

Capital Markets

Education Module : 2

Dated *July 2002*





1. Bank Bills

1.1 What are Bank Bills?

A client has a requirement to borrow funds, but only for a short period. On visiting an ANZ Manager to inquire about what facilities may be available, the client is told that Bank Bills may meet their needs. Alternatively, should they have excess funds that they want to deposit for only a short period, they may wish to invest in Bank Bills.

But what does borrowing or investing by way of Bank Bills mean? What actually constitutes a Bank Bill?

A **Bank Accepted Bill** (or Bank Bill, as it is commonly known) is a Bill of Exchange. As defined by the *Bills of Exchange Act 1909*, Bills of Exchange are:

'An unconditional order in writing, addressed by one person to another, signed by the person giving it, requiring the person to whom it is addressed to pay on demand, or at a fixed or determinable future time, a sum certain in money to or to the order of a specified person or to bearer'.

To put it plainly, a Bank Bill is a promise to:

- Pay the amount specified on the Bank Bill (also known as the 'Face Value').
- Pay at the date specified on the Bank Bill (referred to as the Due Date).
 - the payee specified on the Bank Bill.



ANZ Bank
Australia and New Zealand
Banking Group Limited
A.C.N. 004 367 822
Accepted 12 Mar 1993

No 10566085 10396361 10206 **Due Date 15 Apr 1996**

Branch _____
To Australia and New Zealand Banking Group Limited Melbourne

On 15 Apr 1996 **fixed**

Pay to the order of Australia and New Zealand Banking Group Limited

The sum of five hundred thousand dollars only

\$ 500,000.00**

Date 12th day of March 19 93

For and on behalf of Australia and New Zealand Banking Group Limited

For and on behalf of : XYZ PTY LTD

By its Attorney _____

1001039636115
2012 0010 101000 000000 0000

3298 3010 65481

Labels:
- **Accepter:** ANZ Bank
- **Date Payable:** 15 Apr 1996
- **Payee:** Australia and New Zealand Banking Group Limited
- **Amount:** \$ 500,000.00**
- **Drawer:** XYZ PTY LTD
- **Authorised Signatures:** (Two signatures)

In reality, most bills are not printed but held in safe custody in an electronic format.

As detailed in the illustration, the bank (as acceptor of the Bill) accepts the responsibility for payment of the specified amount to the ultimate holder of the Bank Bill. The ultimate payee may not be the one named on the Bank Bill, as Bank Bills can be transferred by **endorsement**. This simply means that the name of the new payee will appear on the back of the Bank Bill, signed by the holder.

1.2 Borrowing via Bank Bills

Example:

A client has decided to open a retail outlet selling Australian-made garments. From their own resources they are able to renovate a store they have leased, but finance is required to meet the cost of buying the stock of garments. They require financial assistance on a short-term basis to pay for the stock, which will be repaid as soon as the garments have been sold.

Bank Bills are a flexible financing instrument, ideally suited to seasonal and working capital requirements, or funding requirements that are short-term in nature.

As a borrower, the client sells Bank Bills to the bank, for a fixed amount, a fixed term and a fixed rate of interest. They then receive the funds at a discount to the face value of the Bank Bill on



the draw-down date, and agree to repay the full amount on the due date. This form of Bank Bill is known as a 'Commercial Bill Acceptance Discount Facility' and is the most popular way of providing Bank Bill finance.

A Commercial Bill Acceptance Discount Facility involves:

- **Accepting** - Bank Bills drawn by a customer on the bank and accepted by the bank, such that the bank agrees to pay the face value of the Bank Bill to the holder on the due date.

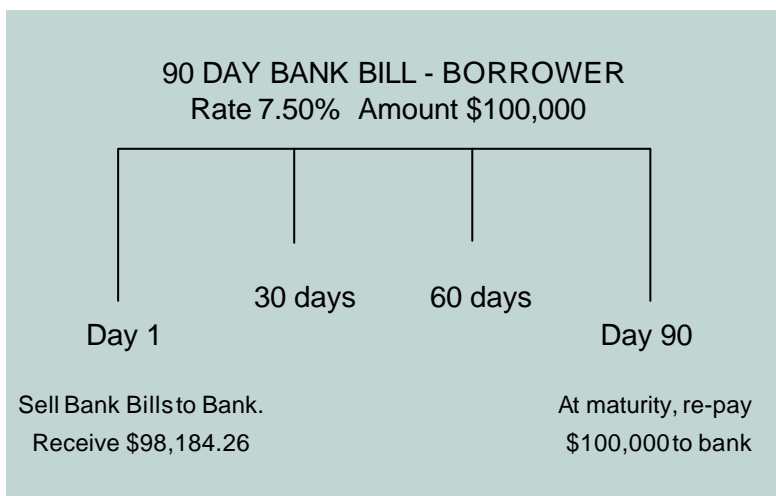
- **Discounting** - The process whereby Bank Bills are signed and exchanged for the discounted proceeds. For convenience, customers typically provide the bank with a power of attorney to sign the Bank Bills on their behalf.

Further explanation on this formula can be found by following this example.

Example 1:

To finance the cost of stock, the client borrows via Bank Bills with a face value of \$100,000 for a period of 90 days. ANZ quotes them a rate of 7.50%. As per the following formula, on day 1 the client receives the discount amount of \$98,184.26. In 90 days time, they repay \$100,000 to the bank, for a total interest charge of \$1,815.74.

This is the same as saying \$98,184.26 has been borrowed for 90 days at 7.50%.



The discounted amount is calculated as follows:

$$\begin{aligned} \text{Discount} &= \frac{\text{Face Value} \times 36500}{(\text{Yield Rate} \times \text{Term}) + 36500} \\ &= \frac{100,000 \times 36500}{(7.5 \times 90) + 36500} \\ &= \$98,184.26 \end{aligned}$$

Other bank charges, such as a line fee and an acceptance fee, are applied by the lending business unit, and increase the cost of borrowing.

Once a Bank Bill has been discounted, it is then possible for the holder of the Bank Bill (the bank in Example 1) to sell the Bank Bill to an investor prior to maturity.

This requires the seller to sign (endorse) the back of the Bank Bill for transfer to another party. A contingent liability remains with each individual endorser until the Bank Bill matures and is paid out. This process is known as **endorsing**, and can be seen in the following section.

1.3 Investing in Bank Bills

Bank Bills are not only used for borrowing purposes - they are also available for investment purposes.

In line with a company's expectations, the clothing range sold very well, and they now have excess funds to invest ahead of the arrival of next season's stock. They decide to invest in short term Bank Bills because of their liquidity, flexibility, security and competitive rate of return.

In this instance, they buy Bank Accepted Bills from the bank (for a given face value), a fixed term and a fixed rate of interest. The Bank Bills are then endorsed by the bank to acknowledge the change in ownership. Once again, the Bank Bills are discount instruments, so they purchase the bills for an amount that is at a discount to the actual face value of the Bank Bills.

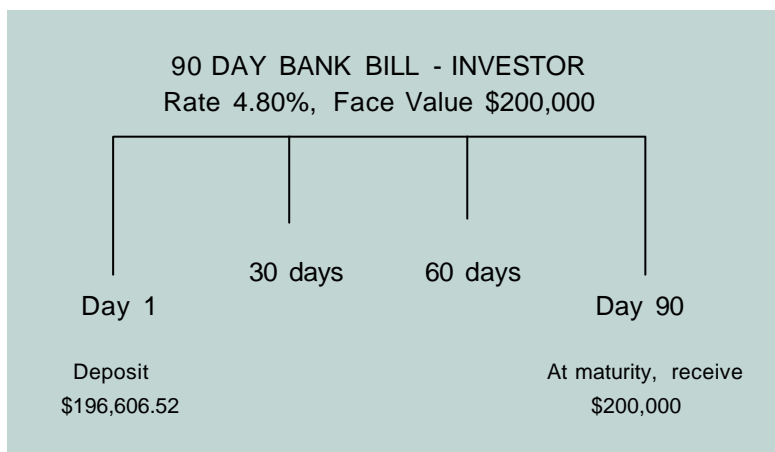
Upon maturity, the bank will pay the full face value of the Bank Bills, which includes the initial purchase price and the interest receivable. They then have the option of reinvesting in Bank Bills at the prevailing interest rate, retrieving the funds, or entering some other form of investment.



An additional feature of investing in Bank Accepted Bills is that, should funds be required before the due date, the bank will purchase the Bank Bills at the prevailing interest rate. This purchase price will be determined by the current market rate for the term remaining to maturity. This means that, should it be necessary, funds can be accessed at short notice.

Example 2:

An investor with surplus funds to invest for 90 days has been quoted an interest rate of 4.80% by ANZ. On day 1 they invest \$197,660.57, representing the discounted amount of the face value of the Bank Bill purchased (calculated using the yield formula referred to earlier). In 90 days time, they will receive \$200,000 (the face value, which comprises both principal and interest). This equates to interest received of \$2,339.43



Other bank charges such as line fees and acceptance charges do not apply to investments in Bank Bills. Further investments of amounts greater than \$50,000 are exempt from FID.

1.4 Features of Bank Bills

Bank Bills are a popular form of short-term finance due to several factors.

Various Maturities - Bank Bills can be bought or sold with maturities ranging from seven to 185 days. These are often referred to as 'Variable (or Floating) Rate Bills' because, when the Bank Bills mature, and if rolled over for a further term, the interest rate is reset at the rate applicable for the next term of the Bank Bills.

Forward Bank Bills – Clients with a funding requirement (say, 90 days time), and who wish to have a known budgeted cost of funds for this period, can take out a Forward Bank Bill at a negotiated rate to commence in 90 days time. This is a contract to borrow (or invest) at a certain interest rate, from a certain date in the future.

Flexible in Usage – Choose the period over which to borrow or invest funds.

A further advantage of Bank Bills is that financial instruments have been developed to assist Bank Bill borrowers and investors to manage interest rate risk.

1.5 Bank Bill Formula

The Bank Bill formula, as illustrated in Section 2, is a form of 'Present Valuing'. For example, a Bank Bill with a face value of \$100,000 for 90 days at an interest rate of 7.50% means the amount borrowed (or invested) is not \$100,000. This is because the \$100,000 is the amount to be paid back (as a borrower) or received (as an investor) at the maturity date (i.e. day 90).

Using the Bank Bill formula, \$98,184.26 would be received as a borrower (or paid as an investor) on day 1.

This can easily be checked, as follows:

$$\$98,184.26 \times 7.50\% \text{ for 90 days} = \$1,815.74 \text{ (Interest).}$$

$$\$98,184.26 + \$1,815.74 = \$100,000$$

$$\text{Principal} + \text{Interest} = \text{Face Value}$$

The 7.50% is a Yield Rate and is proved as shown below.

$$\frac{\$1,815.74}{\$98,184.26} \times \frac{365}{90} = 7.50\%$$



1.6 Reading Market Quotes

Refer to the following illustration if unsure which side of the market is relevant.

4.90%	/	4.80%
Bank buys bills	/	Bank sells bills
Bank lending money	/	Bank borrowing money

1.7 Spread

The difference between the buy and sell rates of a quote is known as the 'spread'. The spread will be determined by the market and will fluctuate according to market conditions at the time. Wider spreads usually apply to small transactions and during periods of volatility.

1.8 Market Parcels

A market parcel represents the market-accepted amount for a regular trade used in the inter-bank market and professional investor market. This amount is \$5 million dollars and is also known as a 'line'. Smaller parcels are referred to as 'scrubbers' by investors and generally attract a premium.

1.9 Basis Point

A basis point is equivalent to 0.01% in any interest rate quotation. In decimal point notation, this is 0.0001.

1.10 Holidays

It is the preference of the Trading book to avoid having bills mature on a day that is a banking holiday in either Sydney or Melbourne, as the liquidity in the market is diminished.



1.11 Market Benchmarks

a) **BBSW**

At approximately 10:10 am every business day on Reuters page BBSW, the Bank Bill Swap Reference Rate is set for the standard maturities of 30, 60, 90, 120, 150 and 180 days. The process undertaken by Reuters to determine a BBSW rate for each maturity is that rates to buy and sell bills for each maturity are obtained from 13 banks at 10:00 am. The two highest and the two lowest are removed. The mid rate is taken of the remaining nine rates and these are then averaged to obtain one rate for each maturity.

0910	AUSTRALIAN BANK BILL SWAP REFERENCE RATES (BBSW)					BBSW
	05/07	04/08	06/09	05/10	04/11	06/12
	04.95/85	04.97/87	05.03/93	05.05/95	05.10/00	05.16/06
	04.95/85	04.97/87	05.03/93	05.05/95	05.10/00	05.16/06
	04.95/85	04.97/87	05.02/92	05.05/95	05.10/00	05.16/06
	04.94/84	04.97/87	05.02/92	05.04/94	05.10/00	05.16/06
	04.94/84	04.97/87	05.02/92	05.04/94	05.10/00	05.15/05
	04.94/84	04.97/87	05.02/92	05.04/94	05.09/99	05.15/05
	04.94/84	04.96/86	05.02/92	05.04/94	05.09/99	05.15/05
	04.94/84	04.96/86	05.01/91	05.03/93	05.09/99	05.15/05
AUG	04.8933	04.9183	04.9717	04.9933	05.0467	05.1050
	04/06/99					

The BBSW is the benchmark rate used to settle swap, Forward Rate Agreements (FRAs) and Interest Rate Option transactions for all inter-bank and most corporate transactions.

b) **BBSY**

This is also a Reuters page (as shown in the following), and simple adds and subtracts five basis points to the BBSW rate to get bid (buying bills) and ask (selling bills) prices respectively.

0911	BANK BILL SWAP REFERENCE RATES					BBSY
	AVERAGE MID RATE - AVERAGE BID - AVERAGE OFFER					
	05/07	04/08	06/09	05/10	04/11	06/12
MID	04.8933	04.9183	04.9717	04.9933	05.0467	05.1050
BID	04.9433	04.9683	05.0217	05.0433	05.0967	05.1550
ASK	04.8433	04.8683	04.9217	04.9433	04.9967	05.0550
	04/06/99					

Most of the bank's borrowing clients' bill draw-downs are priced using the BBSY bid as a base.

2. Forward Rate Agreements (FRAs)

2.1 What is an FRA?

A FRA is a contract between two parties, where each party agrees to lock into an interest rate (contract rate) for a specific period (contract period) for a specific settlement date, based upon an agreed amount.

An FRA is an instrument that can be utilised to manage the floating rate portion of debt, and provide protection against anticipated interest rate increases.

In addition, an FRA offers the opportunity to set a borrowing rate of interest for the **future**. A period of 90 or 180 days can be locked in to commence as far out as nine months in the future. There is no commitment to borrow a principal sum and, therefore, no direct liability exists to inflate a company's balance sheet. The instrument may be used to set rates for future rollovers of variable bills, or to set a fixed rate in advance of commencement, in line with a company's cashflow requirements.

2.2 Settlement

Settlement is effected by way of a separate cash payment, based on the interest differential between the fixed contract rate of the FRA and the Bank Bill Swap Rate. It occurs on the start date of the borrowing. The settlement amount is calculated using the Bank Bill formula twice; firstly with the fixed FRA rate and secondly with the BBSW, then subtracting one net proceeds from the other.

2.3 Some Terminology

FRAs are quoted as follows:

1 x 4 Pronounced as a 'ones fours'. It is an interest rate for three months to commence in one month's time.

3 x 6 Pronounced as a 'threes sixes'. It is an interest rate for three months to commence in three month's time

Many more combinations are available, as shown by the Reuters Screen in Section 4.

Straight dates refers to an FRA which is calculated on the same day as the day of the quote. For example, if today is the 1st of the month and you asked for a 1 x 4 FRA straight dates, it means that the FRA will start and finish on the 1st of the month.

Cock Dates refers to an FRA which has a term other than three or six months. For example, a 1 x 3 or 6 x 7, as these have a term of two months and one month respectively.

2.4 Using a FRA

Example:

A borrower seeking to fix the interest rate on a Bank Bill facility buys an FRA for settlement on the day the bills are to be drawn-down/rolled over for the same term as the bills.

On settlement of the FRA, the buyer (who in this case is the client) receives/pays cash (depending upon whether rates have moved up/down respectively), and draws/rolls over bills for the same term that the FRA was undertaken.

FRAs are generally used by clients to protect against adverse movements in interest rates for short-term periods (i.e. three or six months). However, a string of consecutive FRAs can be established to ensure an average interest rate for a longer period. This approach may be used in lieu of a fixed rate facility or swap, if the flexibility is preferred.



3. Interest Rate Swaps

3.1 What is a Swap?

Swap: To exchange one thing for another.

Swaps involve an exchange of one thing for another - specifically an exchange of one series of cashflows for another series of cashflows.

The series of cashflows in question are each effectively the stream of interest payments (or receipts) on a particular 'notional' loan or investment.

3.2 Cashflows

Example:

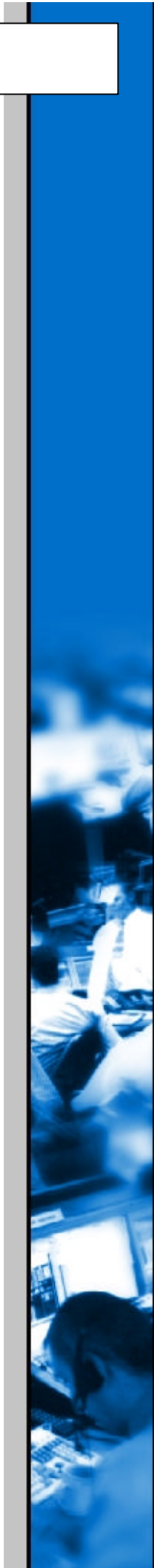
Lets look at the cashflows of a one year swap in which it is assumed that interest payments are made quarterly.

The notional principal involved is \$100 and the commencing date of the swap is 1/1/X1.

Cashflow Fixed Side

Interest payments on a \$100 two year loan at 6% per annum. Paid quarterly commencing 1/1/X1. The amounts involved are known in advance and are:

<u>DATE</u>	<u>31/3/X1</u>	<u>30/6/X1</u>	<u>30/9/X1</u>	<u>31/12/X1</u>
PAYMENTS(\$)	\$1.50	\$1.50	\$1.50	\$1.50



Cashflow Floating Side

Interest payments on a \$100 one year floating rate loan are at the floating interest rate – typically, the major short-term interest rate in the relevant market such as BBSW and LIBOR for US dollars. This stream of payments is not known in advance (except for the payment at 31/3/X1 - since it depends upon the BBSW set on 31/1/X1).

3.3 Market Conventions

- One-to-three year maturities are usually quoted with quarterly rate resets.
- Four years plus maturities are usually quoted with semi-annual rate resets.
- Payments are netted if possible.

3.4 Alternative Swap Types

NAME	CASHFLOWS SWAPPED
Interest Rate (Coupon) Swap	Floating interest rate stream for fixed interest rate stream.
Basis Swap	One floating interest rate stream for another floating interest rate stream.
Cross-Currency Fixed Interest Rate Swap	A fixed interest rate stream in one currency for a fixed interest rate stream in another currency.
Cross-Currency Floating Interest Rate Swap	A floating interest rate stream in one currency for a floating interest rate stream in another currency.
Cross-Currency Interest Rate Swap	A fixed interest rate stream in one currency for a floating interest rate stream in another currency or vice versa.



3.5 Variations on a Theme

The standard swap type involves the exchange of cashflow streams, which:

- a) Occur at the same dates.
- b) Are based on the same notional principal.
- c) Have the same maturity.

As outlined in the following, these swaps have an initial Net Present Value (NPV) of zero. They represent effectively two offsetting loans (one given, one received), equivalent in all respects but for the basis of interest rate determination - from which the principal receipts and payments have been stripped out.

In principle, any or all of characteristics [a] to [c] can be changed to create a more complex swap if required. However, to the extent that the offsetting loans have different NPVs, or the principal amounts cannot be easily stripped away (e.g. if different maturities are involved), the swap will require some additional payment from one party to the other to make the initial NPV equal to zero.

3.6 Valuing Swaps

The swap, as previously outlined, is a contract generating an uncertain cashflow series. For ABC, it is equivalent to borrowing \$100 at a fixed rate of interest (6%) and investing \$100 at a floating rate of interest, except for the absence of principal obligations. If it is assumed that there is no default risk involved, the value to ABC of the swap (its NPV) is thus equal to the NPV of a \$100 fixed rate borrowing plus the NPV of a \$100 floating rate investment.

$$\text{NPV}_{\text{swap}} = \text{NPV}_{\text{fixed rate borrowing}} + \text{NPV}_{\text{floating rate investment}}$$

At the commencement date of the swap 1/1/X1 in the preceding example, the NPV of the obligations on a \$100 borrowing is \$100, while that of the receipts from a \$100 investment is + \$100, yielding a NPV for the swap of \$0. (These calculations use the current market rates for fixed and floating rate securities.)

At subsequent dates, the swap may have a non-zero NPV for ABC. For example, suppose that all interest rates have increased, so that at 1/6/X1 (i.e. six months into the one year swap) the three month and six month interest rates have jumped substantially to be 10%.



Using the equivalence of the swap to a fixed rate borrowing plus a floating rate investment, the swap can be valued as follows. The fixed rate borrowing involves repayments of \$1.50 in three months and \$101.50 in six months. This is shown in the following table.

<u>DATE</u>	<u>30/6/X1</u>	<u>30/9/X1</u>	<u>31/12/X1</u>
PAYMENTS(\$)			
FIXED RATE		\$1.50	\$101.50
BORROWING			
FLOATING RATE		\$2.50	\$102.50
INVESTMENT			
FLOATING RATE (Spot and Forward)	10%	10%	n.a.

With a market interest rate of 10% now applying to the fixed rate borrowings, the NPV of these outflows is approximately minus \$98. On the other side of the calculation, the NPV of a floating rate investment at interest rate reset dates (such as 1/6/X1) is \$100. Since the swap is equivalent to the floating rate investment, plus the fixed rate borrowing, the NPV of the swap to ABC is equal to the sum of the NPV of the floating rate loan plus the fixed rate borrowing (i.e. approximately +\$2). Since the swap involves cashflows between ABC and XYZ, the NPV of the swap to XYZ (when evaluated using the same discount rates) must be \$2.



How a Swap can be Used to Turn a Floating Rate Borrowing Into a Fixed Rate Borrowing

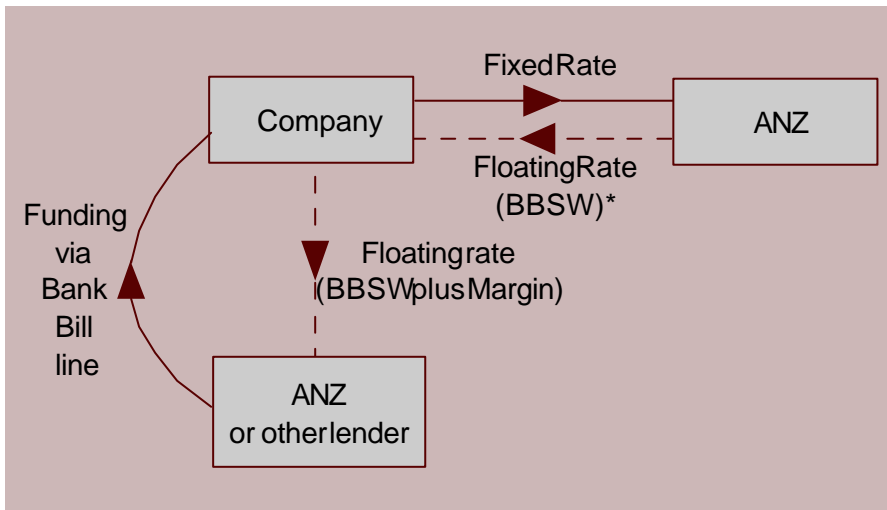
Example:

If you have borrowed on a floating (or variable) rate basis, but would prefer to have certainty in repayments by paying a fixed rate, an interest swap can be entered into, whereby you undertake to pay a fixed rate to a counter-party in return for it paying a floating rate to you. The floating rate amount received by you is then used to meet your floating rate borrowing obligations.

The cashflows occurring at each roll are represented in the following diagram.

Diagram 1

Diagram1



Example:

A summary of the company's position is as follows:

Bank Bill Funding	Pay	BBSW (+Margin)
Interest Rate Swap	Receive	BBSW
	Pay	Fixed Rate

Net Outcome	PAY	Fixed Rate (+Margin)
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3.7 Other Features

Flexible, as any structure of cashflows can be priced and swapped. This includes monthly, annual, irregular, interest payable in arrears, or in advance.

Reduces uncertainty by providing the ability to manage interest rate exposures.

Terms are available from six months to 15 years (longer on application).



4. Fixed Rate Facilities

4.1 Definition

A Fixed Rate Bill Facility (FRF) is an agreement with ANZ that locks in a fixed rate of interest for borrowing via Bank Accepted Bills. By entering into an FRF, the client's interest rate is fixed for the period specified. It operates in a similar fashion to the widely used Bank Accepted Bill, except that at each rollover the interest rate remains the same until the maturity date agreed at the outset of the borrowing. FRFs can therefore be used to secure a known rate for borrowing costs, and can be structured to suit a client's specific requirements in terms of cashflow, draw-downs and repayments.

4.2 Features

Like a swap, FRFs can handle:

- 1) Amortising (decreasing) and accreting (increasing) face values.
- 2) Delayed starts.
- 3) Interest cycles of monthly, quarterly, semi-annual, annual, structured, payable in advance, or in arrears.

4.3 How an FRF Works

If you are a borrower and are concerned that rates will rise and/or wish to secure a fixed borrowing cost, you can obtain current fixed rate quotes.

Upon acceptance, the FRF operates in exactly the same way as variable Bank Bill rollovers, except that the interest rate is fixed and the rollover dates are pre-arranged. Once the FRF has commenced, you need only to ensure that there are sufficient funds in your account to meet interest payments.



Example:

Smith Brothers will be embarking on a new construction project in a month's time, and wish to lock in a known profit margin today. Smith Brothers have previously decided to use a Bank Accepted Bill facility to fund the project.

They obtain quotes for both variable and fixed rates. The 90 day variable rate is 5% and a three year fixed rate with quarterly rollovers is 5.75%.

Although the fixed rate appears less favourable, Smith Brothers do not wish to take the risk that the variable rate increases to levels that threaten the profit margin on the project.

Smith Brothers draw down their Bank Accepted Bill facility for a total of \$5 million at the three year fixed rate of 5.75%. Their cashflows on the loan for the next three years appear as follows.

4.4 Fixed Rate Facilities

<u>Rollover Date</u>	<u>Term Days</u>	<u>Fixed Rate %</u>	<u>Amount Received \$</u>	<u>Amount Paid \$</u>	<u>Interest \$</u>
25/01/99	91	5.75	4,929,334.94		
26/04/99	91	5.75	4,929,334.94	5,000,000.00	70,665.06
26/07/99	91	5.75	4,929,334.94	5,000,000.00	70,665.06
	92	5.75	4,928,569.50	5,000,000.00	70,665.06
25/01/00	92	5.75	4,928,569.50	5,000,000.00	71,430.50
26/04/00	90	5.75	4,930,100.63	5,000,000.00	71,430.50
25/07/00	92	5.75	4,928,569.50	5,000,000.00	69,899.37
25/10/00	92	5.75	4,928,569.50	5,000,000.00	71,430.50
25/01/01	91	5.75	4,929,334.94	5,000,000.00	71,430.50
26/04/01	90	5.75	4,930,100.63	5,000,000.00	71,430.50
25/07/01	92	5.75	4,928,569.50	5,000,000.00	69,899.37
25/10/01	92	5.75	4,928,569.50	5,000,000.00	69,899.37
25/01/02				5,000,000.00	69,899.37

On each rollover date, Smith Brothers will have their nominated account debited with the net proceeds, which is the difference between the amount received and the amount paid, thus incurring a charge to the account of the interest owed at each roll.



Bank Accepted Bills will be issued at each rollover date for the face value of \$5 million in a similar manner to borrowing on a variable rate basis. The key difference is that the Bank Bills will be discounted at the same fixed rate over the term of the FRF.

4.5 Cancellation

The payout amount represents the present value*, over the remaining life of the fixed rate loan/swap of the differential between the **market** component of the fixed rate locked in and the **market** rate (for the amount involved) to cancel the facility. Whether the client receives or pays this pre-payment amount will depend on interest rate movements between the commencement date and the termination date. If interest rates have fallen (as shown in the following example), the client must pay an amount to cancel the fixed rate facility. However, if rates have risen, say to 11%, the bank would pay the benefit to the client on cancellation.

* **Present value refers to the current worth of a future payment or series of future payments.**

Example:

Principal Amount: 2,000,000

Commencement Cancellation

Date: 3/12/98

Date: 3/12/99

Term: Three years

Term remaining: Two years

Fixed Rate: 9% (inclusive of margins)

Market Rate: 8%

Market Rate: 7% (for remaining term)

Assumption: Interest payments are quarterly in arrears.

The pre-payment amount based on a 1% differential (i.e. 8% - 7% = 1%).

A formula which approximates the cancellation cost for a FRF is as follows:



$$A = F \times (d_2 - d_1) \times \frac{d_2^n - 1}{d_2 - 1}$$

Where:

$$d_1 = \frac{1}{1 + r_1} \times \frac{1}{K}$$

$$d_2 = \frac{1}{1 + r_2} \times \frac{1}{K}$$

A = payment amount

F = principal

r₁ = original market fixed rate

r₂ = current market fixed rate for the remaining term

n = number of periods until maturity

K = number of periods per year



Using the preceding example in this approximation formula, the payout for this FRF would be:

$$A = 2,000,000 \times \frac{[(1 + 0.07)^4 - (1 + 0.08)^4]}{4} \times \frac{(1 + 0.07)^4 - 1}{4}$$

$$\frac{(1 + 0.07)^4 - 1}{4}$$

$$= 2,000,000 \times (0.9828 - 0.9804) \times \frac{(0.9828^8 - 1)}{(0.9828 - 1)}$$

$$= 2,000,000 \times 0.0024 \times \frac{-0.1296}{-0.0172}$$

$$= \$36,299$$

This will be a cost to the client.

What factors should be considered in deciding to cancel a fixed rate facility?

Cancelling or 'pre-paying' a fixed rate borrowing is the crystallisation of the interest rate differential for the remaining term. Therefore, it must be remembered that no interest rate benefit is immediately derived by returning to a lower floating rate environment. This is because the borrower is merely paying out the present value of the future obligation. It is only subsequent interest rate falls that produce a benefit.

Careful consideration should be given to:

Ones view on future movements in interest rates and established target cost of funds. This view should recognise that if rates do not fall significantly or for long enough, the pre-payment amount may not be recovered.



The effect of a once-off pre-payment on present cashflow position.

Recognition that the conversion to a floating interest rate environment will require closer management.

A short-term exposure (i.e. floating) may not suit the client's overall borrowing portfolio.

Note that, in addition, the client may need to absorb increases in bank costs or margins on the new loan that occurs between the time the original fixed rate loan was commenced and when a new loan is taken out.

What improvement in interest rates is needed for the client to benefit from the cancellation?

To benefit from the cancellation, the client must achieve an average interest rate below the cancellation rate for the remaining period.

If the client intends to re-enter another fixed rate facility at a lower rate, the client will not benefit from the cancellation unless the new fixed rate has fallen below the payout rate. For example, if the fixed rate facility has two years to run and the cancellation rate is 7%, there will be no benefit in cancellation unless the client can lock in a new fixed rate below 7% for two years or more.

Alternatively, if the client intends to use floating rate funding, the client will not recoup the cancellation cost, unless the average floating rate for the remaining two years stays below 7%.



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