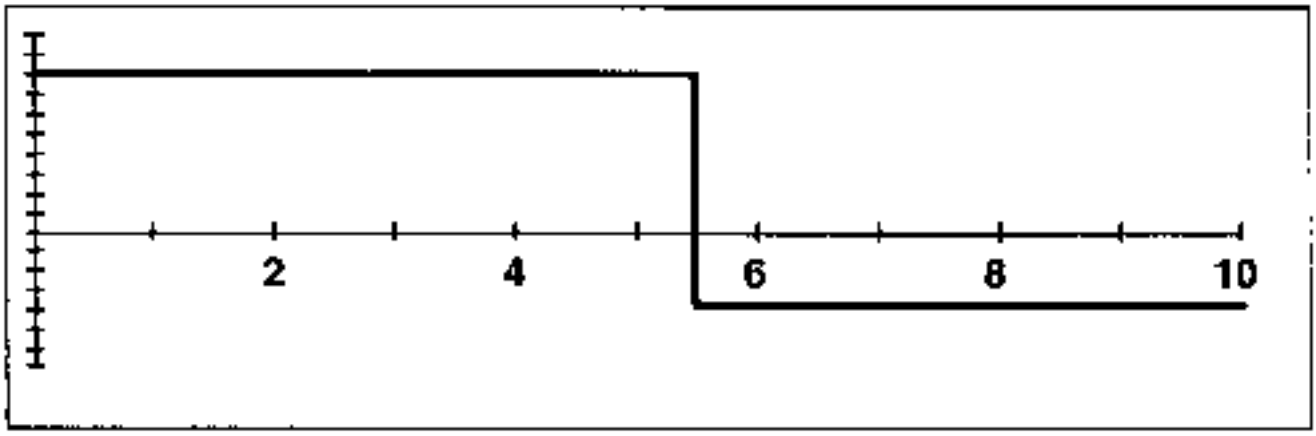
- Customised
- Unlike most products, it is suitable for range bound markets.
- Loss potential limited to premium paid
- Can be reversed at any time

DISADVANTAGES

- Premium payment required

PRODUCT SUITABILITY

Complex Aggressive


2
4
6
8
10

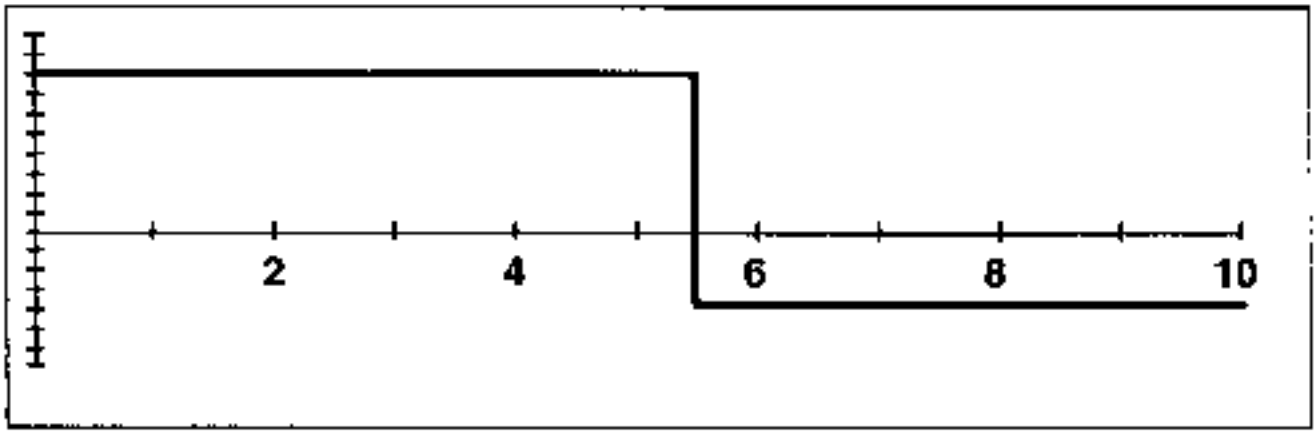
Digital Options

DESCRIPTION

Digitals provide the buyer with a Fixed payout profile. This means that the buyer receives the same payout irrespective of how far in the money the option closes. Digitals are therefore very simple to understand and are cheaper to buy than standard options. They can also be currency protected.

EXAMPLE

An investor may have the view that 3yr Sterling rates will rally below 5.50% over the next six months. They could buy a Floor at 5.50%, but this will only provide a small return if rates close at say 5.40%. Instead they can buy a Digital. The Digital guarantees the same payout (say 100bp) whether the 3yr swap closes at 5.40% or 5.00%. It is ideal when the scope for further movement is limited. The profit at maturity is as follows:



PRICING

The Digital is generally priced with the payout fixed at 100bp. The premium is then adjusted. This allows a simple analysis in terms of the payout ratio. For example, if the Digital in the example above costs 50 bp and the payout is 100 bp, the Digital has a payout ratio of 2 to 1.

The Digital price is influenced by the same factors as a RECEIVER or PAYER swaption.

TARGET MARKET

Digitals are a valid alternative for any investor or borrower considering an interest rate option strategy. They are particularly attractive where the expected movement in the underlying is limited. Digitals are also widely used as a component in other structured derivatives.

ADVANTAGES

- Payout same whether in the money by 1 or 100 bp
- Currency protected if required
- Simplicity
- High return characteristics

- Lower Premiums than alternatives

DISADVANTAGES

- Limits profit potential

PRODUCT SUITABILITY

Digitals: Simple Aggressive

DIFFERENTIAL INTEREST RATE FIX

DESCRIPTION

A Differential Interest Rate Fix (DIRF) is a contract that moves with reference to the SLOPE of a yield curve. The DIRF is meant for those who wish to profit from a steepening or flattening of one yield curve. The DIRF is customised with defined settlement dates, a defined value per basis point, and two defined points on the yield curve.

EXAMPLE

Assume an investor believes that the Italian yield curve will flatten over the next year more than that implied in the market. The client would enter into a flattening DIRF, say 2 years versus 7 years, for settlement in one year. The investor selects the amount per basis point they wish to transact, say ITL 1,000,000 per point. The DIRF price is given in terms of basis points. If at maturity the difference between the 2yr and 7yr ITL Swap rates has flattened below the DIRF level, the investor will receive ITL 1,000,000 for every basis point lower. If the difference is higher than the DIRF level, i.e. the curve has steepened, the investor will lose ITL 1,000,000 per basis point.

PRICING

The entry price is calculated by taking the difference between the implied forward rates for the two yield curve points chosen. This means in the above example, we calculate the one year forward 2yr rate and the one year forward 7 yr rate. The DIRF price is the difference. Investors who BUY the DIRF look to see the curve steepen, investors who SELL the DIRF look to see the curve flatten.

TARGET MARKET

This is a product for people who wish to take a position on the SLOPE of the yield curve without taking an outright position on a curve.

ADVANTAGES

- Available in all major currencies
- Can utilise any two points on the yield curve
- Can be reversed at any time with reference to the then prevailing implied rates
- Investor determines amount per point sensitivity
- Settlement at maturity is against independent mid rate quoted on Telerate
- No Exposure to parallel movement in yield curve

DISADVANTAGES

- The attractiveness of DIRFs is dependent on the Implied Forward, rates not the spot rates, therefore expected movements can already be built in.

PRODUCT SUITABILITY

Simple Aggressive

DISCOUNT PURCHASE AGREEMENT

DESCRIPTION

A Discount Purchase Agreement is a security where redemption is linked to the price of a defined underlying equity. The Discount Purchase Agreement is issued at a discount to par. If the equity price at maturity is above the defined strike price (which is usually set at the spot price), the security redeems at par in cash, representing a fixed yield to the investor. If the equity price is below the defined strike, the security redeems in equities but at a substantial discount to the equity price at the time of issue. Also known as Discount Purchase Option, DIPO or DPA. The Discount Purchase Agreement is sometimes issued in warrant form, which may or may not be listed.

EXAMPLE

The ordinary shares in HCG Ltd currently trade at CHF100.00, and one year CHF LIBOR is 5.00%. A one year Discount Purchase Agreement is also available as follows:

Tenor:	1 year
Underlying:	HCG Ltd ordinary shares
Issue price:	CHF 85.00
Redemption:	If HCG shares exceed CHF100 at maturity: CHF 100.00 If HCG shares do not exceed CHF100 at maturity: 1 share in HCG

If the HCG shares are higher than CHF 100 at maturity, the DPA will redeem at CHF 100, representing a yield of 17.65%, substantially higher than the current one year LIBOR rate of 5.00%. If the HCG shares are lower than CHF100 at maturity, the DPA will redeem as one share in HCG. In this instance, the investor has purchased HCG at CHF85, a 15% discount to the original price, so there is a net benefit to the investor as long as HCG shares are trading above CHF 85 at maturity. In fact, as long as the share price at maturity is above 89.25, the DPA will outperform a money market deposit.

As an alternative to buying the shares outright, the DPA always outperforms the shares if the shares fall in value, as the DPA buyer has effectively purchased the shares at a discount to the market price. The DPA will also outperform if the shares rise by less than the effective fixed yield, in this case 17.65%. So for this example, the DPA outperforms the shares as long as the HCG shares are less than 117.65 at maturity. If they are higher than this, the shares outperform. Any potential buyer needs to weigh these factors to determine which is the most appropriate investment given the investors outlook for the share price.

PRICING

The Discount Purchase Agreement is a structured transaction comprising a bought share in the underlying plus a sold put option. The premium earned on sale of the option, plus interest earned on the issue price for the tenor of the DPA, is used to subsidise the purchase of the DPA, hence the issue price at a discount to par. If at maturity, the share price has risen above the strike level, the put option expires

worthless and the DPA redeems in cash, the yield representing interest plus the put premium. If the share price falls, the put is exercised and the DPA buyer is delivered one share in the underlying equity.

The discount achieved is therefore dependent upon the price achieved for the put option. The discount is therefore greater for shares with higher volatility, and for longer Discount Purchase Agreements.

TARGET MARKET

The Discount Purchase Agreement is a suitable alternative for conservative investors particularly where the expected price appreciation in the share is moderate. If the share price falls, the investor has purchased the share at a discount to market and therefore any loss is less than that incurred by buying the share directly. If the share price rises, the DPA will pay a fixed yield dramatically higher than money market yields.

NOTES

In many jurisdictions, where the DPA redeems in cash, the gain achieved is considered a Capital Gain rather than Income and therefore results in different tax treatment. Investor should seek independent tax advice on this point.

ADVANTAGES

- Always outperforms outright share purchase if share price falls
- Higher than money market yields
- Can be listed
- Worst case is purchase of shares at a substantial discount to spot

DISADVANTAGES

- Will underperform if share price increases dramatically

PRODUCT SUITABILITY

Simple Defensive

EXTENDIBLE SWAP

DESCRIPTION

An Interest Rate Swap where one party has the right, but not the obligation at some predetermined point in the future, usually the original maturity date, to extend the swap maturity for a pre-defined period. The Extendible Swap is almost the opposite of the Callable Swap or Putable Swap.

EXAMPLE

Liability Manager

Company A is considering entering into a pay fixed swap for a period of 3 years at the current swap rate of 8.00%. Alternatively they can enter an Extendible Swap with the following terms:

Original Maturity:	3 years
Option to extend:	after 3 years
Extension period:	2 years
Rate:	8.35%

So while the company is required to pay a higher than market rate for the first 3 years (higher by 35bp), they have the security that should rate be higher than 8.35% in 3 years, they can extend the swap for a further 2 years at the same 8.35% rate. If of course rates are lower, they can elect not to extend this swap but enter a new swap at the then market rate.

Investor

The Extendible Swap can be used as a yield enhancement tool. Rather than receive fixed for say 3 years at 8.00%, an investor may enter into an Extendible Swap giving the other party the right to extend the swap for a further 2 years. This will result in a higher than market yield to the investor. If rates rise, the investors swap will be extended, but they have enjoyed the higher yield and if rates fall, the swap will not be extended and the investor will need to replace the swap with a lower market rate swap.

PRICING

The Extendible Swap is merely the combination of an Interest Rate Swap with a Payer Swaption or Receiver Swaption (depending whether the user is looking to pay or receive). In the Liability Manager example above, the Extendible Swap is a 3 year pay fixed swap plus a 3 year into 2 year Payer Swaption. Rather than pay the premium up front, the cost of the swaption is paid through the higher than market rate, in this case 35bp per annum. In the Investor example, the Extendible Swap is a receive 3 year fixed swap plus a sold Payer Swaption.

The premium over the traditional swap rate is therefore dependent upon the cost of the swaption which in turn depends upon the tenor of the option, the strike rate and the volatility of the underlying (see Pricing under Payer Swaption or Receiver Swaption)

TARGET MARKET

The Extendible Swap may be a suitable alternative for any potential Interest Rate Swap user. They are particularly useful where the swap is being used to hedge an underlying asset or liability where the disposal of such is possible in the future and therefore the ideal hedge maturity is at question. They are also suitable as a yield enhancement tool (see Investor Example above).

ADVANTAGES

- Customised to suit
- Can be multiple options to extend
- No up front premium
- Option to extend can be bought or sold

DISADVANTAGES

- Worse than market swap rate

PRODUCT SUITABILITY

Complex Defensive/Complex Aggressive

FLEXIBLE CAP

DESCRIPTION

A Flexible Cap is an Interest Rate Cap where the buyer is only entitled to utilise the cap for a limited and pre-defined number of reset periods. The cap is automatically used if the underlying index, say LIBOR, is above the strike level. Once the number of "uses" equals the limit, the cap can no longer be used by the buyer. As a result of this limited protection, the premium is lower than a traditional cap. A traditional cap can be thought of as a Flexible Cap where the limited number of "uses" equals the maximum possible number of uses. The Flexible Cap therefore allows the buyer to target their rate protection more closely while reducing the premium. However, the Flexible Cap does expose the buyer to more risk than the traditional cap. The Flexible Cap is always automatically exercised. The automatic exercise feature of the Flexible Cap means that the cap will be used the first defined number of times that LIBOR is above the strike, even if only marginally above. A Flexible Cap where the buyer can choose when to exercise the cap is known as a Chooser Flexible Cap. A Flexible Cap where the notional amount increases each time the cap is not exercised is known as a Super Flexible Cap.

EXAMPLE

A company seeks protection against rates rising. Currently 3mth LIBOR is 9.00% and the investor is concerned that rates may rise above 10.00% at some time over the next three years, but that any rise is likely to temporary, and not last more than say 12mths in total. A traditional 3yr cap struck at 10.00% would cost 110bp. This would provide the buyer with 12 potential uses of the cap. Alternatively, the investor can purchase a 3 yr Flexible Cap struck at 10% but with a limited life of 4 reset periods (4 quarterly periods being one year). The total premium for the Flexible Cap is only 70bp, a saving of 36%. For the first 4 resets that LIBOR is above 10.00%, the Flexible Cap will payout like the traditional cap, after which the cap expires. If rates do rise, the investor is covered for at least 4 quarterly resets. The Flexible Cap therefore allows the buyer to target more specifically the risk they are hedging at a lower cost.

PRICING

The Flexible Cap premium is always less than the premium on a traditional Interest Rate Cap with the same strike. The lower number of allowed "uses" of the cap, the lower the premium. As the number of potential uses increases, the premium will approach that of the traditional cap. In general, the price of the traditional cap is the probability that LIBOR is above the strike on each reset, multiplied by the expected payout in this event (using Implied Forwards). The Flexible Cap takes this calculation one step further and looks at the probability that LIBOR will be above the strike on only the number of periods specified.

TARGET MARKET

The Flexible Cap is a suitable alternative to the Interest Rate Cap, particularly where the view of the buyer is that while there is a risk that rates may rise above the strike, they are unlikely to do so for an extended period of time.

ADVANTAGES

- Lower premium than traditional cap
- Customised

- More targeted rate protection

DISADVANTAGES

- Automatically exercised

PRODUCT SUITABILITY

Complex Defensive

FLEXIBLE FLOOR

DESCRIPTION

A Flexible Floor is an Interest Rate Floor where the buyer is only entitled to utilise the floor for a limited and pre-defined number of reset periods. The floor is automatically used if the underlying index, say LIBOR, is below the strike level. Once the number of "uses" equals the limit, the floor can no longer be used by the buyer. As a result of this limited protection, the premium is lower than a traditional floor. A traditional floor can be thought of as a Flexible Floor where the limited number of "uses" equals the maximum possible number of uses. The Flexible Floor therefore allows the buyer to target their rate protection more closely while reducing the premium. However, the Flexible Floor does expose the buyer to more risk than the traditional floor. The Flexible Floor is always automatically exercised. The automatic exercise feature of the Flexible Floor means that the floor will be used the first defined number of times that LIBOR is below the strike, even if only marginally below. A Flexible Floor where the buyer can choose when to exercise the floor is known as a Chooser Flexible Floor. A Flexible Floor where the notional amount increases each time the floor is not exercised is known as a Super Flexible Floor.

EXAMPLE

An investor seeks protection against rates falling. Currently 3mth LIBOR is 9.00% and the investor is concerned that rates may fall below 8.00% at some time over the next three years, but that any fall is likely to temporary, and not last more than say 12mths in total. A traditional 3yr floor struck at 8.00% would cost 110bp. This would provide the buyer with 12 potential uses of the floor. Alternatively, the investor can purchase a 3 yr Flexible Floor struck at 8% but with a limited life of 4 reset periods (4 quarterly periods being one year). The total premium for the Flexible Floor is only 70bp, a saving of 36%. For the first 4 resets that LIBOR is below 8.00%, the Flexible Floor will payout like the traditional floor, after which the floor expires. If rates do fall, the investor is covered for at least 4 quarterly resets. The Flexible Floor therefore allows the buyer to target more specifically the risk they are hedging at a lower cost.

PRICING

The Flexible Floor premium is always less than the premium on a traditional Interest Rate Floor with the same strike. The lower number of allowed "uses" of the floor, the lower the premium. As the number of potential uses increases, the premium will approach that of the traditional floor. In general, the price of the traditional floor is the probability that LIBOR is below the strike on each reset, multiplied by the expected payout in this event (using Implied Forwards). The Flexible Floor takes this calculation one step further and looks at the probability that LIBOR will be below the strike on only the number of periods specified.

TARGET MARKET

The Flexible Floor is a suitable alternative to the Interest Rate Floor particularly where the view of the buyer is that while there is a risk that rates may fall below the strike, they are unlikely to do so for an extended period of time.

ADVANTAGES

- Lower premium than traditional floor

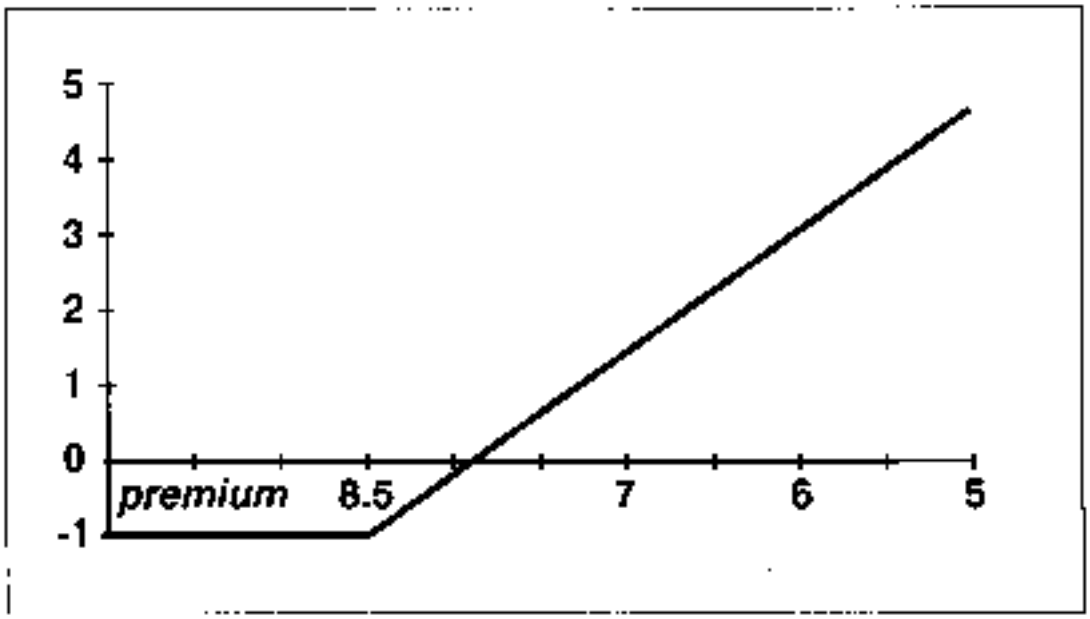
- Customised
- More targeted rate protection

DISADVANTAGES

- Automatically exercised

PRODUCT SUITABILITY

Complex Defensive

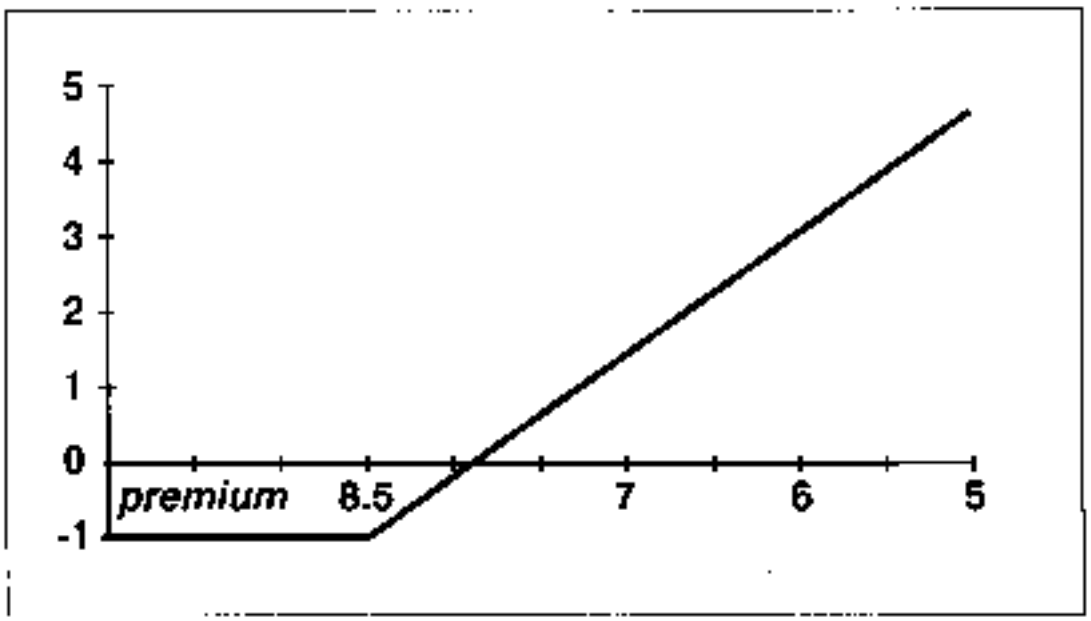

5
4
3
2
1
0
-1
premium
8.5
7
6
5

Interest Rate Floor

DESCRIPTION

An Interest Rate Floor is a contract that guarantees a minimum level of Libor. A Floor can be a guarantee for one particular date, known as a Floorlet. A series of Floorlets, or Floor can extend for up to 10 years in most markets. In return for making this guarantee, the buyer pays a PREMIUM. Floors generally guarantee a minimum level of either 3 or 6 month Libor or whatever the prevailing floating rate index is in the particular market. The clients maximum loss on a Floor transaction is the premium. After purchasing the Floor, the buyer can make "claims" under the guarantee should Libor be below the level agreed on the Floor on the settlement dates. A Floor is NOT a continuous guarantee, it is only date specific. This means claims can only be made on specified dates. These dates are selected by the purchaser.

Should the buyer never be required to make a claim under the Floor, the option will expire worthless. At settlement a Floorlet has a profit profile as follows:



When Libor is above the strike 8.50%, the floorlet has no value. Claims will only be made when Libor is below 8.50%. The break even is therefore the strike less the premium.

PRICING/VALUE

The Floor price (premium) has two major components:

(a) Intrinsic Value

When the strike of the Floor is HIGHER than the Implied Forward rate, the Floor is said to have Intrinsic Value. The Implied Forward is the market expected rate, and therefore if we seek a guarantee of a higher rate, the expected value of the Floor is positive, so it has Intrinsic Value. A Floor that has a strike higher than the implied forward (i.e. has positive Intrinsic Value), is described as IN THE MONEY. A Floor with negative Intrinsic Value, is described as OUT OF THE MONEY. A Floor set at the implied forward

is described as AT THE MONEY FORWARD. A Floor set at the current Libor level is AT THE MONEY SPOT.

Higher Intrinsic Value leads to a higher premium.

The relevant Implied Forward is the Swap rate for the period of the Floor or the FRA rate for a Floorlet.

(b) Time Value

The Floor is a guarantee of a future rate. The implied forward rate will change over time as the market changes its view of future rates. The price of the Floor will therefore depend on the likelihood that the market will change its view. This likelihood of change is measured by volatility. An instrument expected to be volatile between entry and maturity will have a higher price than a low volatility instrument. The volatility used in calculating the price should be the expected future volatility. This is based on the historic volatility.

As time goes by, the volatility will have less and less impact on the price, as there is less time for the market to change its view. Therefore, in a stable market, the passing of time will lead to the Floor FALLING in value. This phenomenon is known as Time Decay. This increases in severity as we get closer to maturity.

REVERSING FLOORS

Bought Floors can be sold at any time. The value of the Floor will depend on the same factors above, Intrinsic value and Time Value. The Intrinsic Value is calculated by comparing the strike with the Implied Forward levels . The Time Value will depend on the amount of time left before maturity (less time less value) and the volatility of the underlying instrument (high volatility higher value)

TARGET MARKET

Floors have two major Target Markets:

(a) Investors - For investors who own Floating Rate Notes or any form of investment that resets against Libor, Floors offer an ideal method of providing a minimum return. Here the Floor is used like an insurance policy. The buyer purchases insurance against Libor falling below a certain level and pays a premium.

(b) Speculators - Investors who believe short term rates will fall can buy a Floor. They will profit when rates are below this level and will limit loss to the cost of the premium.

STRATEGY

The further the strike is set OUT OF THE MONEY, the cheaper the Floor as the probability of payout is less, therefore the Floor is considered to be more LEVERAGED. As rates fall the Floor will increase in value as it becomes closer to the money. It is therefore an interesting strategy to buy OUT OF THE MONEY floors for a small premium which will increase in value dramatically (due to the leverage) as rates fall. The Floor can then be sold. This is a trading strategy rather than buy and hold.

Sophisticated Investors may like to SELL Floors. This is also known as writing Floors. In this case the Investor is PROVIDING the guarantee and therefore has an unlimited loss potential. The profit from this

strategy is limited to the premium earned and will occur when there are no claims against the Floor.

ADVANTAGES

- Limited loss potential (bought Floors only)
- Unlimited upside
- Easy to reverse at any time

DISADVANTAGES

- Upfront cost inform of premium
- Time decay and volatility changes can offset the increase in Intrinsic Value.

This can lead to a Floor losing value despite rates falling in line with expectation.

PRODUCT SUITABILITY

Bought Floors: Simple Defensive

Sold Floors : Simple Aggressive

SUMMARY

- HIGHER INTRINSIC VALUE, HIGHER PREMIUM
- HIGHER VOLATILITY, HIGHER PREMIUM
- LONGER PERIOD OF FLOOR, HIGHER PREMIUM
- LONGER TIME TO MATURITY, HIGHER PREMIUM

FLOORTION

DESCRIPTION

A Floortion is simply the right but not the obligation to buy or sell an Interest Rate Floor at some defined point in the future for a defined premium. As an option on an option, it is therefore part of the family of product known as Compound Options. At maturity of the Floortion, if the underlying Interest Rate Floor is then cheaper in the market than that premium pre-determined in the Floortion agreement, the buyer will let the option expire. If more expensive, the buyer can elect to buy the Floor as described in the Floortion agreement. The same agreement but with reference to a Cap is known as a Caption. There are four types of Floortion;

(a) Buy the right to buy a Floor in the future (i.e. you have the right to buy)
(b) Sell the right to buy a Floor in the future (i.e. the other party can force you to buy)
(c) Buy the right to sell a Floor in the future (i.e. you have the right to sell)
(d) Sell the right to sell a Floor in the future (i.e. the other party can force you to sell)

EXAMPLE

A Fixed Income Fund Manager is currently overweight in floating rate assets as he believes rates will rise. The benchmark allocation to floating rate assets is only 30%, but the Fund Manager would like to increase floating rate assets to 60% of the portfolio. Given such a wide variation from the benchmark, the manager would like to secure some protection in the event that the view is incorrect. Given the competitiveness of the industry, they are obviously concerned to keep any option premium to an absolute minimum. The current 5 year rate is 6% and a 5 year 5% Interest Rate Floor would cost 90 or approximately 21 bp per annum which is expensive given that the average yield in the floating rate portfolio is only LIBOR plus 40. Alternatively, the fund manager could buy a 1 year Floortion with the right to buy a 4 year 5% Floor for a premium of 75bp. The cost of the Floortion today is only 30bp or 7bp per annum over 5 years. If at the end of the year, interest rates have indeed risen as forecast, the fund manager can let the option lapse in the knowledge that for a yield give up of only 7bp pa rather than the floor cost of 21bp pa, they have been able to protect a highly overweight position which has now proved profitable. If at the end of the year, rates have fallen, the fund manager can elect to purchase the 5% floor at the agreed price of 75bp which would now be substantially below the cost of a similar floor in the market. The fund is now protected with a minimum yield of 5% on the overweight floating rate assets. The total cost of the strategy is 105bp, the initial 30bp for the Floortion and the subsequent 75bp for the floor. While more expensive, the investor had the flexibility of the Floortion and limited the minimum cost to 30bp rather than 90bp.

Of course, the investor would only elect to buy the Floor under the Floortion agreement if the same floor in the market is more expensive at that time. If not, they can let the option lapse and purchase the same floor in the market at the lower price.

PRICING

The Floortion price is dependent upon the same variables as all options (see Compound Options):

(a) Strike price (in this case the agreed future floor premium)
(b) Volatility (more complex as this is now the volatility of the underlying floor, which in

itself is driven by volatility!)
(c) Time to maturity (the longer the option period, the more expensive the option)

For a more detailed discussion on these variables and their impact on option pricing, see the pricing section under Interest Rate Floors.

TARGET MARKET

Floortions are a suitable alternative for any potential Interest Rate Floor buyer particularly where the buyer is seeking higher leverage or looking to reduce the initial premium cost. (see Compound Options)

ADVANTAGES

- Lower initial premium
- Increased leverage
- Allows the buyer increased flexibility
- Customised

DISADVANTAGES

- Overall premium may be higher if option exercised
- Requires ISDA documentation

PRODUCT SUITABILITY

Complex Defensive/Complex Aggressive

Forward Rate Agreement

DESCRIPTION

An FRA is very similar to a futures contract. It is an agreement between two parties regarding the value or level of a financial instrument at a future date. Unlike futures, FRAs are not traded on an exchange (This is called OTC, or Over The Counter). Forward Rate Agreements are infinitely more flexible, as they can be structured to mature on any date. In general FRAs are traded on the future level of 3 or 6 month Libor.

The FRA does not involve any transfer of principal. It is settled at maturity in cash, representing the profit or loss resulting from the difference in the agreed rate (FRA rate) and the settlement rate at maturity.

EXAMPLE

The current 3 v 6 FRA is 6.40%. This means the market is implying that in 3 mths, 3 mth Libor will be 6.40% (A 3 v 9 FRA is trading the implied 6 mth Libor rate in 3 mths time).

Should a corporate believe that 3 mth Libor will be higher than 6.40% in 3 mths, they could enter into an FRA at 6.40% on a prescribed notional where they will profit if Libor is HIGHER than 6.40% and lose if it is LOWER.

FRAs can be used by borrowers to hedge floating rate settings on loans, and by investors to hedge floating rate settings on assets.

PRICING

The FRA rate is the implied forward rate for that date. The value of the FRA will be dependent on the then market view of future rates. The shape of the yield curve is very important in establishing value. See the "Implied Forwards" section for more detail.

TARGET MARKET

FRAs are an attractive instrument for both borrowers and investors who wish to take a view on the future level of short term interest rates. As they are date specific, they are an ideal instrument for hedging future rate settings on loans and financial assets.

ADVANTAGES

- Customized dates and amounts
- Very liquid market so small Bid/Offer spreads
- No premiums or payments upfront
- Can be reversed at any time at the then prevailing rate

DISADVANTAGES

- Only cover short term interest rates

PRODUCT SUITABILITY

Simple Aggressive

FLEXI RANGE FLOATER

DESCRIPTION

The Flexi Range Floater is a Range Floater (Range Floaters) with a resetable range.

At reset dates the investor can adjust the range to more closely reflect their view. The only condition is that the new range must be the same width as the original range. The Flexi Range Floater is also known as a Flexi Band Floater.

EXAMPLE

An investor who has a view that USD/DEM will stay relatively range bound wants to add some flexibility to the normal Range Floaters. They decide to enter into a 100% guaranteed DEM denominated Flexi Range Note for 1 year that pays 14% for every day that USD/DEM trades within the set range (current DEM LIBOR is 7.28%). The range can be set by the investor every 3 months and must be 10 Pfennigs wide. So if the first range was set at 1.50-1.60 and after 3 months USD/DEM is trading at 1.63, the new range can be adjusted to reflect this higher spot level (e.g. 1.58-1.68). The choice of range is entirely that of the investor. Because of the extra flexibility, this Flexi Range Floater will pay a lower coupon than the normal Range Floater.

PRICING

As with the Range Floater, this structure consists of a series of daily Digital Options which will be exercised each day the underlying is within the range. For pricing purposes it will be assumed that the future reset ranges will be set at the most optimal range i.e. directly around the forwards predicted by the curve. The Digitals will be paid for with the original coupon of the note. The accrued interest on the note will be derived from the average payoff of the Digitals.

TARGET MARKET

Traditional investments rely on a directional movement in the underlying. Range Floaters allow investors to profit from markets that are expected to be range bound. They are an ideal investment for conservative investors as they are generally structured with a 100% principal guarantee.

ADVANTAGES

- 100% Principal guarantee usually
- Suitable in stable and range bound markets (unlike almost all other products)
- Simplicity and flexibility

DISADVANTAGES

- Limited upside
- Lower coupon than normal Range Floater

PRODUCT SUITABILITY

Simple Defensive

FLOATING RATE PAR FORWARD

DESCRIPTION

A Floating Rate Par Forward is a modification of the Par Forward. Like any FX Forward, the standard Par Forward rate is dependent upon the differential between the fixed interest rates in the two currencies and the spot FX rate. In interest rate terms therefore, the user is receiving the fixed rate of the currency bought, and paying the fixed rate of the currency sold. The Floating Rate Par Forward is a Par Forward where one of the legs is dependent upon the floating interest rate of the currency rather than the fixed rate. The Floating Rate Par Forward allows the user to manage the FX and interest rate component of forward foreign exchange exposure separately and gives the user greater flexibility. Any Floating Rate Par Forward can easily be converted back to the standard Par Forward once interest rate views have changed (see Pricing for more detail).

EXAMPLE

An Australian company will receive USD 10,000,000 in dividends per year for 3 years. Traditionally the company has entered into forward agreements to sell the USD and buy AUD. Given the interest rate differential (AUD rates higher than USD rates), the forward rates improve with tenor. For example, while the current spot rate is 1USD = 0.80AUD, the exchange rate for delivery in one year is 0.75, 2yrs 0.70 and 3yrs 0.67. The company would normally enter into three separate contracts as follows:

Time	Company Sells	Fwd Rate	Company Buys
1 year	USD 10,000,000	0.7500	AUD 13,333,333
2 years	USD 10,000,000	0.7000	AUD 14,285,714
3 years	USD 10,000,000	0.6700	AUD 14,925,373

Alternatively, the company could utilise a 3 yr Par Forward at say 0.7075 with the following cashflows:

Time	Company Sells	Fwd Rate	Company Buys
1 year	USD 10,000,000	0.7075	UD 14,134,275
2 years	USD 10,000,000	0.7075	AUD 14,134,275
3 years	USD 10,000,000	0.7075	AUD 14,134,275

Like any forward, the Par Forward not only provides an exposure to the FX spot rate, but also to the interest rate differential between the two currencies involved. In effect, the company is receiving a fixed rate of interest in the currency bought forward, and paying a fixed rate of interest in the currency sold forward. In this example, the company would be receiving AUD fixed rate and paying USD fixed rate. On a mark-to-market basis, the company will therefore benefit if AUD rates fall and USD rates rise. Should the company be of the view that AUD rates will rise, rather than receive a fixed rate of interest in

AUD, they would prefer to receive floating. This can be achieved by transacting a Floating Rate Par Forward. Like the standard Par Forward, the company agrees to sell USD 10,000,000 per annum for three years. Initially, the company expects to purchase AUD 14,134,275 each year as with the Par Forward, but these amounts will be adjusted to reflect any movement in AUD floating rates. If AUD rates rise, the amount of AUD actually purchased would be greater, if they fall, less. The size of the adjustment is simple to calculate. Using the AUD swap curve, the present value of each of the expected AUD receipts can be calculated. These amounts are instead compounded forward at the floating rate of interest to calculate the actual AUD amount purchased each year.

If at some future date, the company believes that AUD rates have peaked, they may wish to lock in the AUD rate. This can be achieved by converting the Floating Rate Par Forward back to the standard Par Forward.

PRICING

The Floating Rate Par Forward is the combination of a standard Par Forward and an Interest Rate Swap converting fixed rate to floating rate for one of the currencies. Starting with the amounts calculated in the Par Forward, calculate the present value of each forward amount for the bought currency. The forward amounts purchased equalled these present value amounts compounded forward at the appropriate fixed rate for that tenor. Using these present value amounts and the calculated fixed rates, an swap can be constructed where the fixed rate is paid on these amounts and a floating rate received. In order to ensure cashflows only occur at the forward purchase dates, all interest is compounded forward to maturity. The result is the Floating Rate Par Forward where one leg is dependent upon the fixed rate in currency A, and the other in the floating rate of currency B.

At some point in the transaction, the user may wish to lock in gains or losses on the interest rate exposure created by the Floating Rate Par Forward. This can easily be achieved by converting back to the standard Par Forward. To convert back, the Interest Rate Swap component is merely unwound. At this point, any profit or loss on the Interest Rate Swap can either be rolled into the new Par Forward rate or realised in cash. This may or may not have accounting and/or taxation implications and so independent advice should be sought at this time.

The Floating Rate Par Forward can therefore be used actively throughout the life of the transaction to switch interest rate exposure from fixed rate to floating rate (and vice versa), in either currency.

TARGET MARKET

The Floating Rate Par Forward is an ideal alternative to both the Par Forward and traditional FX Forwards particularly where the user is seeking to independently manage the interest rate exposure created by forwards. The Floating Rate Par Forward is appropriate where the user is willing to be actively involved in rate risk management over the life of a transaction. There is no limit to the number of times the Floating Rate Par Forward can be utilised during the life of a transaction as in the example above.

NOTES

By its nature, the Floating Rate Par Forward changes the timing of cashflows from what would normally be expected when using FX Forward contracts. This therefore has taxation and accounting implications. As in the example above, the Floating Rate Par Forward may result in some forwards being exchanged at

better than market rates while others are at worse than market rates. Depending upon the accounting method utilised by the user, this may result in an over or under statement of profits or losses.

ADVANTAGES

- Ability to manage FX and Interest Rate exposure separately.
- Active management tool.
- Simplicity.
- Cashflows are not required to be equal or regular.
- Potential accounting benefits.

DISADVANTAGES

- Potential taxation and accounting implications
- Requires on-going management

PRODUCT SUITABILITY

Complex Defensive

Futures Contracts

DESCRIPTION

A Futures Contract is a legally binding commitment to buy or sell a financial asset or instrument at a specified future date and at a specified price. The financial futures markets are not used for buying and selling financial instruments (such as T-Bills, Bonds etc) but for generating gains and losses on the future value of specific instruments.

Traded on an Exchange, most financial futures have Mar, Jun, Sep and Dec maturities each year.

EXAMPLE

Euro Dollar Futures are contracts on the future value of 3 month Libor.

If we buy a March 95 contract at 9450, we are taking the view that 3 month Libor will be LOWER than 5.50% (10,000 - 9,450 = 550). If we sell the contract before maturity at 9550, we will make a profit of l00bp (9550 - 9450).

Under a perfect market (and the Futures exchange is generally viewed as one) the "market" is implying that 3 month Libor in March 1995 will be 5.50%.

This is known as the Implied Forward.

PRICING

Traded on the exchange, the price reflects the collective market view of future Libor.

TARGET MARKET

Futures can be used to speculate with, (if you disagree with the market view on Libor), or as a hedge against existing positions. For example, if a borrower has a loan that resets against Libor, they will be required to pay a higher interest bill if Libor increases.

To hedge against this, the borrower could sell Libor Futures.

This contract will increase in value as Libor increases therefore providing a hedge.

ADVANTAGES

- High liquidity, and therefore small Bid/Offer spreads
- Leverage due to margin trading ability

DISADVANTAGES

- Limited number of instruments covered
- Limited number of maturities make it impossible to hedge perfectly

PRODUCT SUITABILITY

Simple Aggressive

INCREMENTAL FIXED SWAP

DESCRIPTION

The difference between an Incremental Fixed Swap (IFS) and a normal pay fixed swap is that the IFS only pays fixed on a certain percentage of the notional of the swap; the rest will stay floating. The fixed portion of the swap depends on the LIBOR rate; if LIBOR rises, the fixed portion of the swap will increase, if LIBOR falls the fixed portion of the swap decreases.

This strategy is very similar to an interest rate cap in that a maximum rate is guaranteed but the IFS has no up-front premium. The IFS is also known as "Index Fixed Swap" and "Self Regulating Swap".

EXAMPLE

Imagine a 5 year IFS where the fixed portion of the swap is determined as follows:

If LIBOR is above:	but below or equal to:	then fixed portion is:
8.50%	----	100%
8.00%	8.50%	80%
7.50%	8.00%	60%
7.00%	7.50%	40%
6.50%	7.00%	20%
0%	6.50%	0%

The IFS swap rate is 11.16% while the normal 5 year swap rate is 9.50%.

So when LIBOR is above 8.5%, the IFS changes into a normal fixed rate swap at 11.16%. The IFS rate will always be higher than the normal 5 year spot rate to compensate for the fact that the payer doesn't always pay this rate on the full amount.

The payer then pays: X * 11.16% + (1-X) * LIBOR and receives: 6 months LIBOR
where X = the percentage fixed in the swap

If the LIBOR setting on a reset date would be 7.76% for example, the payer would end up paying 60% fixed (11.16%) and 40% floating (7.76%) in the swap.

This results in a rate of 10.07% [0.60 * 11.16% + (1-0.60) * 7.76%]

PRICING

To price the above IFS, we buy a cap on 20% of the notional principal at each strike. We also write Digitals at these strikes for 20% of the notional principal, so that the premiums of these Digitals cover the cost of the cap. At this point, if LIBOR is 7.20% we would have capped 20% at 6.50% and 20% at 7.00% and there would be 60% at LIBOR. However, we want 40% at one fixed rate and 60% at LIBOR. We now calculate the loss on each digital in each LIBOR range. The present value of these losses are

subsequently spread over the life of the deal to calculate the IFS rate.

TARGET MARKET

This is ideal for borrowers who do not have a sophisticated treasury management system but want protection, as it automatically increases the ratio of fixed to floating rate debt when rates are rising. It is suitable as a reluctantly bearish hedge, as it provides "disaster protection".

ADVANTAGES

- If LIBOR stays low borrowers will remain (mainly) floating
- If LIBOR stays low, the payer may never pay any fixed and therefore not incur any penalty
- No premium paid
- Maximum cost of funds is known in advance (IFS rate)

DISADVANTAGES

- The IFS rate usually much higher than a normal swap rate

PRODUCT SUITABILITY

Complex Defensive

Implied Forwards

DESCRIPTION

An Implied Forward is that rate of interest that financial instruments predict will be the spot rate at some point in the future.

CALCULATION

If 6 month Libor is 5.00% (180 days) and 3 month Libor is 4.00% (90 days) we can calculate the 3 month forward implied 3 month rate as follows:

$(1+0.05)^{180/360} = (1+0.04)^{90/360} * (1+X)^{90/360}$

$X = 6.01\%$

Therefore the market is implying that in 3 months time, 3 month Libor will be 6.01%. This means that an Investor would be indifferent between receiving 4.00% for 3 months and reinvesting at 6.01% for a further 3 months, and receiving 5.00% for 6 months.

- The Implied Forward is very dependant on the SLOPE of the yield curve.
- In a positively sloped curve, Forward rates are implied to be higher than Spot rates.
- In a negatively sloped curve Forward rates are implied to be lower.

APPLICATIONS

The Implied Forward rate is very important for anyone wishing to take a position in the markets. By definition, all speculative views on the market are only profitable when the rates that occur are different than those implied. Therefore when looking to establish a position, it is important to compare your view with the Implied Forward. If it is the same, there is no opportunity to profit from your view. The difference between the current Spot rate and the Implied Forward is known as the amount "built in" to the market.

The Implied Forward is also used when calculating an FRA rate (see "Forward Rate Agreements").

FORMULA

The formula for calculating Implied Forwards is as follows:

$(1+r)^{n/12} = (1+s)^{m/12} * (1+x)^{p/12}$

Solve for x where:

- r is rate for long period
- s is rate for short period
- n is number of months in long period
- m is number of months in short period
- p is number of periods in implied period

Note: All rates used must be same discount basis

Interest Rate Swaps

DESCRIPTION

An Interest Rate Swap is an exchange of cashflows for a prescribed period on prescribed dates. One Party receives a FIXED rate of interest in return for paying a FLOATING rate of interest. There is no exchange of principal but the interest amounts are calculated on a defined notional principal. The floating side of the swap is usually priced against Libor, although it depends on the local market convention.

An Interest rate Swap can be thought of as a synthetic Bond: receiving a fixed rate of interest is akin to holding a bond, while payment of a floating rate resembles the funding costs of this long bond position. The reverse is also true - a "Pay Side" Interest Rate Swap synthesises a short bond position. Swaps are the most common form of interest rate derivative.

EXAMPLE

An investor is of the view that interest rates in Germany will decline over the course of the year, particularly in the five year sector of the yield curve. The investor could enter into a five year interest rate swap where they RECEIVE fixed rate on say Dem10mm semi-annually, and pay German 6mth Libor. No monies are exchanged at the inception of the deal, but the Libor rate would be set according to a "Fixing" index, such as that prepared by the British Bankers Association on Telerate page 3750. At the end of the first six-month period, there is just one net interest payment. The investor would receive the difference if the Libor rate set at the beginning of the period was lower than the Fixed rate on the Swap, and would pay the difference if Libor was higher.

If after one year, rates have actually fallen, and the investor wants to take profit, they may close out the swap. The main influence on the profit/loss will be the four year swap rate, and whether it is higher or lower than the established fixed rate on the swap agreement. If the prevailing four year rate is lower than the fixed rate, then the investor would receive the difference of the discounted cashflows. The movement in Libor will also affect the price.

Borrowers commonly use swaps to convert the interest rate exposure of loans from floating rate to fixed and vice versa. A corporate may have a 3yr Esp loan on which they pay Libor plus 50bp. If they believe that interest rates are going to rise over the next 3 years, they can enter into an interest rate swap where they RECEIVE Esp Libor to compensate for the payment on the loan, and PAY a fixed rate for 3 yrs. The net cost of funds to the borrower has now been converted from Esp Libor plus 50bp to the 3yr Esp Fixed swap rate plus 50bp.

The swap agreement is completely separate from the underlying asset or liability and is used as an "overlay" product to manage the exposures created.

PRICING

The price of an Interest Rate Swap is that level at which the market is indifferent between paying a FIXED rate of interest, and a stream of Libor. It therefore depends wholly on the implied forward libor rates (see "Implied Forwards"). A swap can be therefore be thought of as a series of FRAs all with the same strike.

In the professional market, a "Swap Bid" is that price that they would "Buy" a stream of Libor-linked cashflows, and the "Offer" is the price at which they would be willing to "sell" a stream of Libor-linked cashflows.

TARGET MARKET

Because there is no principal exchanged with an interest rate swap, there can be no foreign exchange risk on that principal. This is a major advantage when comparing to alternative strategies (buying bonds for example).
Swaps can be used as a hedge to lock in the future cost of borrowing or to lock in the future rate of return on an investment. They can also be used as a speculative tool for those wishing to take a view on the future direction of interest rates.

Unlike caps and floors, the loss potential on swaps is not limited and therefore are inherently more risky, but also provide larger potential returns.

A swap is an ideal alternative to those who buy Bonds with many advantages. Swap markets exist in all major and most minor currencies.

ADVANTAGES

- No FX exposure
- No premiums
- No principal payment as with bonds
- Off balance sheet
- Can be customised
- Can be reversed at any time
- Can be traded on margin so provide leverage

DISADVANTAGES

- Unlimited loss potential
- Requires ISDA documentation

PRODUCT SUITABILITY

Complex Defensive, Complex Aggressive.

Knock-In Caps and Floors

DESCRIPTION

A Knock-In Cap or Floor reduces the premium of a normal Interest Rate Cap/Floor by adding a 'Knock-In' feature. The cap or floor only comes alive, or knocks in when some defined barrier (the knock in level) is reached on a rollover date. The cap or floor can either come alive for the entire remaining life of the option or only for the period to which that fixing applies. Interest rate caps and floors can be Knocked-In with reference to a wide range of underlyings, including Libor, FX, commodity and equity levels. These options are part of the Barrier Option family (see "Barrier Options").

EXAMPLE

example 1

A Japanese exporter is very profitable when USD/YEN exceeds 115.00 which is the current spot rate. However should the spot rate drop below 100, cash flow is tight and they require interest rate protection. A normal 7% cap for 5 year costs 364 bp. Instead they buy a five year 7% cap which Knocks-In when USD/YEN reaches 100.00. The total cost for this structure is 205 bp.

Advantages:

a) Cheaper premium

b) If USD/YEN reaches 100.00, the cap is Knocked-In when the interest rate protection is required most

example 2

A German investor has a diversified portfolio of investments including FRNs and equity investments. They believe that rates will stay high, but would be concerned if commodity prices fall dramatically. They could purchase an interest rate floor that knocks in when the CRB index falls below 200.

Advantages:

a) Cheaper premium

b) If the falls below 200, this may indicate that interest rates wilI fall and therefore the yield on the FRN portfolio will fall below acceptable levels.

The product is therefore very customised to the client situation.

PRICING

A knock-in option is a form of barrier option (see "Barrier Options"). The savings under a Knock-in Cap or Floor are dependant upon:

a) Volatility - lower volatility leads to higher savings

b) Strike - the closer the knock-in level to the At-the-Money strike, the more chance there is that

the structure will be knocked-in and therefore the higher the premium.

TARGET MARKET

Knock-in Caps and Floors are suitable for any borrower or investor where the need for interest rate protection is contingent upon some other underlying.

ADVANTAGES

- Cheaper than standard caps and floors
- Flexibility in setting the Knock-In level and thus the cost of the option
- Can be linked to any underlying
- Customised to clients exposures

DISADVANTAGES

- The interest rate protection is contingent upon an "independent" event

PRODUCT SUITABILITY

Complex Defensive

KNOCK-IN SWAPTION

DESCRIPTION

A Knock-In Swaption reduces the premium of a normal Interest Rate Swaption by adding a "Knock-In" feature. The swaption only comes alive, or knocks in when some defined barrier (the knock in level) is reached during or at the end of the option period. Both Receiver and Payer Swaptions can be Knocked-In with reference to a wide range of underlyings, including LIBOR, FX, commodity and equity levels. These options are part of the Barrier Options family.

EXAMPLE

example 1

A Japanese exporter is very profitable when USD/YEN exceeds 115.00 which is the current spot rate. However they expect the spot rate to drop below 100 in the next half year in which case cash flow would be tight and there would be need for interest rate protection.

This protection could be achieved with a pay fixed swap which would offset their interest rate debt. The first thought is a 6 month payer swaption on a 4 year swap which would cost 282 bp. An alternative is a Swaption that Knocks-In when USD/YEN reaches 100. This would cost only 213 bp.

Advantages:

a) Cheaper premium
b) The swaption is Knocked-In when the interest rate protection is required most; that is if USD/YEN reaches 100.00

example 2

A German investor has a diversified portfolio of investments including FRNs and equity investments. They believe that rates will stay high, but would be concerned if commodity prices fall dramatically. They could purchase a receiver swaption that knocks in when the CRB index falls below 200.

Advantages:

a) Cheaper premium
b) If the falls below 200, this may indicate that interest rates will fall and therefore the yield on the FRN portfolio will fall below acceptable levels.

The product is therefore very customised to the client situation.

PRICING

A knock-in option is a form of barrier option (see Barrier Options). The savings under a Knock-in Swaption are dependent upon:

a) Volatility -lower volatility leads to higher savings
b) Strike -the closer the knock-in level to the At-the-Money strike, the more chance there is that the structure will be knocked-in and therefore the higher the premium.

TARGET MARKET

Knock-in Caps and Floors are suitable for any borrower or investor where the need for interest rate protection is contingent upon some other underlying.

ADVANTAGES

- Cheaper than standard swaption
- Flexibility in setting the Knock-In level and thus the cost of the option
- Can be linked to any underlying
- Customised to clients exposures

DISADVANTAGES

- The interest rate protection is contingent upon an "independent" event

CREDIT RISK FACTOR

Bought options with Knock-In feature require no margin as the maximum loss to the client is the premium

PRODUCT SUITABILITY

Complex Defensive

FX Knock-In Options

DESCRIPTION

An FX Knock In option is an option that comes alive, i.e. Knocks In, when a certain barrier is reached. If the barrier is never reached, the option will automatically expire worthless, as without reaching the barrier, it never exists. If the barrier is reached, the option knocks in and its final value will depend on where the spot rate settles in relation to the strike. They are therefore substantially cheaper than ordinary FX options. FX Knockouts are part of the Barrier Option family (see "Barrier Options").

Where the barrier on a knock in call is above the spot, it is called an "UP AND IN CALL". Where the barrier is below the spot, it is a "DOWN AND IN CALL".

EXAMPLE

An investor may have the view that the USD will range trade against the YEN over the next six months (current spot 99.00). However, they watch the technical markets and believe that if the USD exceeds 105.00 it will rise dramatically towards 120. An ordinary 6 month USD call option at a strike of 99.00 would cost 3.50%.

The alternative is to purchase a USD at the money call (99.00) with a knock in at 105.00, i.e. an up and in call. This would reduce the premium to only 1.80% with the following result:

> If the USD does strengthen but never trades above 105.00 over the life of the option, the call will expire worthless.
>
> If the USD strengthens above 105.00 at some time over the life of the option, the call will behave like an ordinary call and the investor will exercise the call and make the some profit as the ordinary call.
>
> If the USD does not close above the call strike (99.00), the option will expire worthless like an ordinary option.

So, the Knock In call is very attractive if we believe that a break of 105.00 confirms a new bullish trend on the dollar, as the premium is mush cheaper.

PRICING

As the option is dead until it knocks in to life, the premium is reduced dramatically. As the option can be knocked in at any time over the life of the option, the knock in feature is very sensitive to the volatility of the underlying instrument and it is more sensitive than an ordinary option. This explains the dramatic reduction in premium.

TARGET MARKET

This is an ideal instrument for risk averse clients, as the much lower premium means the potential loss is

much smaller than ordinary options. It is also ideal where the breach of a barrier is seen as confirming a new trend. The reduced premium gives the investor a more leveraged position (i.e. they will make a higher percentage return from small moves than with an ordinary option).

ADVANTAGES

- Dramatically lower premiums
- Lower loss potential
- More leverage for small moves

DISADVANTAGES

- Knock in feature reduces potential upside from large moves

PRODUCT SUITABILITY

Complex Aggressive

FX Knockout Options

DESCRIPTION

Ordinary FX options provide the buyer with an unlimited upside and a known downside, i.e. the premium. The Knockout feature limits the upside given to the buyer and therefore makes the option considerably cheaper.

When an investor purchases an ordinary FX option, the payout depends on where the spot rate closes on a particular day (the maturity). With the Knockout feature, if at any time up to and including the maturity, the Knockout level is reached, the option will expire worthless. FX Knockouts are part of the Barrier Option family (see "Barrier Options").

Where the barrier on a call is ABOVE the spot, the option is known as an "UP AND OUT CALL". Where the barrier on call is BELOW the spot, the option is known as a "DOWN AND OUT CALL".

EXAMPLE

An investor may have the view that the USD will strengthen against the YEN over the next six months (current spot 99.0). They purchase an ordinary 6 month USD call option at a strike of 99.00. This would cost 3.50%.

The alternative is to purchase a USD at the money call (99.0) with a knockout at 109.00, i.e. an up and out call. This would reduce the premium to only 1.00% with the following result:

> If the USD does strengthen but trades above 109.00 over the life of the option, the call will expire worthless.
>
> If the USD strengthens, but never reaches 109.00 over the life of the option, the call will behave like an ordinary call and the investor will exercise the call and make the same profit as the ordinary call.
>
> If the USD does not close above the call strike (99.00), the option will expire worthless like an ordinary option.

So, the Knockout call is very attractive if we believe the USD will strengthen but never exceed our Knockout level because the premium is dramatically cheaper.

PRICING

As the option buyer is giving up some upside by having the Knockout feature, the premium is reduced dramatically. As the option can be knocked out at any time over the life of the option, the knockout feature is very sensitive to the volatility of the underlying instrument. It is more sensitive than an ordinary option. This explains the dramatic reduction in premium.

TARGET MARKETS

This is an ideal instrument for risk averse clients, as the much lower premium means the potential loss is much smaller than ordinary options. It is also ideal where the expected market move is relatively small, as the reduced premium makes the break-even more attractive and also gives the investor a more leveraged position (i.e. they will make a higher percentage return from small moves than with an ordinary option).

REBATE FEATURES

Knockout options can also be structured with a Rebate feature.

Under the simple Knockout, when the knockout level is reached, the buyers option will expire worthless (i.e. the buyer receives zero).

A Knockout with Rebate, means that when the Knockout level is reached, the buyer will receive a small payout.

EXAMPLE

An investor buys a USD call at 99.00, with Knockout at 109.00 and Rebate of 1%.

This performs the same as the previous example, except when the knockout level (109.00) is reached, the option expires but the investor receives a payout of 1.00% of the Notional. If the plain Knockout cost 1.00%, this structure may cost 1.35%.

PRICING

The rebate feature makes the option more expensive and the premium will depend on the size of the desired rebate. A Knockout with rebate is still cheaper than an ordinary option.

ADVANTAGES

- Dramatically lower premiums
- Lower loss potential
- More attractive break evens
- Rebate feature is very attractive to investors
- More leverage for small moves

DISADVANTAGES

- Knockout feature reduces potential upside from large moves

PRODUCT SUITABILITY

Complex Aggressive

Knock-Out Caps and Floors

DESCRIPTION

A Knock-Out Cap or Floor reduces the premium of a normal Interest Rate Cap/Floor by adding a 'Knock-Out' feature to it. Should some defined underlying, say Libor, ever reach the prescribed Knock-Out level on a rollover date, the cap/floor is terminated or 'Knocked-Out'. This termination can be either for the entire remaining life of the option or only for the period to which that fixing applies. Interest rate caps and floors can be Knocked-Out with reference to a wide range of underlyings, including Libor, FX, commodity and equity levels. These options are part of the Barrier Option family (see "Barrier Options").

EXAMPLE

example 1

A Japanese exporter is very profitable when USD/YEN exceeds 115.00. However at the current spot of 100.00, cash flow is tight. They require interest rate protection. A normal 7% cap for 5 year costs 364 bp. Instead they buy a five year 7% cap which Knocks-Out when USD/YEN reaches 115.00. The total cost for this structure is 205 bp.

Advantages:

a) Cheaper premium
b) If USD/YEN reaches 115.00, the cap is Knocked-Out, but the exporter is now profitable enough to afford the higher interest costs.

example 2

A UK based company wishes to buy interest rate cover for some debt. However, it is contemplating floating off a large subsidiary in the next two years in which event it will not require the cap. Instead of buying a 3 year cap at a cost of 339 bp, they buy a Knock-Out Cap that knocks-out when the FTSE rises by 15%. This cap costs only 200 bp.

Advantages:

a) Cheaper premium
b) When the FTSE-100 rises 15% the company will be able to float its subsidiary on the Stock Exchange at attractive pricing and pay off its liabilities. In this situation it will not require a cap.

example 3

A German property developer has DEM100 in 3yr floating rate loans. They wish to have protection against interest rate rises, but want to minimise the cost as they believe rates will stay low but cannot afford to take that risk. They are however willing to take the view that the probability of DEM libor above 10% is very very low. They can purchase a 3yr 8% cap with a period to period Knock-Out at 10%. If libor is below 10%, they have a cap of 8%. If at any reset, libor is above 10%, they lose the cap for that period. A straight cap at 8% costs 250bp. The Knock-Out Cap costs only 110bp.

The product is therefore very customised to the client situation.

PRICING

A knock-out option is a form of barrier option (see "Barrier Options"). The savings under a Knock-Out Swaption are dependont upon:

a) Volatility - higher volatility leads to higher savings
b) Strike - the closer the knock-out level to the At-the-Money strike, the more chance there is that the structure will be knocked-out and therefore the lower the premium will be.

TARGET MARKET

Knock-Out Caps and Floors are suitable for any borrower or investor where the need for interest rate protection is either contingent upon some other underlying or where the protection required is not absolute.

ADVANTAGES

- Cheaper than standard options
- Flexibility in setting the Knock-Out level and thus the cost of the option
- Can be linked to any underlying
- Customised to clients exposures

DISADVANTAGES

- The potential loss is not limited like a normal option; once the option is 'Knocked out', the exposure reverts back to libor.

PRODUCT SUITABILITY

Complex Defensive

KNOCK-OUT SWAPTION

DESCRIPTION

A Knock-Out Swaption reduces the premium of a normal Interest Rate Swaption (Payer/Receiver) by adding a "Knock-Out" feature to it. Should some defined underlying, say LIBOR, ever reach the prescribed Knock-Out level on a rollover date, the swaption is terminated or "Knocked-Out". Both Receiver and Payer Swaptions can be Knocked-Out with reference to a wide range of underlyings, including LIBOR, FX, commodity and equity levels. These options are part of the Barrier Options family.

EXAMPLE

example 1

A Japanese exporter is very profitable when USD/YEN exceeds 115.00. However at the current spot of 100.00, cash flow is getting tight. They expect to be able to get on for about 3 months at this level, but then they will need to get their debt fixed. The decision is made to wait and see whether USD/YEN comes up again, but they also want to be sure that they can lock in the current yield curve. A normal 6 month into 5 year payer swaption costs 364 bp. Instead they buy a 6 month into 5 year payer swaption that Knocks-Out when USD/YEN reaches 115.00. The total cost for this structure is 205 bp.

Advantages:

a) Cheaper premium
b) If USD/YEN reaches 115.00, the swaption is Knocked-Out, but the exporter is now profitable enough to afford the higher interest costs.

example 2

A UK based company is planning to buy back a large part of the company shares during the next 4 months because of the current market circumstances. The share price has fallen to 33p a share which is the low for two years and the company would have interest in buying the shares back as long as the share price remains below 50p. Part of this buyback will have to be funded with a floating rate loan which would need to be hedged. The company would like to hedge this exposure with a 4 month into 3 year payer swaption. Since the company knows that they will only need the swaption when the share price remains below 50p, They can also buy a payer swaption which Knocks-Out when the share price reaches 50p.

Advantages:

a) Cheaper premium
b) If the share price rises above 50p, they will not buy their shares back and will thus not need protection. In all other cases the company can lock into a swap to hedge their exposure.

PRICING

A knock-out option is a form of barrier option (see Barrier Options). The savings under a Knock-Out Swaption are dependent upon:

a) Volatility -higher volatility leads to higher savings
b) Strike -the closer the knock-out level to the At-the-Money strike, the more chance there is that the structure will be knocked-out and therefore the lower the premium will be.

TARGET MARKET

Knockout Swaptions are suitable for any borrower or investor where the need for interest rate protection is contingent upon some other underlying.

ADVANTAGES

- Cheaper than standard swaptions
- Flexibility in setting the Knock-Out level and thus the cost of the option
- Can be linked to any underlying
- Customised to clients exposures

DISADVANTAGES

- The potential loss is not limited like a normal option; once the option is "knocked out", the exposure reverts back to LIBOR.

CREDIT RISK FACTOR

Bought options with Knock-Out feature require no margin as the maximum loss to the client is the premium

PRODUCT SUITABILITY

Complex Defensive

Ladder Options

DESCRIPTION

With a Ladder option, the strike is periodically reset when the underlying trades through specified trigger levels, at the same time locking in the profit between the old and the new strike. The trigger strikes appear as rungs on a ladder. Ladder options can be structured to reset the strike in either one or both directions. The Ladder option is also known as a Ratchet option and Lock-In option.

EXAMPLE

An investment fund that is bullish on the USD wants to buy USD calls. If the fund buys a European call it can only exercise the option at the maturity date. If it buys an American call though, it will face the problem of when to exercise the option. The fund decides to buy a Ladder Option with a strike of 1.65 and a ladder with rungs starting at 1.65, going upwards in steps of 5 pf to a maximum of 1.80. Now every time USD/DEM reaches a new rung, the strike will be reset to that rung and a 5 pf profit locked in. So if during the lifetime of the deal USD/DEM reaches its high at 1.7620, the highest rung reached will be 1.75 and the strike will thus be set accordingly, while the profit of 10 pf (1.75-1.65) will be locked in. At expiry the fund will receive the greater of (a)closing spot less original strike, and (b) highest rung reached less original strike. If in our example, the highest level was 1.7620 but the rate closes at 1.53, the fund will receive 10 pf only. If however the spot closes at 1.762, the fund will receive 11.2 pf.

PRICING

A Ladder Option can be viewed as a series of Knock-In and Knock-Out call and put options each struck at a different ladder level. Our above example is made up by combining a 165 call and a series of bought and sold Knock-In Puts (see "FX Knock-In Options").

TARGET MARKET

Ladder options are applicable for risk averse option buyers as profits are progressively locked in without losing the option position.

ADVANTAGES

- Less risky than traditional options as profits locked in as underlying performs
- No need to constantly watch the underlying market levels

DISADVANTAGES

- More expensive than a normal option

PRODUCT SUITABILITY

Complex Defensive

LINEAR FOREX-LINKED SWAP

DESCRIPTION

A Linear Forex-Linked Swap is an Interest Rate Swap where the fixed interest rate leg is linked to the performance of a defined FX rate. Any change in the FX rate results in a linear change in the fixed rate paid or received under the swap agreement. The Linear Forex-Linked Swap is used for integrated hedging. By linking the FX and interest rate exposures of a company or investor, adverse FX movements can translate into offsetting interest rate gains and vice versa. For more information on integrated hedging, contact your Derivatives professional.

EXAMPLE

A USD based company has AUD receivables, so is exposed to a falling AUD. Traditionally, the company has utilised FX Forwards to hedge this FX exposure. The company also has a USD floating rate loan which it is looking to fix for 3 yrs through an Interest Rate Swap. An alternative strategy for the company is the Linear Forex-Linked Swap. The company could agree to pay fixed USD on its loan, with the fixed rate linked to the performance of the AUD spot rate. If the AUD falls, the swap fixed rate would fall, and if the AUD rises, the fixed rate would also rise. Any FX gain or loss would therefore be offset by a change in the swap rate rather than realised as FX gains or losses. More specifically, a 10% fall in the AUD spot rate would lead to a 10% reduction in the USD fixed rate paid under the swap, so if the swap rate began at say 9.00%, it would be reset to 8.10%. Any changes would be made at the swap reset dates and apply for future swap payments only.

PRICING

The Linear Forex-Linked Swap is an Interest Rate Swap plus a series of FX Forward agreements where any profit or loss on the FX forward is rolled into the swap coupon paid on the next payment date. The "price" of the Linear Forex-Linked Swap is dependent upon the starting point for calculating the movement in the FX rate. There are many different versions of the Linear Forex-Linked Swap. The FX movement may be calculated only from the start of each period to the end of each period, or it may be the same starting rate for each period. For a period-to-period Linear Forex-Linked Swap, if the forward FX rate to the next reset date is used as the starting point, then the swap rate will be very similar to the Interest Rate Swap rate for the same tenor. Where the starting point is not the forward rate, but say the spot rate or some other pre-determined rate, the swap rate will be dramatically different than the traditional swap rate. In these cases, the starting point for the FX rate is "off-market". If the starting rate is more beneficial than the forward rate, the swap rate will be correspondingly worse, and vice versa.

TARGET MARKET

The Linear Forex-Linked Swap is an appropriate tool for those seeking to integrate the hedging of both interest rate and foreign exchange exposure. It is therefore suitable where users are looking for a simple, low maintenance solution to FX and interest rate exposures.

NOTES

The Linear Forex-Linked Swap converts any profit or loss on the FX hedge contract into offsetting profit or loss on the Interest Rate Swap. This therefore has taxation and accounting implications and independent advice should be sought before utilising this product.

ADVANTAGES

- Flexibility
- Simplicity
- One transaction to hedge two exposures
- Customised

DISADVANTAGES

- Potential taxation and accounting implications

PRODUCT SUITABILITY

Complex Defensive

Lookback Options

DESCRIPTION

There are two types of Lookback option: (a) Set a strike at the start. At maturity, the buyer can "lookback" over the life of the option and choose the most favorable exercise point to maximize profit between strike and exercise. (b) Set a strike at maturity. At maturity the buyer can "lookback" and set the most favorable strike to maximize profit between strike and maturity. Lookback Options are also known as Hindsight Options.

EXAMPLE

An investor expects a sharp rise in the CAC 40 over the next year. A straight 1 year call with an at-the-money spot strike of 1900 would cost 236 points. A Lookback call strike 1900 would cost 343 points but would give the investor the opportunity to lookback at maturity and select the highest point reached by the CAC 40 as the exercise point thus maximizing profit. If the CAC 40 is higher than 1900 at any time over the year, the investor is assured of some payout. The lookback feature is thus very attractive to investors as it gives the buyer the best possible payout. However, Lookback options are generally very expensive.

PRICING

Since the option will always choose the highest profit available, the major determinant of the option price will be the volatility of the underlying. The more volatile the underlying, the higher the probability that the underlying will move dramatically enough to allow the investor a significant profit, therefore the higher the volatility the more expensive the Lookback.

TARGET MARKET

Lookback Options are applicable for risk averse investors unsure about timing of the move in the underlying. They are lower risk as there is a high probability of return. However, they do involve a larger upfront premium.

ADVANTAGES

- The buyer will always be able to lock in the most favorable profit that appeared during the life of the option

DISADVANTAGES

- The Lookback Option will require higher premiums than conventional options

PRODUCT SUITABILITY

Simple Defensive

LIBOR REGULATING SWAP

DESCRIPTION

Under a LIBOR Regulating Swap one party receives LIBOR and pays a blended rate representing a fraction fixed and a fraction floating. The "blended rate" will be capped at a maximum.

EXAMPLE

A customer that could pay fixed at 6.71% in a 3 year semi-annual swap, can also enter a LIBOR Regulating Swap where they can receive 6 month LIBOR and pay according to the following formula:

Min [(6.90% + 6M LIBOR) / 2 , 7.75%]

They would therefore pay the minimum of either a) the average of the fixed and the LIBOR rate or b) 7.75%. In this example the blend is 50/50, but this can be decided by the client.

PRICING

The LIBOR Regulating Swap consists of a Swap combined with a Cap, each for a certain part of the original notional amount and will thus have the same pricing-features as these products. The Cap premium is built into the fixed rate so no up front premium is required.

TARGET MARKET

The LIBOR Regulating Swap is an appropriate alternative for any borrower hedging against rising rates.

ADVANTAGES

- In a positive yield curve environment, the cost of funds will be lower than a regular swap (but higher than LIBOR)
- The maximum payoff under the worst case scenario is known in advance

DISADVANTAGES

- The maximum payoff will be at a higher level than the current market swap rate

PRODUCT SUITABILITY

Complex Defensive

MOVING AVERAGE CAP

DESCRIPTION

A Moving Average Cap is a modification of the Interest Rate Cap such that the cap payout is determined by the maximum "average" interest rate over the cap period. The calculation of the average is dependent upon a defined "window" period which is determined by the cap buyer. The Moving Average Cap is always cheaper than a standard Interest Rate Cap . Due to the averaging process, no payout is possible until the end of the transaction. The Moving Average Cap is therefore not appropriate for those buyers seeking to hedge particular asset or liability cashflows.

EXAMPLE

A company is seeking protection against rising rates in general. They do not have a particular liability that they are seeking to hedge and therefore are willing to delay any option payout until maturity. They are seeking to reduce the option premium to a minimum and so are considering the following Moving Average Cap.

Tenor:	2 years
Strike:	10.00%
Window:	12 mths
Underlying:	6 mth LIBOR
Notional:	100,000,000

The payout is calculated as follows:

(Maximum Average - Strike) * Window Size in yrs * Notional

Assuming 6 mth LIBOR over the 2 year period resets semi annually as follows: 10.50%, 10.00%, 11.50% and 11.50%. The window for calculating the average as determined by the buyer is one year, so the average rate for the first window period (the first two resets) is 10.25% , the second window (reset 2 and 3) is 10.75%, and the last window (reset 3 and 4) is 11.50%. The highest average is therefore 11.50%, and the payout becomes:

(11.50% - 10.00%) * 1 * 100,000,000 = 1,500,000.

So while the maximum average LIBOR was 150bp above the strike, given the window period of 1 year, the payout of 1,500,000 translates into a 75bp per annum saving over 2 years.

PRICING

Pricing the Moving Average Cap is a complex process best achieved through simulation. Of course, the Moving Average Cap is always cheaper than a standard cap of the same tenor and strike. The same factors affect the premium as with any Interest Rate Cap. Higher volatility , lower strikes and longer tenors all lead to higher premiums.

TARGET MARKET

The Moving Average Cap is an alternative cap structure for those looking to reduce the premium. It is particularly appropriate where the user seeks protection against mark-to-market losses that occur with liability portfolios in a rising rate environment, and where the user is not sensitive to short term changes in rates, but needs protection over periods of one year or more. In this situation, the buyer can achieve substantial premium savings by purchasing a cap based upon the average level of rates. The Moving Average Cap is suitable when the user believes rates may rise but not stay high for a sustained period of time. The Moving Average Cap is also suitable where the buyer is not sensitive to the timing of cashflows as there is no payment until maturity. It is therefore ideal as a hedge for mark-to-market losses on an liability portfolio.

ADVANTAGES

- Lower premium
- Customised

DISADVANTAGES

- Only provides general rather than specific rate protection
- No payout until maturity

PRODUCT SUITABILITY

Complex Defensive

MOVING AVERAGE FLOOR

DESCRIPTION

A Moving Average Floor is a modification of the Interest Rate Floor such that the floor payout is determined by the minimum "average" interest rate over the floor period. The calculation of the average is dependent upon a defined "window" period which is determined by the floor buyer. The Moving Average Floor is always cheaper than a standard Interest Rate Floor. Due to the averaging process, no payout is possible until the end of the transaction. The Moving Average Floor is therefore not appropriate for those buyers seeking to hedge particular asset or liability cashflows.

EXAMPLE

An investor is seeking protection against falling rates in general. They do not have a particular asset that they are seeking to hedge and therefore are willing to delay any option payout until maturity. They are seeking to reduce the option premium to a minimum and so are considering the following Moving Average Floor.

Tenor:	2 years
Strike:	7.00%
Window:	12 mths
Underlying:	6 mth LIBOR
Notional:	100,000,000

The payout is calculated as follows:

(Strike - Minimum Average) * Window Size in yrs * Notional

Assuming 6 mth LIBOR over the 2 year period resets semi annually as follows: 7.50%, 7.00%, 6.50% and 6.50%. The window for calculating the average as determined by the buyer is one year, so the average rate for the first window period (the first two resets) is 7.25% , the second window (reset 2 and 3) is 6.75%, and the last window (reset 3 and 4) is 6.50%. The lowest average is therefore 6.50%, and the payout becomes:

(7.00% - 6.50%) * 1 * 100,000,000 = 500,000.

So while the minimum average LIBOR was 50bp below the strike, given the window period of 1 year, the payout of 500,000 translates into a 25bp per annum saving over 2 years.

PRICING

Pricing the Moving Average Floor is a complex process best achieved through simulation. Of course, the Moving Average Floor is always cheaper than a standard floor of the same tenor and strike. The same factors affect the premium as with any Interest Rate Floor. Higher volatility , higher strikes and longer tenors all lead to higher premiums.

TARGET MARKET

The Moving Average Floor is an alternative floor structure for those looking to reduce the premium. It is particularly appropriate where the user seeks protection against mark-to-market losses that occur with asset portfolios in a declining rate environment, and where the user is not sensitive to short term changes in rates, but needs protection over periods of one year or more. In this situation, the buyer can achieve substantial premium savings by purchasing a floor based upon the average level of rates. The Moving Average Floor is suitable when the user believes rates may fall but not stay low for a sustained period of time. The Moving Average Floor is also suitable where the buyer is not sensitive to the timing of cashflows as there is no payment until maturity. It is therefore ideal as a hedge for mark-to-market losses on an asset portfolio.

ADVANTAGES

- Lower premium
- Customised

DISADVANTAGES

- Only provides general rather than specific rate protection
- No payout until maturity

PRODUCT SUITABILITY

Complex Defensive

MOMENTUM CAP

DESCRIPTION

In a Momentum Cap the Cap level is dependent on the last rate set for LIBOR. If LIBOR rises above a predetermined trigger in the rate set period, the cap strike for the remaining option is increased by a predetermined amount (up to a maximum level). Also known as "Ratchet Cap" and "Adjustable Strike Cap".

EXAMPLE

A normal 3 year quarterly FRF 8.00% cap costs 342 bp. A Momentum Cap can be structured where this strike of 8% will move up by 20 bp (up to a maximum of say 9.40%) whenever a LIBOR rate setting is 50 bp higher than the last rate setting. This would decrease the cost of the cap to 250 bp. If FRF LIBOR rises 40bp over the quarter, the cap strike remains at 8.00%. If it rises 50bp or more, the cap strike for the remaining period will rise to 8.20%. The cap strike can never rise above 9.40%. Obviously this is a cheaper alternative. It is applicable for cap buyers looking for disaster protection. If rates do not rise, the cap has cost less so the "loss" is limited. If rates rise dramatically in any quarter (i.e. more than 50bp in this example), the cap strike will rise slightly. This is certainly better than being exposed to LIBOR fully, and cheaper than being 100% capped.

PRICING

As the strike of the option is dependent on the last rate setting a Momentum Cap is path dependent. The steepness of the curve will indicate how fast and how often a strike change is expected to be triggered. The more steeply positive the curve, the closer the Momentum Cap price will be to a straight cap. The higher the LIBOR triggers, the cheaper the cap, and the closer the overall cap level (9.40% in the above example), the more expensive the cap. Each of the variables in a Momentum Cap can be set by the buyer.

TARGET MARKET

Momentum Caps are an ideal disaster hedge for borrowers. If rates stay low as expected, the premium cost has been lower than a straight cap. If rates rise unexpectedly fast, the strike will rise slowly, but only up to a maximum level. They are therefore ideal for those corporates who want rate protection for unexpected rate rises, but at a low initial cost.

ADVANTAGES

- Cheaper than a normal option
- Overall strike is capped

DISADVANTAGES

- The strike rises slowly as LIBOR rises
- Only limited protection

PRODUCT SUITABILITY

Complex Defensive

MOMENTUM FLOOR

DESCRIPTION

In a Momentum Floor the Floor level is dependent on the last rate set for LIBOR. If LIBOR falls below a predetermined trigger in the rate set period, the Floor strike for the remaining option is decreased by a predetermined amount (down to a minimum level).

EXAMPLE

A normal 3 year quarterly FRF 6.00% Floor costs 342 bp. A Momentum Floor can be structured where this strike of 8% will move down by 25 bp (down to a minimum of say 4.50%) whenever a LIBOR rate setting is 50 bp lower than the last rate setting. This would decrease the cost of the Floor to 250 bp. If FRF LIBOR falls 40bp over the quarter, the Floor strike remains at 6.00%. If it falls 50bp or more, the Floor strike for the remaining period will fall to 5.75%. The Floor strike can never fall below 4.50%. Obviously this is a cheaper alternative. It is applicable for Floor buyers looking for disaster protection. If rates do not fall, the Floor has cost less so the "loss" is limited. If rates fall dramatically in any quarter (i.e. more than 50bp in this example), the Floor strike will fall slightly. This is certainly better than being exposed to LIBOR fully, and cheaper than being 100% Floored.

PRICING

As the strike of the option is dependent on the last rate setting a Momentum Floor is path dependent. The steepness of the curve will indicate how fast and how often a strike change is expected to be triggered. The more steeply negative the curve, the closer the Momentum Floor price will be to a straight Floor. The higher the LIBOR triggers, the cheaper the Floor, and the closer the overall Floor level (4.50% in the above example), the more expensive the Floor.

TARGET MARKET

Momentum Floors are an ideal disaster hedge for investors. If rates stay high as expected, the premium cost has been lower than a straight Floor. If rates fall unexpectedly fast, the strike will fall slowly, but only down to a minimum level. They are therefore ideal for those investors who want rate protection for unexpected rate falls, but at a low initial cost.

ADVANTAGES

- Cheaper than a normal option
- Overall strike is Floored

DISADVANTAGES

- The strike falls slowly as LIBOR falls
- Only limited protection

PRODUCT SUITABILITY

Complex Defensive

MINI MAX FLOATER

DESCRIPTION

A Mini Max Floater is a floating rate note with a guaranteed minimum coupon level and a guaranteed maximum level.

EXAMPLE

An investor is particularly interested in Floating Rate Notes yielding around LIBOR flat. LIBOR is currently at 7.00%. A Mini Max Floater is also available that pays LIBOR with a guaranteed minimum coupon of 5.00% and a maximum coupon of 8.50%. If the investor purchases this note, the coupon is reset quarterly as with the FRN. If at any reset, LIBOR is below 5.00%, the investor is guaranteed that this note will still pay 5.00% for that quarter. If the LIBOR setting is above 8.50%, the investor will only receive 8.50%.

PRICING

A Mini Max Floater is simply the combination of a Floating Rate Note and a bought Interest Rate Floor and a sold Interest Rate Cap. Normally the strikes on the cap and floor are set so that the net premium paid is zero. The cap and floor premiums therefore have no impact on the LIBOR based coupon. It is of course possible to set the cap and floor strikes so that there is a net premium paid. In this case, the LIBOR based coupon would be reduced to reflect the cost. Alternatively, the cap and floor strikes may be set to generate a net premium to the investor which is used to increase the LIBOR based coupon.

In a positively sloped yield curve, the minimum coupon can be set closer to the current LIBOR than the maximum coupon while maintaining a zero net premium. In a negatively sloped yield curve, the minimum coupon needs to be set further from the current LIBOR than the maximum coupon in order to maintain a zero net premium.

TARGET MARKET

The Mini Max Floater is an attractive low risk alternative for investors considering floating rate investments.

ADVANTAGES

- 100% principal guaranteed
- Minimum guaranteed coupon
- No direct premium paid

DISADVANTAGES

- Maximum coupon can be "closer" than the minimum coupon if yield curve is negative

PRODUCT SUITABILITY

Simple Defensive

MARK TO MARKET CAP

DESCRIPTION

The Mark to Market Cap is an interest rate hedge structure that puts an upper limit on the marked-to-market loss of a swap portfolio. It will give the client the option to enter into a portfolio of offsetting swaps at any reset date over a chosen period, at strikes that will ensure that the MTM loss will not exceed a pre-determined amount.

EXAMPLE

Suppose a firm has a portfolio of 5 receive-fixed swaps with final maturities of 3 to 5 years.

They currently have a MTM loss of $4MM. A Market-To-Market Cap could provide the firm with an option to enter into pay-fixed swaps at any rate reset date over the next 12 months exactly offsetting the existing swaps in the portfolio and locking in a loss of $4.5MM. The strikes would be set such that the total portfolio loss would be capped at $4.5MM. Alternatively the options can be cash settled. The cap premium can be paid as an up front premium or on a periodic basis.

PRICING

The Mark to Market Cap price depends on the underlying parameters of the swap portfolio; tenors, notional amounts, strikes, correlation?s and embedded option features. Protection on a portfolio is cheaper than buying caps on individual components.

TARGET MARKET

Clients who manage their swaps on a portfolio basis who want protection against a (further) deterioration of their portfolio.

ADVANTAGES

- The structure will set a maximum loss to a complete portfolio
- Cheaper than buying a basket of Caps on the individual Swaps

DISADVANTAGES

- Complex pricing

PRODUCT SUITABILITY

Simple Defensive

N-Cap

DESCRIPTION

An N-Cap is a modification of the Knock-Out Cap (see "Knock-Out Caps and Floors"). In a Knock-Out Cap, once the trigger rate is reached (I.e. the Knock-Out level), the protection of the cap disappears for that period. With an N-Cap, once the trigger is reached the original cap level is replaced with a second cap level for that period. It is therefore more risk averse than the Knock-Out Cap. The N-Cap is also known as a Dual-Strike or Double Strike Cap.

EXAMPLE

A Borrower has a 3ye floating rate loan. While they believe rates will stay low and potentially fall further, they want some interest rate protection. They can purchase an 8% Cap for 250bp. Alternatively, they can enter an N-Cap as follows: A 3yr 8% cap, trigger at 10%, second cap level at 11%. They now have an 8% cap unless libor is above 10% in which case the 8% cap is replaced with an 11% cap for that period. The cost of the N-Cap is only 150bp.

Libor in the first period is 8.50%. They therefore claim 50bp under the 8.00% cap for that period. In the second period, libor unexpectedly rises to 12%. The trigger of 10% has been breached so the active cap level is now 11%. They claim 100bp for this period. The cap level for each period is either 8% or 11% depending on the level of libor.

PRICING

The N-Cap is a Knock-Out Cap plus a Knock-In Cap with a different strike, both with the same trigger rates. An N-Cap will be cheaper than a straight cap, but more expensive than a Knock-Out Cap.

TARGET MARKET

N-Caps are suitable for any borrower seeking a cheaper alternative to ordinary caps while maintaining some disaster protection.

ADVANTAGES

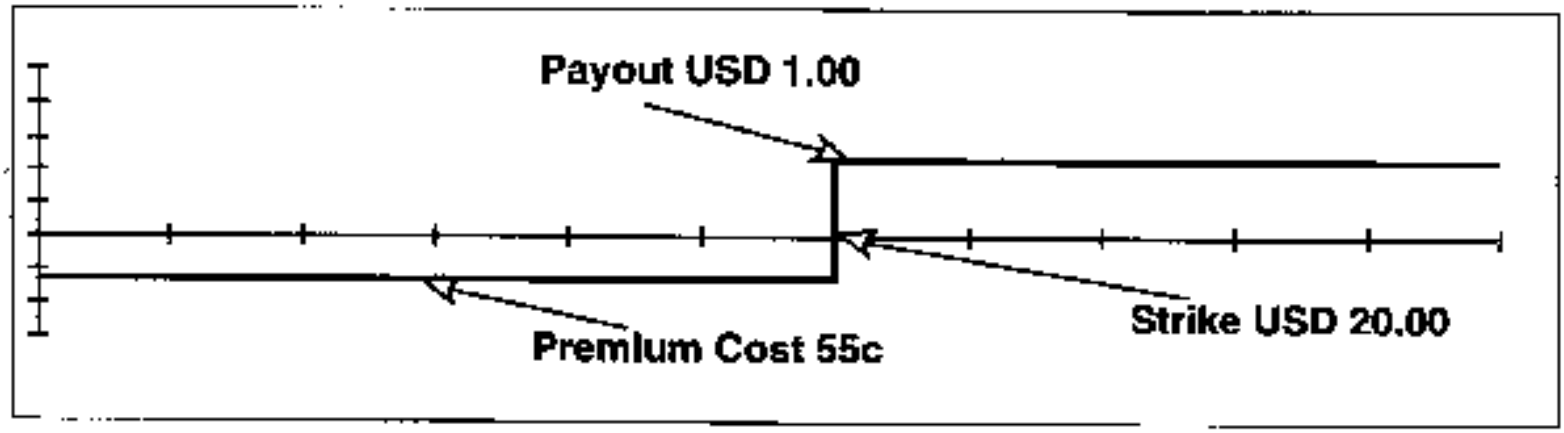
- Cheaper than standard cap
- Provides disaster protection

DISADVANTAGES

- Protection not as absolute as straight cap

PRODUCT SUITABILITY

Complex Defensive


Payout USD 1.00
Strike USD 20.00
Premium Cost 55c

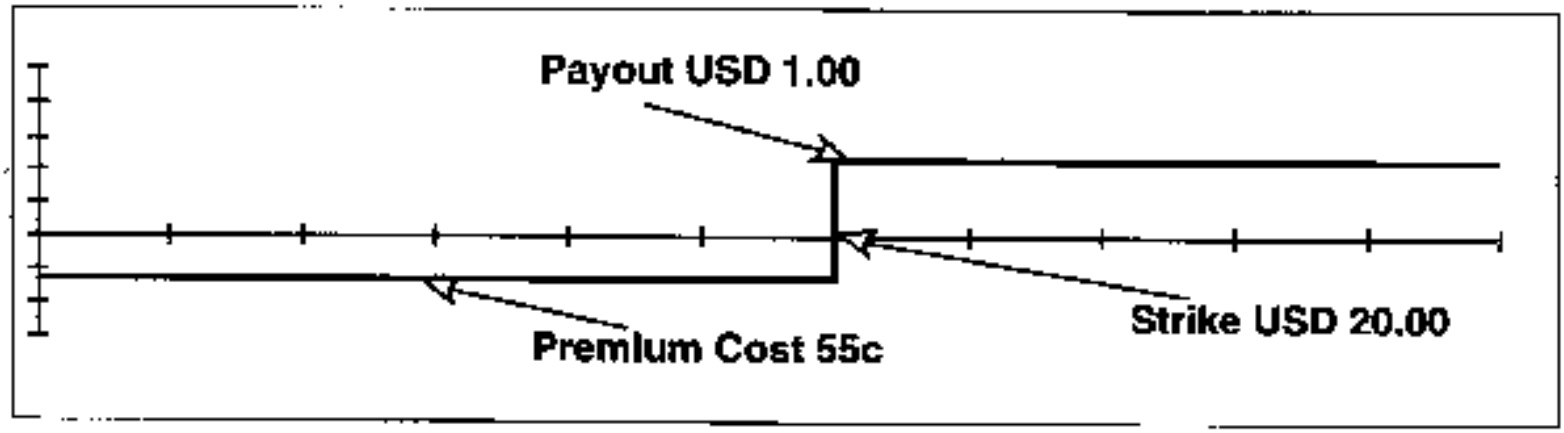
One Touch Digitals

DESCRIPTION

One Touch Digitals provide the Buyer with a Fixed payout profile. The Buyer receives the same payout irrespective of how far in the money the option closes. Unlike ordinary Digitals, One Touch Digitals payout if the underlying reaches the strike AT ANY TIME from start to maturity. They can therefore be considered as an American style Digital Option and the straight Digital as European style (i.e. exercise only at maturity, see "Digital Options").

EXAMPLE

An investor may have the view that Oil (West Texas Intermediate), will rally above USD20 at some time in the next six months (current price USD 18.20). However the investor is not sure that Oil will CLOSE above USD20 at the end of six months, so they purchase a One Touch Digital option on WTI at a strike of USD20.00. For this option, the underlying is defined as the front futures contract quoted on Reuters PPNI. Should the front contract ever trade above USD20 in the next six months, the investor will receive USD1.00 per barrel. The cost of this option is USD 0.55 cents. For 100,000 barrels, the cost is therefore USD 55,000 and the payout is USD100,000.



PRICING

The Digital is generally priced with the payout fixed at 100. The premium is then adjusted. This allows a simple analysis in terms of the payout ratio. For example, if the Digital costs 55c and the payout is 100 cents, the Digital has a payout ratio of 1.818 to 1. The Digital price is influenced by the same factors as a RECEIVER or PAYER.

TARGET MARKET

This is an ideal alternative to CALLS and PUTS when the expected movement in rates is limited as the Digital payout is large for a small movement in rates.

ADVANTAGES

- Payout is earned is underlying hits strike AT ANY TIME
- Payout same whether in the money by 1c or 1000c
- Currency protected if required

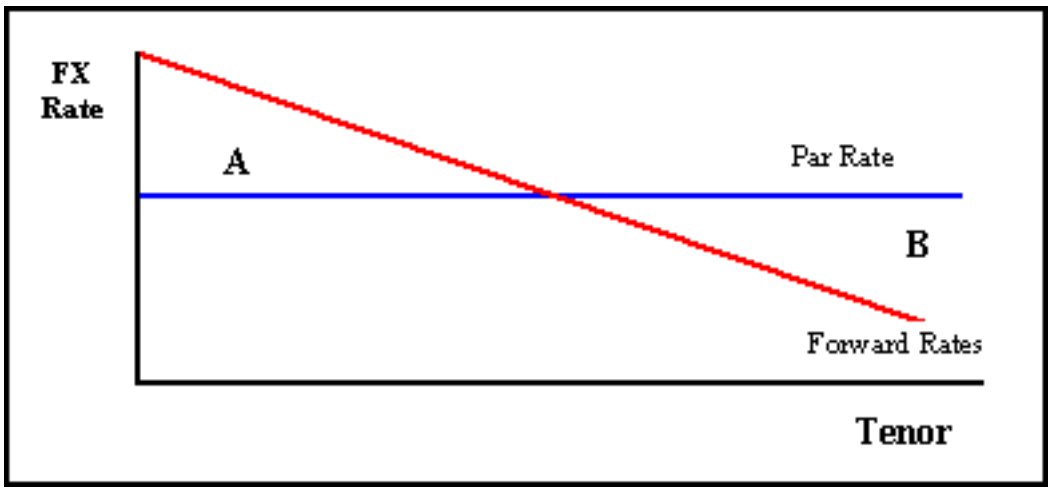
- High return characteristics
- Lower premiums than alternatives

DISADVANTAGES

- Limits profit potential

PRODUCT SUITABILITY

Digitals: Simple Aggressive


FX
Rate
A
Par Rate
B
Forward Rates
Tenor

PAR FORWARD

DESCRIPTION

A Par Forward is an agreement to exchange a series of cashflows over time in one currency for a series of cashflows in another currency with all exchanges occurring at the same exchange rate. The Par Forward is therefore a series of foreign exchange forward contracts at one agreed rate. It is not necessary for the cashflows to be of the same notional amount. The Par Forward potentially has taxation and accounting implications for the user and so independent advise should be sought before use (see Notes section below). Also known as a Flat Rate Forward. More complex versions of the Par Forward include the Floating Rate Par Forward and the Rolling Par Forward.

EXAMPLE

An Australian company will receive USD 10,000,000 in dividends per year for 3 years. Traditionally the company has sold the USD forward and bought AUD. Given the interest rate differential (AUD rates higher than USD rates), the forward rates improve with tenor. For example, while the current spot rate is 1USD = 0.80AUD, the exchange rate for delivery in one year is 0.75, 2yrs 0.70 and 3yrs 0.67. The company would normally enter into three separate contracts as follows:

Time	Company Sells	Fwd Rate	Company Buys
1 year	USD 10,000,000	0.7500	AUD 13,333,333
2 years	USD 10,000,000	0.7000	AUD 14,285,714
3 years	USD 10,000,000	0.6700	AUD 14,925,373

Alternatively, the company could utilise a 3 yr Par Forward at say 0.7075 with the following cashflows:

Time	Company Sells	Fwd Rate	Company Buys
1 year	USD 10,000,000	0.7075	AUD 14,134,275
2 years	USD 10,000,000	0.7075	AUD 14,134,275
3 years	USD 10,000,000	0.7075	AUD 14,134,275

The Par Forward has the effect of "advancing" some of the AUD cashflow. The sum of the cashflows is not the same as the straight forward transactions (see Pricing section for full explanation).

The Par Forward allows the company to receive the same amount of AUD each year with the early cashflows at a rate substantially more attractive than the market rate.

Like any forward, the Par Forward not only provides an exposure to the FX spot rate, but also to the interest rate differential between the two currencies involved. In effect, the company is receiving a fixed rate of interest in the currency bought forward, and paying a fixed rate of interest in the currency sold

forward. In this example, the company would be receiving AUD fixed rate and paying USD fixed rate. If this does not coincide with the interest rate view of the company, they may wish to utilise a Floating Rate Par Forward.

PRICING

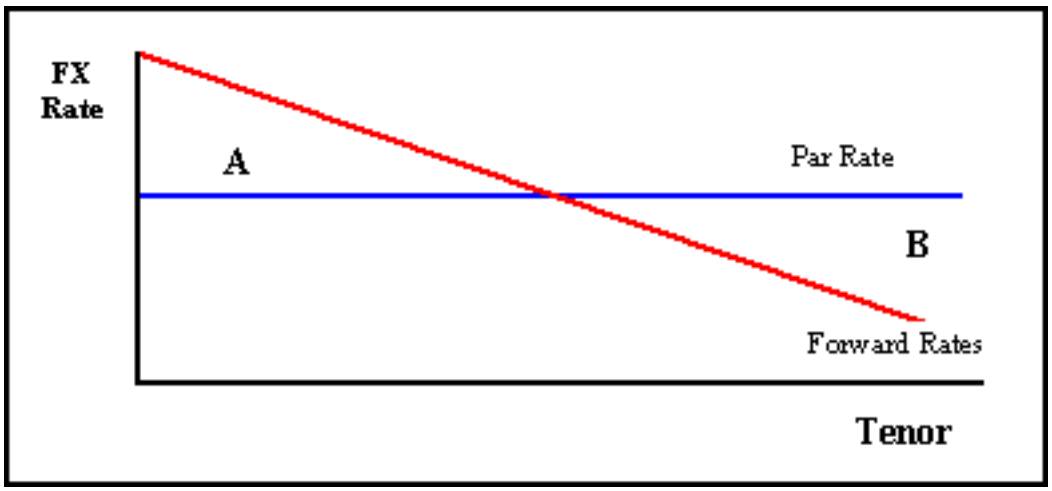
There are a number of ways to consider the Par Forward. Simplistically, the Par Forward is a series of forward contracts where the forward rates are adjusted so that some of the forward exchanges "subsidise" the others such that they are all equal amounts. As a "rule-of-thumb", the Par Forward rate will approach that of the weighted average of the FX Forward rates. This is not 100% accurate as it fails to take into account the concept of present value.

The Par Forward rate is calculated as follows:

PV (CCY1 cashflows) * Par Forward Rate = PV (CCY2 cashflows)

where the Present Value (PV) for each series of cashflows is calculated using that currencies zero coupon discount factors

Another way to think about the Par Forward is graphically:



The Par Forward rate is that rate such that the PV of Area A equals the PV of Area B. Where the interest rate differential is favourable (i.e. higher interest rate in the currency being bought), the Par Forward rate will be more attractive than short term forward rates and less attractive than long term forward rates as in the example above. In cashflow terms this results in improved cashflows in the short term. Where the interest rate differential is not favourable, the Par Forward rate will be less attractive than short term forward rates and more attractive than long term forward rates.

TARGET MARKET

The Par Forward is an appropriate alternative for any user of FX Forwards. It is particularly attractive where the company or investor desires a hedge for a stream of future cashflows. The cashflows being hedged do not need to be at regular intervals or for the same notional amount.

NOTES

By its nature, the Par Forward changes the timing of cashflows from what would normally be expected when using FX Forward contracts. This therefore has taxation and accounting implications. As in the

example above, the Par Forward may result in some forwards being exchanged at better than market rates while others are at worse than market rates. Depending upon the accounting method utilised by the user, this may result in an over or under statement of profits or losses.

ADVANTAGES

- Simplicity. All forwards at one rate
- Par Forward rate can be better than short term forward rates (if interest differential is favourable)
- Cashflows are not required to be equal or regular
- Potential accounting benefits

DISADVANTAGES

Potential taxation and accounting implications

PRODUCT SUITABILITY

Simple Defensive

Payer Swaptions

DESCRIPTION

A Payer Swaption is the right but not the obligation to enter into an Interest Rate Swap where the buyer PAYS fixed rate and receives FLOATING. The buyer will therefore benefit if rates RISE. The initial cost of the Swaption is the premium, and this is the most the buyer can lose. Once purchased the Payer swaption will have a minimum value of zero.

The Payer Swaption behaves like a CAP (see "INTEREST RATE CAP" section). Where CAPS reference the short end of the yield (3 and 6 months), the Payer Swaption references the longer part of the yield curve, 2 yrs to 10 yrs.

EXAMPLE

An Investor believes that the 5 year yield in SEK will be higher than implied in one year but is unwilling to enter a Pay Fixed Swap as they wish to limit their potential loss. They can BUY a Payer Swaption. This will give them the right to pay fixed under a 5 year Swap in one year. The strike rate is the rate at which the Swap will take effect. If rates rise above above the strike rate, the client will choose to enter into the Swap, paying Fixed at the strike level. This deal could then be closed out at a profit or allowed to run as a Swap. Should 5 year rates be lower than the strike at maturity, the investor will choose not to pay Fixed under the Swaption as they can do so in the market at a more attractive rate.

PRICING

Payer Swaptions are priced with reference to the following:

(a) Higher Volatility of the underlying leads to higher premium
(b) Longer tenor of option leads to higher premium
(c) Lower strike rates are more expensive than higher strikes

TARGET MARKET

Borrowers with floating rate debt, may wish to buy Payer Swaptions which will convert their liability from floating to fixed when rates rise above the strike. This strategy is similar to a CAP, but under a CAP the borrower remains floating but with a guaranteed maximum level, here the liability is converted to a fixed rate. The option can also be used as a speculative instrument for investors who believe fixed rates will rise, but are unwilling to enter into Swaps.

ADVANTAGES

- Limited loss potential (premium)

DISADVANTAGES

- Premium payment required upfront

PRODUCT SUITABILITY

Complex Defensive,
Complex Aggressive

PUTABLE SWAP

DESCRIPTION

An Interest Rate Swap where the fixed rate receiver has the right, but not the obligation to terminate the swap at one or more pre-determined times during the life of the swap. A Swap where the fixed rate payer has the right to terminate is known as a Callable Swap. Both the Putable and Callable Swaps are also known as Cancellable Swaps. The foreign exchange version of a Cancellable Swap is called the Break Forward or Cancellable Forward.

EXAMPLE

Over the next 12 months, there is expected to be an election in Norway. A local investor believes that after any election rates will fall dramatically and is considering entering into a 5 year receive fixed Interest Rate Swap at a rate of 5.70%. While they are confident of their view, they wish to protect the downside. Alternatively, they could enter a Putable Swap (5 years with one time right to cancel after 1 year) at 5.40%. While the will receive a lower fixed rate, should rates be higher after one year (specifically 4 year rates), they have the option to cancel the swap at no cost. At that time they can then elect to reinvest in either fixed or floating rate assets dependant upon their then view.

The Putable Swap can also be used by issuers of putable bonds to convert their rate exposure from fixed rate to floating rate. In the event that the bonds are "put" by the investors, the issuer can in turn put (i.e, cancel) the swap. The Putable swap can also be used merely as a mechanism to protect the fixed rate receiver from adverse rate movements in the future. In effect it gives the receiver a chance to change their mind about receiving fixed.

PRICING

A simple Putable Swap (i.e. the right to cancel once only) is an Interest Rate Swap plus a bought Payer Swaption. If for example there is the right to cancel a 7 year swap after 3 years, the Putable Swap is a receive fixed 7 year Interest Rate Swap plus a 3 year into 4 year Payer Swaption where the strike rate on the swaption is equal to the rate quoted on the Putable Swap. The lower than market swap rate for the Putable Swap is to pay for the purchased Payer Swaption.

Where there is more than option to cancel, the Putable Swap is an Interest Rate Swap plus a series of Contingent Swaptions, i.e. the second right to cancel is contingent upon the first right to cancel not being exercised.

In general, the "cost" of the Putable Swap (the difference between the Putable Swap rate and the market swap rate) is dependent upon four key variables:

(a) Interest rate volatility. Higher volatility will lead to higher costs (see Payer Swaption Pricing)
(b) Number of rights to cancel. Generally, the more rights, the higher the cost.
(c) Time to first right to cancel. Generally, the longer the period, the higher the cost.
(d) The shape of the yield curve. The cost of the Payer Swaption will clearly depend on the relationship between the current swap rate and that rate implied for the period of the swaption (see Implied Forward).

If a curve is positively sloped, steeper curves will lead to higher cost as the strike on the Payer Swaption will tend to be in-the-money. For negatively sloped curves, very negative curves will lead to lower costs as the strike on the Payer Swaption will tend to be out-of-the-money.

Like all derivatives, particularly options, the Putable Swap is priced assuming that the counterparty acts in an economically rational way. With simple Putable Swaps (i.e. one right to cancel), if rates have risen above the original Putable Swap rate, it is in the best interest of the company to cancel the swap and replace it with a plain vanilla swap at the then prevailing market rate.

TARGET MARKET

Putable Swaps are suitable for any fixed rate receiver where there is a desire either to protect against adverse rate movements in the future, or where there is a business reason why the swap may need to be cancelled at some point in the future and the company wishes to protect itself against the potential costs of unwind. There is also clearly demand for Putable Swaps from issuers of Putable Bonds if they wish to swap their liability from fixed rate to floating rate.

ADVANTAGES

- Right to cancel effectively limits downside
- No up front premium
- Written as one contract (i.e. not Swap PLUS Swaption)
- Customised
- Flexible

DISADVANTAGES

- Lower Swap rate than the traditional swap

PRODUCT SUITABILITY

Complex Defensive

Q-CAP

DESCRIPTION

A Q Cap provides insurance against the total interest cost over a period and is an ideal alternative for borrowers. The Borrower pays a premium and in return receives a guaranteed maximum cash interest cost for the period. Over this period the loan remains floating. The Borrower pays the interest charge up to the guarantee level. Payments above this are reimbursed by the option seller. Q Caps are also known as Quantity Caps, Cumulative Caps and Payment Caps

EXAMPLE

A Borrower has a 2 year 10 million US Dollar loan priced against 3 month LIBOR. They have budgeted an interest cost of USD 600,000 for the year. They can purchase a Q Cap at USD 600,000. The loan remains floating and the Borrower pays interest based on 3 month LIBOR. Once the total interest paid reaches USD 600,000 the Borrower can claim further payments from the option seller.

PRICING

A Q Cap costs less than the standard Cap and the savings depend on the shape of the curve, tenor, periods for guarantee, strike and interest rate volatility.

TARGET MARKET

All borrowers are suited to this product as it provides a known maximum cost of funds over a prescribed period while maintaining the benefits of floating rate loans.

ADVANTAGES

- Cheaper than standard cap
- Hedges total interest cost not interest rate
- Loan remains floating

DISADVANTAGES

- Non standard product

PRODUCT SUITABILITY

Simple Defensive

Q-FLOOR

DESCRIPTION

A Q Floor provides insurance against the total interest income over a period and is an ideal alternative for investors with floating rate assets. The investor pays a premium and in return receives a guaranteed maximum cash interest income for the period. Over this period the underlying asset remains floating. The investor is guaranteed to earn a minimum cash income from the asset and any shortfall is reimbursed by the option seller. Q Floors are also known as Quantity Floors, Cumulative Floors and Payment Floors

EXAMPLE

An investor has a 2 year 10 million US Dollar asset priced against 3 month LIBOR. They have budgeted an interest income of USD 600,000 for the year. They can purchase a Q Floor at USD 600,000. The asset remains floating and the investor receives interest based on 3 month LIBOR. If the total interest earned over the year does not reach USD 600,000, the investor claims the shortfall from the option seller.

PRICING

A Q Floor costs less than the standard Floor and the savings depend on the shape of the curve, tenor, periods for guarantee, strike and interest rate volatility.

TARGET MARKET

All investors are suited to this product as it provides a known minimum interest earned over a prescribed period while maintaining the benefits of floating rate assets.

ADVANTAGES

- Cheaper than standard Floor
- Hedges total interest earned and not interest rate
- Asset remains floating

DISADVANTAGES

- Non standard product

PRODUCT SUITABILITY

Simple Defensive

RANGE FLOATER

DESCRIPTION

A Range Floater is a deposit or Note that accrues interest daily when the underlying reference point is within a predefined range and accrues zero when outside that range. In general, Range Floaters are principal guaranteed so the investor is assured of at least receiving the principal back. By their nature, Range Floaters are ideal where the market is expected to move sideways, i.e. stay range bound. Range Floaters can be designed with any underlying reference including interest rates and FX rates. Range Floaters are also known as Fairway Bonds or Fairway Floaters and Daily Range Accruals.

EXAMPLE

An Investor believes that the USD/YEN exchange rate will remain in the 90 to 105 range over the next six months. They enter into a Range Floater Deposit for 6 months that pays LIBOR plus 250 bp on days when the USD/YEN trades within the 90 to 105 range, and pays zero when outside this range. Each day the FX rate stays within the range, the investor will earn interest at LIBOR plus 250 which is a higher rate than can be achieved on an ordinary deposit. If the alternative is LIBOR, (assume 6.00%), the client will break even with an ordinary deposit if the FX rate trades within the range for 127 days out of 180 ((6.00 + 2.50) / 6.00 * 180 days). If they believe that the FX rate will be in this range LESS than 127 days, they should NOT enter the Range Floater.

PRICING

The Range Floater is a series of daily Digital Options. Each day the underlying (e.g., the FX rate) is within the range, one Digital is automatically exercised. The Range Floater will accrue interest equal to the Digital payoff. The cost of the Digital series is the original LIBOR coupon that the investor potentially gives up. The payout of each Digital is then averaged (weighted for the maturity date) and the result is the coupon on the Range Floater, in the example LIBOR plus 2.50%.

TARGET MARKET

Range Floaters are an ideal investment for conservative investors, as the worst case is a full return of the principal. They are suitable where markets are expected to move sideways or remain stable.

ADVANTAGES

- 100% Principal guaranteed
- Suitable in stable markets (unlike almost all other products)
- Simplicity

DISADVANTAGES

- Limited upside

PRODUCT SUITABILITY

Simple Defensive

RENTAL CAPS and FLOORS

DESCRIPTION

A Rental Cap or Floor is similar to a normal Interest Rate Cap or Floor, but where the premium is paid over time in instalments. The buyer can terminate the option by ceasing to make further premium instalment payments. This allows the buyer to "change their mind" and not continue the option to maturity. The Rental Option is also known as an Instalment Option.

EXAMPLE

A company has sold a 3 year floating rate note that is callable to the buyer. In return for the call feature the company receives a significant discount on its coupon payments. The company is not very happy with the interest rate outlook and thus wants to hedge this floating rate exposure. A normal 3 year quarterly cap with a 7.35% strike would cost 174 bp. However, should the loan be called, the interest rate hedge will no longer be required. They therefore decide to enter a Rental Cap which would cost 23 bp per period (the Rental or Instalment Payment). The company can simply terminate the cap when desired by ceasing to make instalment payments. This scenario can be of use when the underlying note gets called, or when it the company decides it no longer requires the protection of the cap.

PRICING

The price of the Rental Option will depend on the termination date of the option and thus the number of Instalment Payments made. When used for the whole original maturity, the Rental Option will be more expensive than a Standard Option.

TARGET MARKET

The Rental Cap is useful for clients who need extra flexibility in the duration of their hedge. The cap can be cancelled when the hedge is of no use any more or when it becomes cheaper to enter another cap at more attractive rates or to lock-in with a swap. It is applicable where the buyer anticipates events which may change their desire to hold the option, e.g. a business agreement or contract may be terminated.

ADVANTAGES

- Flexibility
- Substantial savings over a normal cap or floor if rates move favourably
- Payments split over the life of the deal

DISADVANTAGES

- If the Rental Option is used for its entire maturity it will be more expensive than a normal option
- Once an Instalment Payment is withheld by the buyer, the option ceases for life and cannot be entered again under the old conditions

PRODUCT SUITABILITY

Complex Defensive

REFLEX CAP

DESCRIPTION

A Reflex Cap is a normal cap where the premium is paid periodically, and each instalment is dependent upon a trigger rate being reached. The total premium will be low if the reference rate stays below the trigger, but will be higher if the rate is above that trigger.

EXAMPLE

A company wants to hedge a 3 year floating rate loan on 3 month DEM LIBOR. Their view is that DEM LIBOR will peak at 9.50%. A standard interest rate cap with a strike of 9% would cost them 4% up front. Instead they enter a Reflex Cap at 9% with a trigger rate of 10%, just above the expected peak. This structure would cost the company 19 bp for every period LIBOR resets below 10% and 62 bp for every period LIBOR resets above 10%. DEM LIBOR would have to stay above 10% for more than 9 out of the 12 months for the standard cap to outperform the Reflex Cap on a present value basis. The periodic premium is therefore low when LIBOR is marginally above the strike and higher when the cap is deep in the money. The buyer is paying more for the cap when it is most valuable.

PRICING

The Reflex Cap is a combination of a normal Interest Rate Cap and a series of Digitals that expire on every reset date. The normal cap is partially paid for by a preset amount per period (which would be 19 bp in the example) and partially by the sale of the Digitals (43 bp per period in the above example).

TARGET MARKET

The Reflex Cap is potentially applicable for any borrower considering interest rate protection. It is advantageous where the view is that rates will not rise dramatically above the strike (i.e. rise through the trigger).

ADVANTAGES

- Full cap protection without an immediate premium payment
- If the cap is never used, the cost to the buyer is less than a standard cap
- The client only pays the higher premium payments in those periods that the cap is deep in-the-money

DISADVANTAGES

- The Reflex Cap will be more expensive than a standard cap if rates rise faster than expected

PRODUCT SUITABILITY

Complex Defensive

REVERSE FLOATER

DESCRIPTION

A Reverse Floater is a floating rate note which has a coupon that rises when the underlying reference rate falls. The coupon is calculated as a fixed rate minus the floating reference rate. Often a non-negative clause is added which prevents the coupon being negative.

EXAMPLE

An investor thinks that Italian interest rates will fall in the next 12 months. They invest in a Reverse Floater linked to 3 month ITL LIBOR. The Reverse Floater has a maturity of 1 year with a quarterly coupon of [14.34% - 3 month LIBOR]. Current 3 month LIBOR is 8.20%. The first coupon will thus be 14.34-8.20 = 6.16%. If LIBOR falls to 6.20%, the payout will be 8.16%. The coupon therefore rises as ITL LIBOR falls.

The leverage can be changed to suit the buyers requirements, for example, the coupon above could be changed to [22.20% - 2 times 3 month LIBOR].

PRICING

The Reverse Floater is a combination of a bought Fixed rate bond and receiving fixed on an Interest Rate Swap. The bond generates a positive fixed cashflow to the investor as does the receive fixed swap (i.e. two Fixed cashflows). The swap also generates a Pay LIBOR leg. The combination is;

+ 2 times fixed, - 1 times floating.

The leverage can be increased by adding more swaps to the structure.

TARGET MARKET

The Reverse Floater is an ideal way for investors to take advantage of falling rates where they are unable to short (i.e. have a net sold position) in bonds.

ADVANTAGES

- 100% principal guaranteed
- Leverage can be customised for buyer

DISADVANTAGES

- Limited upside

PRODUCT SUITABILITY

Simple Defensive

ROLLING CAP

DESCRIPTION

A Rolling Cap is a modification of an Interest Rate Cap. With a standard Interest Rate Cap, the notional amount remains the same at each reset date. If any caplet should expire out-of-the-money, its value is lost forever and the buyer does not have the opportunity to utilise it at some point in the future. The Rolling Cap seeks to remedy this shortcoming by rolling any un-exercised caplet notional amount onto the next period. Where the cap remains un-utilised, the notional amount will continue to increase, providing increased protection to the buyer. A Rolling Cap where the buyer has the choice of what amount to roll forward is known as a Super Flexible Cap.

EXAMPLE

A company can purchase a 3 yr Rolling Cap with a strike of say 10.00% and a notional amount of USD 100 million. Suppose 6 mth LIBOR takes the following path over the life of the cap:

Period:	**1**	**2**	**3**	**4**	**5**	**6**
LIBOR:	9.50	9.25	10.50	10.20	9.80	10.20

At the first reset, LIBOR sets below the cap. The notional amount therefore rolls forward and becomes USD 200mm for the second reset. Again LIBOR sets below the cap and the notional rolls forward so that it becomes USD 300mm for the third reset. At the third reset, LIBOR sets above the cap and therefore the payout on the cap is as follows: USD 300mm * Days/360 * (10.50 - 10.00). For the fourth period, the notional resets to the original amount of USD 100mm, and again as LIBOR is above the strike, will payout according to the standard cap calculation. For the fifth period, the notional is USD 100mm, but as LIBOR is below the strike, the notional rolls forward so that the notional for the sixth and final period is USD 200mm. It is clear that the maximum cumulative notional must be USD 600mm, which equals the notional multiplied by the number of reset periods. The rolling function is automatic and cannot be changed by the buyer or seller.

PRICING

The Rolling Cap is always more expensive than a standard cap with the same strike rate and maturity. The Rolling Cap is priced as a portfolio of forward starting Flexible Caps, one staring on each reset date, each allowing only one reset period to be covered (see Flexible Caps for full explanation of their terms and conditions). For example, a 3 year Rolling Cap on 3 mth LIBOR is made up of the following components each with a notional to match the Rolling Cap notional:

(a) a 12 qtr Flexible Cap which allows use in one reset period only,
(b) a 11 qtr Flexible Cap starting in 1 qtr which allows use in one period only,
(c) a 10 qtr Flexible Cap starting in 2 qtrs which allows use in one period only,
(d) a 9 qtr Flexible Cap starting in 3 qtrs which allows use in one period only,
(e) etc, etc, etc.

In the first period of the Rolling Cap, only part (a) has started. If LIBOR is above the strike at this time, it would be automatically exercised for the notional amount. As part (a) has been utilised once, it now dies. Lets assume that LIBOR is below the strike for period 2. The cap in part (b) would remain "alive" as it has not been utilised, so for period 3, both part (b) and part (c) are alive and therefore the applicable notional is twice the normal notional. By continuing this we can see that the portfolio of forward starting Flexible Caps creates the desired payout of the Rolling Cap. Therefore, the premium for the Rolling Cap must equal the sum of the premiums for each Flexible Cap. While this may seem to indicate that the Rolling Cap would be expensive as it comprises 12 individual option premiums, it should be noted that each Flexible Cap is relatively cheap as each may only be used to cover one reset period which is the cheapest form of Flexible Cap.

TARGET MARKET

The Rolling Cap is an alternative to the Interest Rate Cap, Flexible Cap, Chooser Flexible Cap and Super Flexible Cap. Unlike the Chooser and Super Flexibles, it does not require on-going involvement so is suitable for those that do not wish to be, or cannot be, actively involved in rate risk management. The Rolling Cap is particularly attractive where the buyer has the view that rates may fluctuate around the cap strike level, or where any breach is likely to be only temporary. If the buyer believes that rates may fall permanently above the strike, one of the other caps may be more suitable.

ADVANTAGES

- No active on-going involvement required
- Lack of choice means less risk of sub-optimal decisions
- Notional amount not used automatically rolled forward
- Flexibility

DISADVANTAGES

- Higher premium than standard cap

PRODUCT SUITABILITY

Complex Defensive

ROLLING FLOOR

DESCRIPTION

A Rolling Floor is a modification of an Interest Rate Floor. With a standard Interest Rate Floor, the notional amount remains the same at each reset date. If any Floorlet should expire out-of-the-money, its value is lost forever and the buyer does not have the opportunity to utilise it at some point in the future. The Rolling Floor seeks to remedy this shortcoming by rolling any un-exercised Floorlet notional amount onto the next period. Where the floor remains un-utilised, the notional amount will continue to increase, providing increased protection to the buyer. A Rolling Floor where the buyer has the choice of what amount to roll forward is known as a Super Flexible Floor.

EXAMPLE

An investor can purchase a 3 yr Rolling Floor with a strike of say 5.00% and a notional amount of USD 100 million. Suppose 6 mth LIBOR takes the following path over the life of the floor:

Period:	**1**	**2**	**3**	**4**	**5**	**6**
LIBOR:	5.50	5.25	4.75	4.50	5.10	4.50

At the first reset, LIBOR sets above the floor. The notional amount therefore rolls forward and becomes USD 200mm for the second reset. Again LIBOR sets above the floor and the notional rolls forward so that it becomes USD 300mm for the third reset. At the third reset, LIBOR sets below the floor and therefore the payout on the floor is as follows: USD 300mm * Days/360 * (5.00 - 4.75). For the fourth period, the notional resets to the original amount of USD 100mm, and again as LIBOR is below the strike, will payout according to the standard floor calculation. For the fifth period, the notional is USD 100mm, but as LIBOR is above the strike, the notional rolls forward so that the notional for the sixth and final period is USD 200mm. It is clear that the maximum cumulative notional must be USD 600mm, which equals the notional multiplied by the number of reset periods. The rolling function is automatic and cannot be changed by the buyer or seller.

PRICING

The Rolling Floor is always more expensive than a standard floor with the same strike rate and maturity. The Rolling Floor is priced as a portfolio of forward starting Flexible Floors, one staring on each reset date, each allowing only one reset period to be covered (see Flexible Floor for full explanation of their terms and conditions). For example, a 3 year Rolling Floor on 3 mth LIBOR is made up of the following components each with a notional to match the Rolling Floor notional:

(a) a 12 qtr Flexible Floor which allows use in one reset period only,
(b) a 11 qtr Flexible Floor starting in 1 qtr which allows use in one period only,
(c) a 10 qtr Flexible Floor starting in 2 qtrs which allows use in one period only,
(d) a 9 qtr Flexible Floor starting in 3 qtrs which allows use in one period only,
(e) etc, etc, etc.

In the first period of the Rolling Floor, only part (a) has started. If LIBOR is below the strike at this time, it would be automatically exercised for the notional amount. As part (a) has been utilised once, it now dies. Lets assume that LIBOR is above the strike for period 2. The floor in part (b) would remain "alive" as it has not been utilised, so for period 3, both part (b) and part (c) are alive and therefore the applicable notional is twice the normal notional. By continuing this we can see that the portfolio of forward starting Flexible Floors creates the desired payout of the Rolling Floor. Therefore, the premium for the Rolling Floor must equal the sum of the premiums for each Flexible Floor. While this may seem to indicate that the Rolling Floor would be expensive as it comprises 12 individual option premiums, it should be noted that each as each may only be used to cover one reset period Flexible Floor is relatively cheap which is the cheapest form of Flexible Floor.

TARGET MARKET

The Rolling Floor is an alternative to the Interest Rate Floor, Flexible Floor, Chooser Flexible Floor and Super Flexible Floor. Unlike the Chooser and Super Flexibles, it does not require on-going involvement so is suitable for those that do not wish to be, or cannot be, actively involved in rate risk management. The Rolling Floor is particularly attractive where the buyer has the view that rates may fluctuate around the floor strike level, or where any breach is likely to be only temporary. If the buyer believes that rates may fall permanently below the strike, one of the other floors may be more suitable.

ADVANTAGES

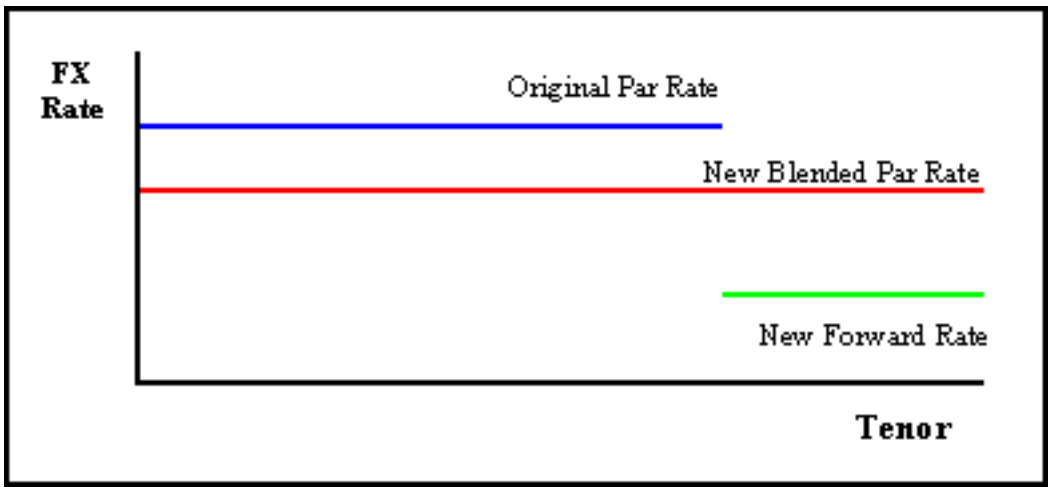
- No active on-going involvement required
- Lack of choice means less risk of sub-optimal decisions
- Notional amount not used automatically rolled forward
- Flexibility

DISADVANTAGES

- Higher premium than standard floor

PRODUCT SUITABILITY

Complex Defensive


FX
Rate
Original Par Rate
New Blended Par Rate
New Forward Rate
Tenor

ROLLING PAR FORWARD

DESCRIPTION

A Rolling Par Forward is a modification of the Par Forward. The standard Par Forward has a defined maturity. When entering into a Rolling Par Forward, one party has the right to extend the maturity of the transaction. Any extension is transacted at the then market rate and so no optionality exists. At the time of extension, the contracted Par Forward rate is adjusted to reflect the extended maturity. A Rolling Par Forward where the maturity automatically extends each period in perpetuity is known as a Perpetual Par Forward.

EXAMPLE

An Australian company receives USD 10,000,000 in dividends per year. Traditionally the company has entered into forward agreements to sell the USD and buy AUD for three years. Given the interest rate differential (AUD rates higher than USD rates), the forward rates improve with tenor. For example, while the current spot rate is 1USD = 0.80AUD, the exchange rate for delivery in one year is 0.75, 2yrs 0.70 and 3yrs 0.67. The company would normally enter into three separate contracts as follows:

Time	Company Sells	Fwd Rate	Company Buys
Year 1	USD 10,000,000	0.7500	AUD 13,333,333
Year 2	USD 10,000,000	0.7000	AUD 14,285,714
Year 3	USD 10,000,000	0.6700	AUD 14,925,373

Alternatively, the company could utilise a 3 yr Par Forward at say 0.7075 with the following cashflows:

Time	Company Sells	Fwd Rate	Company Buys
Year 1	USD 10,000,000	0.7075	AUD 14,134,275
Year 2	USD 10,000,000	0.7075	AUD 14,134,275
Year 3	USD 10,000,000	0.7075	AUD 14,134,275

By entering into a Rolling Par Forward, the company has the right at the end of each year to extend the maturity of the transaction. At the end of year 1, the AUD has moved in the company?s favour and is trading at 0.7800 and the interest rate differential remains in the company?s favour. The original Par Forward rate of 0.7075 is still attractive. The company now has the opportunity to extend the Par Forward for say one year by adjusting the rate to say 0.6980, or to extend for two years at say 0.6835. The company elects to extend for one years. While the first purchase of AUD occurs at the original contract rate of 0.7075, the contract is rewritten as follows:

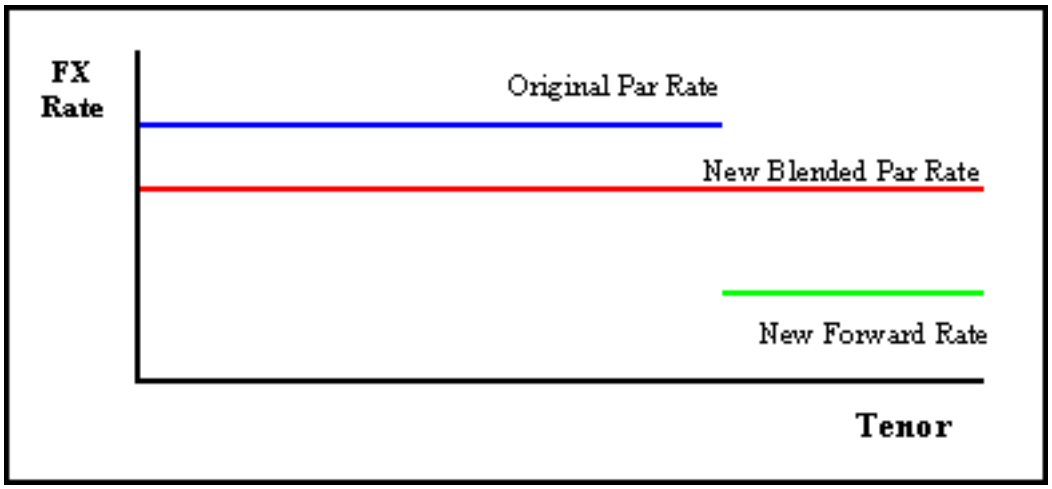
Time	Company Sells	Fwd Rate	Company Buys
Year 1	USD 10,000,000	0.7075	AUD 14,134,275
Year 2	USD 10,000,000	0.6980	AUD 14,326,647
Year 3	USD 10,000,000	0.6980	AUD 14,326,647
Year 4	USD 10,000,000	0.6980	AUD 14,326,647

The extension has made the effective rate more attractive and so increased the amount of AUD to be purchased. The company can continue to extend the agreement at its discretion. When the currency and/or interest rate differential has moved in favour of the user, the Rolling Par Forward can be used to achieve improved forward rates. In our example, should rates continue to move in the same direction, the company can continue to extend the contract, each time achieving better and better effective rates. When the market moves against the company, they may elect not to extend. In the same way, when rates are beneficial, the company may elect to extend for a longer period.

PRICING

The Rolling Par Forward is initially priced the same way as the Par Forward and the initial contract rate is the same. At the time of extension, the standard forward rate for the new cashflows is calculated. The new standard forward is added to the existing contract. The present value of the new stream of cashflows is calculated and the new Rolling Par Forward rate is that rate which when applied to all the now agreed forward cashflows, produces the same present value amount. In this way, the new Rolling Par Forward rate is the blended rate (taking into account size and timing) of the existing Par rate and the new standard forward rate.

Graphically, we can see the "blending" of rates:



By continually extending the maturity, the Par rate will be continually changing in the direction of the market, albeit at a slower and less volatile pace. By adding a new market rate forward to the existing transaction, the mark-to-market of the structure must remain at the same level. This means that the mark-to-market on the Rolling Par Forward will be less volatile as with each extension, the inherent profit or loss on the original structure will be spread over a longer period and more cashflows. Due to the blending process, the effective rates will also be less volatile than standard forwards.

TARGET MARKET

The Rolling Par Forward is an ideal alternative to both the Par Forward particularly where the user has a regular stream of foreign currency flows to hedge. It is appropriate where the user is seeking to actively manage their forward FX exposure.

NOTES

By its nature, the Rolling Par Forward changes the timing of cashflows from what would normally be expected when using FX Forward contracts. This therefore has taxation and accounting implications. As in the example above, the Rolling Par Forward may result in some forwards being exchanged at better than market rates while others are at worse than market rates. Depending upon the accounting method utilised by the user, this may result in an over or under statement of profits or losses.

ADVANTAGES

- Flexibility
- Lower mark-to-market volatility
- Lower effective rate volatility
- Active management tool
- Simplicity
- Cashflows are not required to be equal or regular
- Potential accounting benefits

DISADVANTAGES

- Potential taxation and accounting implications
- Requires on-going management

PRODUCT SUITABILITY

Complex Defensive

RECEIVER SWAPTION

DESCRIPTION

A Receiver Swaption is the right but not the obligation to enter into an Interest Rate Swap where the buyer RECEIVES fixed rate and pays FLOATING. The buyer will therefore benefit if rates FALL. The initial cost of the Swaption is the premium, and this is the most the buyer can lose. Once purchased the Receiver swaption will have a minimum value of zero.

The Receiver Swaption behaves like a Floor. Where Floors reference the short end of the yield curve, (3 and 6 months), the Receiver Swaption references the longer part of the yield curve, 2 yrs to 10 yrs.

EXAMPLE

An Investor believes that the 5 year yield in SEK will be lower than implied in one year but is unwilling to enter a Receive Fixed Swap as they wish to limit their potential loss. They can BUY a Receiver Swaption. This will give them the right to receive fixed under a 5 year Swap in one year. The strike rate is the rate at which the Swap will take effect. If rates fall below the strike rate, the client will chose to enter into the Swap, receiving Fixed at the strike level. This deal could then be closed out at a profit or allowed to run as a Swap. Should 5 year rates be higher than the strike at maturity, the investor will choose not to receive Fixed under the Swaption as they can do so in the market at a more attractive rate.

PRICING

Receiver Swaptions are priced with reference to the following: (a) Higher Volatility of the underlying leads to higher premium, (b) Longer tenor of option leads to higher premium, (c) Lower strike rates are less expensive than higher strikes

TARGET MARKET

Investors with floating rate assets may wish to buy Receiver Swaptions which will convert their assets from floating to fixed when rates fall below the strike. This strategy is similar to a Floor, but under a Floor the investor remains floating but with a guaranteed minimum level, here the asset is converted to a fixed rate. The option can also be used as a speculative instrument for investors who believe fixed rates will fall, but are unwilling to enter into Swaps.

ADVANTAGES

- Limited loss potential (premium)

DISADVANTAGES

- Premium payment required up front

PRODUCT SUITABILITY

Complex Defensive, Complex Aggressive

SWAP DIFFERENCE AGREEMENT

DESCRIPTION

A Swap Difference Agreement (SDA) contract moves with reference to the difference between the same point on two different yield curves. The SDA allows the investor to profit from the widening or narrowing between two yield curves. The SDA is customised with defined settlement dates, a defined value per basis point move, and one defined point on two yield curves. All payments are in one currency so there is no currency exposure.

EXAMPLE

Assume an investor believes that the differential between the two year Lira Swap rate and the two year Swiss Swap rate will narrow over the next year. the investor will enter into a narrowing Lira Swiss SDA for one year settlement. The value per point can be set at any value in either currency, say CHF 10,000.

The SDA price is given in terms of basis points. If at maturity the difference between the 2yr Lira and Swiss swap rates has fallen below the SDA entry level, the investor will receive CHF 10,000 for every basis point lower. If the difference is higher than the entry level, i.e. the curves have widened, the investor will lose CHF 10,000 per basis point.

PRICING

The entry price is calculated by taking the difference between the implied forward rates from the two yield curves. This means in the above example, we calculate the one year forward 2yr Lira and Swiss rates. The SDA price is the difference. Investors who BUY the SDA look to see the curves widen, investors who SELL the SDA look to see the curves narrow.

TARGET MARKET

This is a product for people who wish to take a position on the convergence or divergence between two different yield curves.

ADVANTAGES

- Available in all major currencies
- Can utilise any two yield curves
- Can be reversed at any time with reference to the then prevailing implied rates
- Investor determines amount per point sensitivity
- Settlement at maturity is against independent mid rate quoted on Telerate
- No Exposure to parallel movement in yield curve

DISADVANTAGES

- The attractiveness of SDAs is dependent on the Implied Forward rates not the spot rates. Therefore, expected movements can already be built in.

PRODUCT SUITABILITY

Simple Aggressive

SUPER FLOATER

DESCRIPTION

A Super Floater is a floating rate note which has a coupon that rises more dramatically than with a Floating Rate Note when the underlying reference rate (usually LIBOR) rises, and falls more when the reference rate falls. By its nature, the Super Floater is a leveraged position. Often a non-negative clause is added which prevents the coupon being negative.

EXAMPLE

An investor thinks that Italian interest rates will rise in the next 12 months. They invest in a Super Floater linked to 3 month ITL LIBOR. The Super Floater has a maturity of 1 year with a quarterly coupon of [2 * 3 month LIBOR - 8.00%]. Current 3 month LIBOR is 9.50%. The first coupon will thus be (2 * 9.50) -8.00 = 11.00%. If LIBOR rises to 11.00%, the coupon will rise to be 14.00%, if it falls to 7.00%, the coupon will fall to 6.00%. The coupon therefore rises more than the underlying ITL LIBOR rise and falls more than any fall in ITL LIBOR.

The leverage can be changed to suit the buyers requirements, for example, the coupon above could be changed to [3 * 3 month LIBOR - 16.00%] or [4 * 3 month LIBOR - 24.00%]. (see Pricing for an explanation).

PRICING

The Super Floater is a combination of a bought Floating Rate Note and paying fixed and receiving floating on an Interest Rate Swap of the same notional. The note generates a positive floating cashflow to the investor as does the pay fixed swap (i.e. two Floating cashflows). The swap also generates a Pay Fixed leg. The combination is;

> + 2 times floating, - 1 times fixed.

The leverage can be increased by adding more swaps to the structure, hence by adding two swaps of the same notional to a Floating Rate Note, the coupon becomes:

> + 3 times floating, - 2 times fixed.

The Fixed Rate portion of the Super Floater coupon therefore reflects the Interest Rate Swap rate for that maturity.

As can be seen from a simple example, it is possible for the Super Floater coupons to fall below zero. In order to prevent this occurrence, the Super Floater generally carries a "non-negative" clause which stipulates that the minimum coupon is zero. In order to provide this guarantee, the Super Floater also has an Interest Rate Floor embedded in the structure for the size of the swap. The floor strike is set at that level where the coupon on the Super Floater would equal zero. The fixed rate part of the coupon on the Super Floater is adjusted to pay for the Floor.

TARGET MARKET

The Super Floater is an ideal way for investors to take advantage of rising rates in a leveraged manner. While the Super Floater can easily be constructed by the user, it is particularly attractive to those

investors unable to enter into Interest Rate Swaps directly.

The Super Floater looks particularly attractive where the yield curve is negatively sloped. In this instance, the first coupon on the Super Floater is generally higher than LIBOR. In positively sloped yield curves, the first coupon is generally lower than LIBOR.

ADVANTAGES

- 100% principal guaranteed
- Leverage can be customised for buyer
- Indirect use of Interest Rate Swap market

DISADVANTAGES

- Initial coupon can be lower than LIBOR if yield curve is positively sloped.

PRODUCT SUITABILITY

Simple Aggressive

SUPER FLEXIBLE CAPS and FLOORS

DESCRIPTION

A Super Flexible Cap is a modification of the Chooser Flexible Cap and Interest Rate Cap. With a standard Interest Rate Cap, the notional amount is the same at each reset date. The Super Flexible Cap defines the total cap notional amount that may be exercised over the life of the cap, but the buyer has the right to choose what notional amount will be exercised if any, at each LIBOR reset date. Therefore, where the buyer chooses not to utilise the cap at a particular reset date even though LIBOR is above the strike, they have more notional amount available to utilise at a later date. At each reset date, the buyer can determine the size of the cap they wish to exercise as long as the cumulative amounts of the caps exercised to date do not exceed the notional amount. Of course, as time goes by, there is added pressure to use the cap otherwise it may expire with little or none of the notional amount utilised. A Super Flexible Cap where the notional amount is automatically rolled forward when not utilised is known as a Rolling Cap.

EXAMPLE

A company can purchase a 3 yr Super Flexible Cap with a strike of say 10.00% and a notional amount of USD 600 million. At each reset date, the buyer has the right to determine the size of the cap that they choose to exercise as long as the cumulative amounts of the exercised caps to date do not exceed USD 600mm. Suppose 6 mth LIBOR takes the following path over the life of the cap:

Period:	**1**	**2**	**3**	**4**	**5**	**6**
LIBOR:	9.50	9.75	10.25	10.50	10.90	9.50

At the third LIBOR setting, LIBOR sets above the cap but only by 25bp. Given that there are only 3 more resets, the buyer may elect to exercise the cap for a notional amount of USD 100mm, leaving USD 500mm for later. The payout would be the same as a traditional cap for that period:

100mm * Days/360 * (10.25 - 10.00).

At the fourth reset, the buyer elects to exercise USD 300mm, leaving USD 200mm for the last 2 resets. At the fifth reset, the buyer will need to decide whether to use all the remaining notional amount of USD 200mm or leave some for the final reset. Of course, if they choose to leave any amount at all, they will discover that it has no value as LIBOR is below the strike of 10% on that reset.

In hindsight, it is clear that the optimal strategy would have been to use all the notional on the fifth reset. Of course, this is highly unlikely and it is not the purpose of the Super Flexible Cap to provide the optimal hedge. The benefit of the Super Flexible Cap is that it allows the buyer the freedom to decide the size of the hedge at any time so the buyer can "over-hedge" where rates are dramatically above the cap strike, and "under-hedge" where they are only marginally above. The Super Flexible Cap clearly needs active involvement from the buyer.

PRICING

The Super Flexible Cap premium is always greater than the premium on a standard Interest Rate Cap with the same cumulative notional and same strike (the cumulative notional on a standard cap being the notional amount multiplied by the number of resets over the life of the cap).

All derivative pricing assumes that the user behaves in an economically rational way. With the power of seeing into the future, it is clear, as was pointed out in the example above, that the optimal use of a Super Flexible Cap is to utilise all the notional amount at the time of the highest LIBOR reset. At that time, the Super Flexible Cap behaves like a one period standard cap with the same cumulative notional. If we therefore break down the standard cap into a series of one period "caplets" and price each one individually for the cumulative notional amount of the Super Flexible Cap, the highest premium of all the caplets becomes the premium of the Super Flexible Cap. Put another way, if the buyer of the Super Flexible Cap was able to determine in advance when to utilise the cap it would utilise the most valuable one. In advance, the only way to determine the most potentially valuable caplet is to price each individually and select the most expensive.

Of course, the standard cap premium equals the average of all the individual caplet premiums calculated using the cumulative notional amount. It is therefore always lower than the maximum individual caplet premium, hence Super Flexible Cap premiums are always greater than standard cap premiums.

TARGET MARKET

The Super Flexible Cap is a suitable alternative to the Interest Rate Cap, Flexible Cap and Chooser Flexible Cap particularly where the buyer is seeking to be involved in the on-going risk management decision making. They are inappropriate for those unable to, or unwilling to be actively involved.

ADVANTAGES

- Flexibility
- Notional amount not used can be rolled forward
- Greater control to the buyer
- Flexibility
- More targeted rate protection

DISADVANTAGES

- Higher premium than standard cap
- On-going management required
- Risk of sub-optimal decisions

PRODUCT SUITABILITY

Complex Defensive

Shout Options

DESCRIPTION

With a Shout Option the buyer can lock in the profit to date while retaining the right to benefit from any further upside. When the option buyer thinks the market has reached a high (call) or low (put), they 'shout' and lock in that minimum level. If the market finishes higher (call) or lower (put) than the shout level, the holder benefits further. The option can be structured with any number of "shout " opportunities.

EXAMPLE

A private investor is bullish on USD/DEM, but also expects USD/DEM to be very volatile. They are therefore afraid to miss out on temporary highs when using a normal USD/DEM call. This problem can be solved by buying a Shout Call option on USD/DEM. Traditionally, there is only one "shout" opportunity. The investor therefore has the opportunity to lock in a minimum profit on the option if USD/DEM rises above the strike. (The option can be structured with multiple shouts but the cost may be prohibitive). Should USD/DEM close above the strike and below the "shout" level, the investor is assured of receiving the "shout" less the strike as profit. If the USD/DEM closes above the "shout" level, the investor will receive that additional profit also. The payout can therefore be summarised as the maximum of: (a) "shout" less strike, and (b) close less strike.

PRICING

Shout Options are path-dependent options where the largest determinant is volatility. The more volatile the underlying asset the more probability that the option will be "shouted" and thus the more likely that there will be some payout. They are therefore more expensive than traditional options. The more "shout opportunities, the more expensive.

TARGET MARKET

The Shout Option is meant for clients who have a directional view they want to exploit by buying options, but who expect the underlying asset to be volatile and thus want to be able to lock in prosits as soon as they are reached. The probability of some payout is greater therefore they are more risk averse than straight options.

ADVANTAGES

- Ability to lock in profits

DISADVANTAGES

- More expensive than a normal option

PRODUCT SUITABILITY

Complex Aggressive

SPREADLOCK

DESCRIPTION

A Spreadlock allows the Interest Rate Swap user to lock in the forward differential between the Interest Rate Swap rate and the underlying Government Bond Yield (usually of the same or similar tenor). The Spreadlock is not an option, so the buyer is obliged to enter the swap at the maturity of the Spreadlock. It can of course be reversed at any time up to and including maturity at the then market level.

In many markets (particularly in the USA), the rate quoted on an Interest Rate Swap is determined with reference to a government bond yield of the same or similar maturity, and may in fact be quoted as a spread over the government bond yield (in limited cases, the spread may be negative). The Interest Rate Swap fixed rate can therefore be thought of in two parts, the bond rate (usually referred to as T) plus the spread. An Interest Rate Swap seeks to lock in the combined rate, while a Spreadlock seeks only to lock in the spread portion of the rate and lets the underlying bond yield float. The Spreadlock allows the user to manage their interest rate exposure in the two underlying components of the swap rate and therefore provides potential flexibility. In almost all cases, the "spread" is the smallest component in the swap rate by far. A history of Swap spreads can be found in the Citibank annual publication "Interest Rate and Swap Spreads".

EXAMPLE

The current 5yr swap rate is 8% while the 5yr benchmark government bond rate is 7.70%, so the current spread is 30bp an historically low level. A company is looking to pay fixed using an Interest Rate Swap at some point in the year. The company believes however, that the bond rate will continue to fall over the next 6 months. They have therefore decided not to do anything in the short term and look to pay fixed later. It is now six months later and as they predicted, rates did fall. The current 5 yr bond rate is now 7.40% so the company asks for a 5 yr swap rate and is surprised to learn that the swap rate is 7.90%. While the bond rate fell 30bp, the swap rate only fell 10bp. Why? The swap spread is largely determined by demand to pay or receive fixed rate. As more parties wish to pay fixed rate, the "price" increases, and therefore the spread over bond rates increases. In this example, it would appear that as the bond rate fell, more and more companies elected to pay fixed, driving the swap spread from 30bp to 50bp. So while the company has saved 10bp, it could have used a Spreadlock to do better.

When the swap rate was 8% and the bond yield 7.70%, the company could have asked for a six month Spreadlock on the 5yr Swap spread. While the spot spread was 30bp, the 6mth forward Spread was say 35bp (see Pricing for explanation). The company could "buy" the Spreadlock for six months at 35bp. At the end of the six months, they can then enter a swap at the then 5yr bond yield plus 35bp, in this example a total of 7.75%. The Spreadlock therefore increases the saving from 10bp to 25bp.

PRICING

The Spreadlock "price" equals the difference between the implied forward swap rate and the implied forward bond yield (see Implied Forwards for calculation details). The swap spread "curve" can be thought of in isolation of the overall swap yield curve. As with all implied forwards, a positively sloped spread curve (i.e. swap spreads for shorter maturities are lower than longer maturities) implies that swap spreads will rise over time, and a negatively sloped spread curve (i.e. swap spreads for shorter maturities are higher than longer maturities) implies that swap spreads will fall over time.

TARGET MARKET

Spreadlocks are potentially useful for anyone considering the use of an Interest Rate Swap in the future. They are not available in all markets.

ADVANTAGES

- Allows more precise interest rate management
- Flexibility
- Customised

DISADVANTAGES

- Requires ISDA documentation
- Implied forwards can sometimes be unattractive
- Unlimited loss potential

PRODUCT SUITABILITY

Simple Defensive

STRUCTURED ASSET

DESCRIPTION

A Structured Asset is a Corporate Bond, MTN or deposit with a Derivative attached. The Derivative can be a Cap, Floor, Swaption (Payer/Receiver), Swap, FX DEAL, Digital, DIRF, SDA or any other transaction. The Derivative is used to change the cashflows of the Bond and therefore changes the return characteristics.

EXAMPLES

(A) BULL NOTES

An Investor may wish to enhance the yield on a USD Asset. They may be very bullish on the outlook for Yen interest rates, in particular the 10 year part of the yield curve. We can achieve this exposure by adding a Yen Swap or Swaption (Payer/Receiver) to the Bond. The choice will depend on the risk appetite of the Investor. Should they wish to limit the risk, we would attach a Swaption (Payer/Receiver) , thereby guaranteeing a minimum redemption on the Bond as follows:

Tenor:	One year
Coupon:	6.00%
Denomination:	USD
Price:	100
Redemption:	100 + 30 times (7.00% - Y) subject to a minimum of 90%, where Y is the 10 year Yen swap rate at maturity

Here the structure provides currency protection (all payments in USD) and a 90% minimum capital redemption PLUS the coupon of 6.00%. The structure provides 30 times leverage which is very aggressive and would only be applicable to a small group of investors. If the 10yr Swap at maturity is below 7.00%, the Investor will receive more than 100.

(B) RANGE FLOATER

When markets are not expected to move dramatically one way or the other, i.e. remain within a range, traditional investments may not always look attractive. In this scenario, a Range Floater is applicable (see also Flexi Range Floater).

(C) DIGITAL NOTES

Digital or Binary Notes use a defined trigger that determines the final coupon on a deposit or bond. They combine a Bond or Deposit with a Digital Option. A 3yr DEM Bond may normally pay a coupon of 8.00% semi-annually. The Digital Note will pay either say a 2.00% or 15.00% coupon depending on where some predefined underlying closes relative to the trigger. For example, if USD 3mth LIBOR closes above 7% in that coupon period, you receive 15.00%, if it closes below 7%, you receive 2.00%. The combinations are therefore endless and can be customised to the buyers view. The trigger may be

equity, interest rate, FX or commodity related.

(D) ONE TOUCH BINARY NOTES

One Touch Binary Notes pay a higher than market coupon provided some defined underlying never "touches", i.e. trades at, a predetermined trigger level. It is a Bond or Deposit combined with a One Touch Digital Option For example, a 1yr ESP deposit may traditionally pay a coupon of 7.50%. We may construct a deposit which pays a coupon of say 15.00% provided USD/DEM spot never trades above 1.65 (current spot 1.45). If this level is breached, the coupon will reduce to say 2.00%. The enhanced coupon obviously reflects the implied probability that the level will be breached.

(E) COMPLEX NOTES

The range of possible Structured Assets is limited only by ones imagination. Once an investment or market view and risk appetite is established, the appropriate asset can be structured. Some investors have complex views and therefore require complex assets. For example, an Italian investor wishes to make a 3yr investment. They are bullish on the S&P500 index but want some principal protection. They do not require periodic coupons. They are concerned about early redemption and would like the ability to redeem early on a predetermined formula. The following asset may be applicable: A 3yr Italian Lira denominated Note with 100% principal guarantee. At the end of the third year, the note redeems at the HIGHER of 127%, or 100% plus the appreciation in the S&P500. They have the right of early redemption at the end of year one at 112%, or 100% plus 75% of the appreciation in the S&P500, or at the end of year two at 120%, or 100% plus 75% of the appreciation in the S&P500. There is an incentive to hold to maturity (to receive 100% participation in the S&P), but the possibility of early redemption at attractive levels.

PRICING

The Structured Asset is priced by pricing the Derivative as normal, and amending the Bond cashflows to account for it. The pricing dynamics are therefore very dependent on the underlying derivative structure.

TARGET MARKET

Structured Assets are targeted at those Investors who trade Bonds and are uncomfortable with or unable to transact over the counter derivatives. A Structured Asset whether it be a deposit, bond or note, is primarily a delivery mechanism for an underlying derivative transaction. The important factor is therefore to understand the market position the investor wishes to take, their risk appetite, and whether the derivative is appropriate given their investment goals. Once the underlying view is established, the appropriate delivery mechanism can be chosen which may be an over the counter derivative, or a Structured Asset.

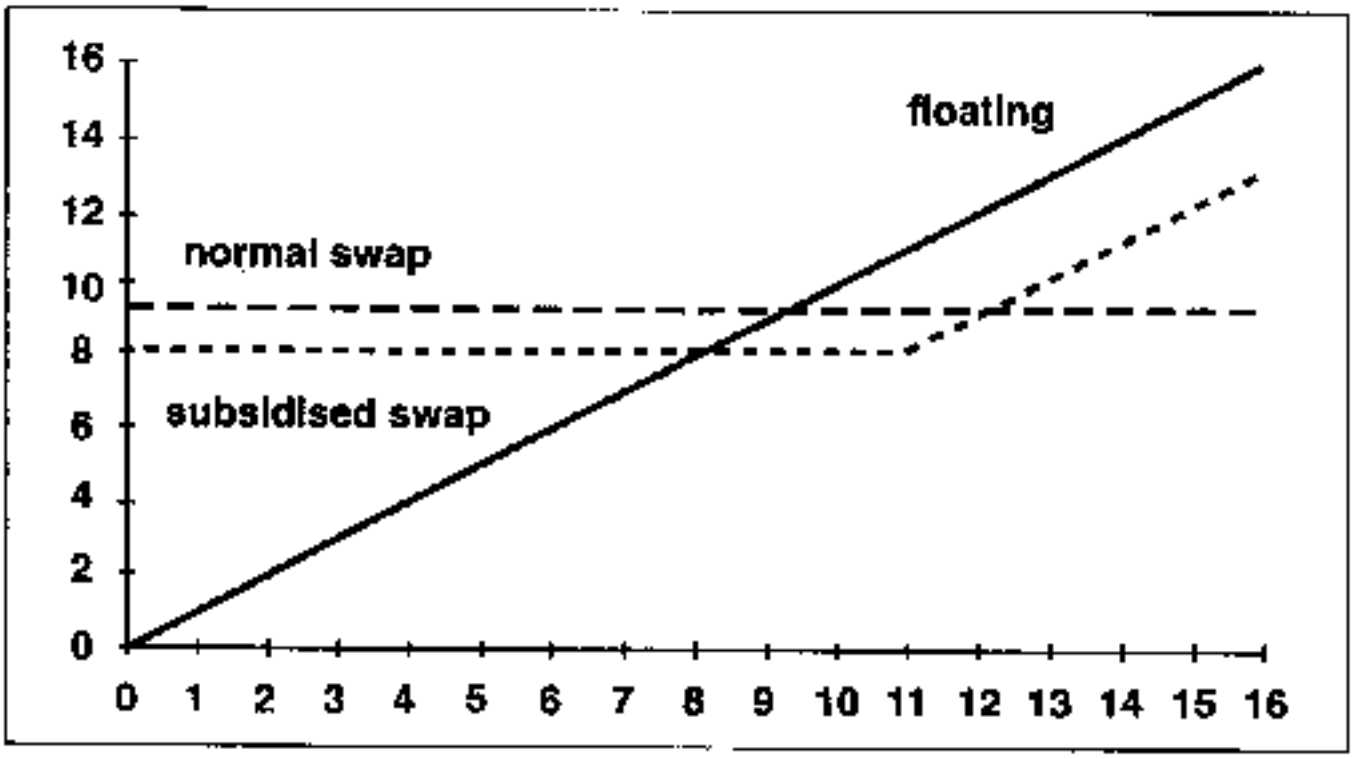
ADVANTAGES

- Customised to Investor views
- Infinitely flexible
- Can have redemption guarantee at any level

DISADVANTAGES

- Require funding

- On Balance Sheet


16
14
12
10
8
6
4
2
0
floating
normal swap
subsidised swap
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

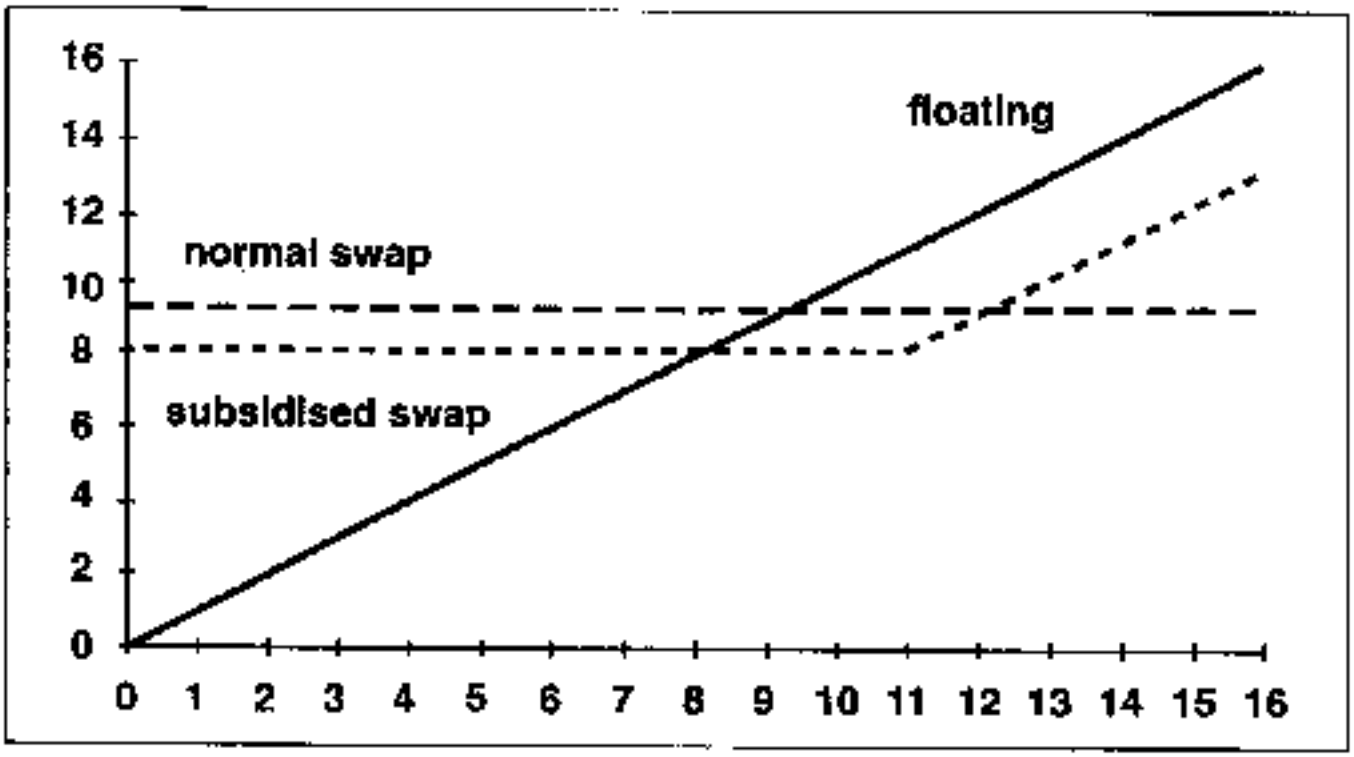
Subsidised Swap

DESCRIPTION

The Subsidised Swap is a swap the pay fixed rate is below the market rate. However, if rates rise above a certain trigger level, the fixed payer will pay floating rate set below the then prevailing rate. The result is a below market fixed swap that reverts to a below market floating rate when a certain trigger rate is reached. The Subsidised Swap is created by combining a pay fixed swap with a sold cap. The cap premium is used to reduce the fixed rate paid under the swap.

EXAMPLE

Selling a 5 year GBP cap at a strike of 10.60% will earn the client 50 bp (semi-annually). This amount can be used to improve the 5 year swap rate from 8.83% to roughly 8.33% (SAMM). If GBP Libor exceeds 10.60%, the client will be put back into floating at a subsidised rate of Libor -2.27%. When Libor is below 10.60%, the client pays 8.33%. When it is above 10.60%, the client pays Libor -227 bp.



PRICING

The price of a subsidised swap equals the normal swap price minus the annual premium of a cap. The subsidised swap is a normal pay fixed interest rate swap combined with the sale of a cap at a strike level which is substantially above the swap. The premium received from selling the cap will be used to improve the rate that the client has to pay in the swap.

TARGET MARKET

This instrument is ideal for borrowers who want to lock in their floating rates (at a level substantially below the market rate), but don t expect rates to rise above a certain level (in our example 10.60%).

However even if Libor does exceed the cap strike the client is paying less than Libor (in our example 227 bp) which is still better than competitors who are paying Libor.

ADVANTAGES

- Straightforward pricing
- Lower swap rate
- Flexibility (the cap can be structured according to the clients views)
- In a disaster situation the client is still funding below Libor

DISADVANTAGES

- If rates rise substantially the buyer will be exposed to floating rates again

PRODUCT SUITABILITY

Simple Defensive

OPTION TERMINOLOGY

AMERICAN OPTION

An option that may be exercised by the buyer at any time between start and maturity. This is the most flexible alternative. In general, this makes them more expensive than European options.

ASIAN OPTION

A straight option settles against the final traded level in the underlying index. With an Asian option, the "close" is defined as the average daily closing level in the index over a predetermined number of days. The averaging reduces the specific risk of the option i.e. the exposure to any one daily close, and therefore reduces the cost of the option to the buyer. The averaging process may take place over any number of periods, up to and including the total number of days between start and maturity. The "Asian" feature can be added to most option types and structures in order to reduce the premium and specific risk. Generally, the averaging period is over 1 to 4 weeks before maturity. Also known as an Average Rate or Average Price option.

BEAR SPREAD

A bought put at one strike and a sold put at a lower strike, both generally with the same maturity date. If the underlying moves lower, the first put will be in a profit. Once the underlying falls below the sold put strike, the profit on the strategy is capped. Also known as a Capped Put or Put Spread. The bear spread limits the upside of the original put and is therefore cheaper.

BULL SPREAD

A bought call at one strike and a sold call at a higher strike both generally with the same maturity date. If the underlying moves higher, the first call will be in a profit. Once the underlying exceeds the sold call strike, the profit on the strategy is capped. Also known as a Capped Call or Call Spread. The bull spread limits the upside of the original call and is therefore cheaper.

CALENDAR SPREAD

The simultaneous sale of an option with a nearby expiry date and the purchase of an option with a later expiry date, both with the same strike price.

EUROPEAN OPTION

An option that may be exercised only at maturity.

INTEREST RATE COLLAR

A bought Cap at one strike, and a sold floor at a lower strike. The sold floor reduces the overall premium. The strategy therefore provides a maximum interest rate (bought cap) and a minimum interest rate (sold floor). Also known as a Corridor.

KNOCK-IN OPTION

Part of the Barrier Option family, any option which does not exist until the underlying index breaches the

defined barrier level during the life of the transaction. Generally, the index level is defined as breached in one of two ways:

(a) The index is measured at a fixed time each day (say 12.00 London time), and defined as breached only if it breaches at that particular time of day, or
(b) The index is monitored 24 hours a day and can be breached at any time.

KNOCK-OUT OPTION

Part of the Barrier Option family, any option which ceases to exist when the underlying index breaches the defined barrier level during the life of the transaction. Generally, the index level is defined as breached in one of two ways:

(a) The index is measured at a fixed time each day (say 12.00 London time), and defined as breached only if it breaches at that particular time of day, or
(b) The index is monitored 24 hours a day and can be breached at any time.

MID-ATLANTIC OPTION

An option that may be exercised on a predetermined number of dates before maturity. It is halfway between a European Option and an American Option, hence the name. Also known as Bermudan, Semi-American or Quasi-American option.

RAINBOW OPTION

The family of options where the payout is based upon the relationship between two or more assets. Also known as Multi-Factor Options, Rainbow Options include spread options, "better-of" options, "worst-of" options etc. A two asset Rainbow Option is sometimes referred to as a "two-colour" Rainbow, a three asset option as "three-colour" etc.

STRADDLE

A call and put both at the same strike and same maturity. A Long Straddle is a bought call and a bought put. A Short Straddle is a sold call and a sold put.

STRANGLE

Similar to a Straddle, but where the strikes on the call and put are different. A Long Strangle is a bought call at one strike and a bought put at a lower strike. A Short Strangle is a sold call at one strike and a sold put at a lower strike.

TOTAL RETURN SWAP

DESCRIPTION

"Total Return Swap" is the generic name for any non traditional swap where one party agrees to pay the other the "total return" of a defined underlying asset, usually in return for receiving a stream of LIBOR based cashflows. The Total Return Swap may be applied to any underlying asset but is most commonly used with equity indices, single stocks, bonds and defined portfolios of loans and mortgages. The Total Return Swap is a mechanism for the user to accept the economic benefits of asset ownership without utilising the balance sheet. The other leg of the swap, usually LIBOR, is spread to reflect the non-balance sheet nature of the product. Total Return Swaps can be designed with any underlying asset agreed between two parties. It is important to note that no notional amounts are exchanged with Total Return Swaps. (See Loan Swap)

EXAMPLE

Equity Index Swap

An investor looking to match the performance of say the S&P500 index has many alternatives. Simplistically, they can purchase the underlying 500 shares in the corresponding index weightings, or they could purchase S&P500 futures. Both require on-going active management, either re-balancing the portfolios, re-investing dividends or rolling futures as they mature. Alternatively, they could enter into a Total Return Swap based upon the S&P500 index for say 3 years. Each six months, the investor would receive the total return of the index and pay say US LIBOR plus 30bp. The investor has achieved a return exactly indexed to the S&P500 at a cost of only 30bp per annum (the premium they have to pay above LIBOR). While the investor needs to pay the premium of 30bp, they do not have any of the on-going management concerns and the swap is not classified as an asset so they are not required to fund the S&P500 position.

Loan Swap

Investors have traditionally invested in Bonds, Equities and Property. In an effort to diversify risk, investors look to new asset classes. The Loan market has traditionally been almost exclusively dominated by banks. Using the Total Return Swap, an investor can achieve exposure to this new asset class, previously un-obtainable. Assume Bank A has a 3 yr fixed rate 8% loan to Company Z. The loan therefore sits as an asset on Bank A?s balance sheet. An investor seeking exposure to Company Z may enter into a Total Return Swap with Bank A so that the total returns of the loan, including interest and any default shortfall, are passed through to the investor. The investor is therefore assuming the credit and economic risk of Company Z?s loan. In return, they pay Bank A say LIBOR plus 45bp which compensates the bank for use of its balance sheet as the bank is still required to fund the loan. Should company Z default, the investor will be required to compensate the bank for any shortfall. For more detail, see Loan Swaps.

PRICING

A Total Return Swap can be thought of as buying the underlying asset or liability, and using another parties balance sheet to fund it. The returns of owning the underlying asset, and entering the Total Return Swap are the same, the only cost being the balance sheet "rental" cast paid to the balance sheet provider.

This will depend upon the nature of the asset, the credit rating of the swap counterparty and bank, tenor etc.

TARGET MARKET

Total Return Swaps are applicable for any investor seeking off-balance sheet alternatives. They are particularly attractive where the user does not wish to be actively involved in portfolio or rate risk management on a day-to-day basis.

ADVANTAGES

- Customised
- No up front premiums
- Off balance sheet
- Any underlying can be considered
- Can be reversed at any time at the then prevailing market rate

DISADVANTAGES

- Requires ISDA documentation
- LIBOR premium

PRODUCT SUITABILITY

Simple Aggressive

Total (Rate of) Return Swaps

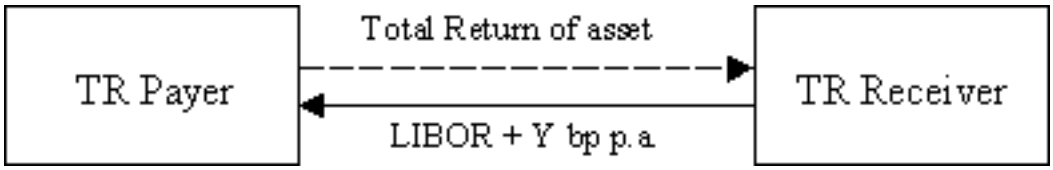
Extracted from "Credit derivatives: A primer" issued by J.P. Morgan (February 1998)

A Total Rate of Return Swap ("Total Return Swap" or "TR Swap") is a bilateral financial contract designed to transfer credit risk between parties, but a TR Swap is importantly distinct from a Credit Swap in that it exchanges the *total* economic performance of a specified asset for another cash flow. That is, payments between the parties to a TR Swap are based upon changes in the market valuation of a specific credit instrument, irrespective of whether a Credit Event has occurred.

Specifically, as illustrated in the below chart, one counterparty ("the TR Payer") pays to the other (the "TR Receiver") the total return of a specified asset, the Reference Obligation. "Total return" comprises the sum of interest, fees, and any change-in-value payments with respect to the Reference Obligation. The change-in-value payment is equal to any appreciation (positive) or depreciation (negative) in the market value of the Reference Obligation, as usually determined on the basis of a poll of reference dealers. A net depreciation in value (negative total return) results in a payment *to* the TR Payer. Change-in-value payments may be made at maturity or on a periodic interim basis. As an alternative to

cash settlement of the change-in-value payment, TR Swaps can allow for physical delivery of the Reference Obligation at maturity by the TR Payer in return for a payment of the Reference Obligation's initial value by the TR Receiver. Maturity of the TR Swap is not required to match that of the Reference Obligation, and in practice rarely does. In return, the TR Receiver typically makes a regular floating payment of LIBOR plus a spread (Y b.p. p.a. in the below chart).

The key distinction between a Credit Swap and a TR Swap is that the former results in a contingent or floating payment only following a Credit Event, while the latter results in payments reflecting changes in the market valuation of a specified asset in the normal course of business.



Synthetic financing using Total Return Swaps

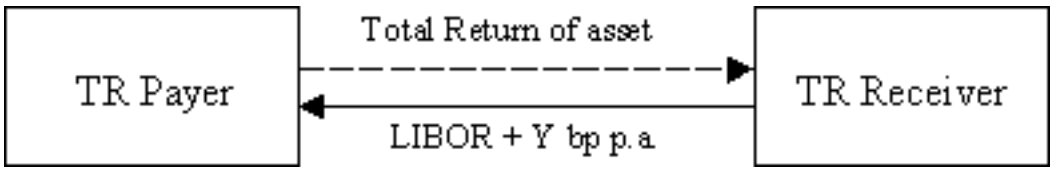
When entering into a TR Swap on an asset residing in its portfolio, the TR Payer has effectively removed all economic exposure to the underlying asset. This risk transfer is effected with confidentiality and without the need for a cash sale. Typically, the TR Payer retains the servicing and voting rights to the underlying asset, although occasionally certain rights may be passed through to the TR Receiver under the terms of the swap. The TR Receiver has exposure to the underlying asset without the initial outlay required to purchase it. The economics of a TR Swap resemble a synthetic secured financing of a purchase of the Reference Obligation provided by the TR Payer to the TR Receiver. This analogy does, however, ignore the important issues of counterparty credit risk and the value of aspects of control over the Reference Obligation, such as voting rights if they remain with the TR Payer.

Consequently, a key determinant of pricing of the "financing" spread on a TR Swap (Y b.p. p.a. in the chart) is the cost to the TR Payer of financing (and servicing) the Reference Obligation on its own balance sheet, which has, in effect, been "lent" to the TR Receiver for the term of the transaction. Counterparties with high funding levels can make use of other lower-cost balance sheets through TR Swaps, thereby facilitating investment in assets that diversify the portfolio of the user away from more affordable but riskier assets.

Because the maturity of a TR Swap does not have to match the maturity of the underlying asset, the TR Receiver in a swap with maturity less than that of the underlying asset may benefit from the positive carry associated with being able to roll forward short-term synthetic financing of a longer-term investment. The TR Payer may benefit from being able to purchase protection for a limited period without having to liquidate the asset permanently. At the maturity of a TR Swap whose term is less than that of the Reference Obligation, the TR Payer essentially has the option to reinvest in that asset (by continuing to own it) or to sell it at the market price. At this time, the TR Payer has no exposure to the market price since a lower price will lead to a higher payment by the TR Receiver under the TR Swap.

Other applications of TR Swaps include making new asset classes accessible to investors for whom administrative complexity or lending group restrictions imposed by borrowers have traditionally

presented barriers to entry. Recently insurance companies and levered fund managers have made use of TR Swaps to access bank loan markets in this way.


TR Payer
Total Return of asset
LIBOR + Y bp p.a
TR Receiver

ZERO PREMIUM CAP

DESCRIPTION

The Zero Premium Cap is an interest rate cap with no up front premium. It is applicable only where the yield curve is positively sloped. It exploits the higher implied forward LIBORs to "pay" for the cap. The Zero Premium Cap does not cap LIBOR as in a "normal" Cap, but LIBOR set in arrears

EXAMPLE

A company is afraid that rates will rise but can't afford to pay an expensive premium. A normal 4 year cap would cost 230 bp. The yield curve is positively sloped.

The company instead purchases a Zero Premium Cap. There is no up front premium paid. On the normal cap the LIBOR fixing for a caplet would occur on the start of the caplet for value at the end of that caplet. The LIBOR fixing for the Zero Premium Cap however will occur at the end of the caplet, and is to be paid at that end-date. If LIBOR at the end of the setting period is higher than the strike, the cap settles in the normal way.

PRICING

The Zero Premium Cap can be created from simple components. The company can enter an Interest Rate Swap where they receive LIBOR (set in advance, as normal) and pay LIBOR set in arrears . In a positive yield curve this would mean paying LIBOR Set In Arrears LESS a discount, to compensate for expected higher future LIBORs (See LIBOR Set In Arrears). This annual discount can be converted to an up front payment and used to purchase a cap on LIBOR set in arrears. The up front payment is used to buy the lowest strike cap affordable.

If the original exposure was paying LIBOR than they will now effectively end up paying capped LIBOR in arrears. As a rule of thumb, the cost of a 3yr cap on 6 mth LIBOR set in arrears will cost almost the same as buying a six month deferred start 3 year cap on LIBOR.

TARGET MARKET

The ZPC is applicable in any positive yield curve environment where clients are considering interest rate protection but do not want to pay a premium.

ADVANTAGES

- Limited loss potential (bought caps only)
- No up front premium
- Unlimited upside

DISADVANTAGES

- The first step in the ZPC is converting from a LIBOR exposure to a LIBOR set in arrears exposure. In a rising interest rate environment, assuming the cap is not struck, this will result in a HIGHER interest charge. This is in effect the cap premium.

PRODUCT SUITABILITY

Complex Defensive