Interest Rate Swap Convention

November 2019
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1. Description

The swaps market is an integral part of the capital markets. It drives and is driven by international bond issuance by both government and non-government entities. Swaps enable borrowers and investors to alter the cash flow characteristics of instruments they use to better suit their individual circumstances. They can also take advantage of any market misalignments to achieve better results than would be possible without the swaps market.

2. Products

A swap, as the name implies, is an exchange of financial obligations. It involves two parties contracting to swap their respective interest payment flows or their foreign exchange obligations.

A swap works by the dealer being able to value all the cash flows involved in the deal. In a swap the obligations exchanged can be in the same or different currencies and can be at fixed or floating rates of interest. There are many variations on this theme as per Appendix 1.

An overnight index swap (OIS) is a fixed for floating interest rate swap having a term of usually between one week and two years. The floating rate period is tied to a daily overnight reference rate RBNZ02.

These conventions are specific to New Zealand Dollar swap products traded between NZFMA members, although they are applicable to all counterparties that trade or enter into NZD swap products. Swaps denominated in other currencies would be subject to the specific conventions/rules governing those markets.

A set of self-contained CPI linked swap conventions are detailed in Section 3.7. For CPI linked swaps conventions not covered conventions are the same as those for other interest rate swaps contained within this set of conventions.

3. Dealing

3.1. Methods of Dealing

Direct via Bloomberg chat.

3.2. Electronic Dealing

Some platforms to trade electronically exist.

3.3. Business Days

A good business day is defined as any day on which banks in New Zealand are generally open for business, or a day other than one on which banks in New Zealand are obliged or permitted to close, excluding Saturday and Sunday.

Essentially, New Zealand business days are weekdays (Monday to Friday) other than public holidays.
3.4. Standard Transaction Size (market parcel)

Unless specified otherwise the following dealing parcels will apply to New Zealand dollar swaps:

<table>
<thead>
<tr>
<th>Maturity</th>
<th>Notional Principal for Swaps on an Outright basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year</td>
<td>$200 million</td>
</tr>
<tr>
<td>2 years</td>
<td>$100 million</td>
</tr>
<tr>
<td>3 years</td>
<td>$75 million</td>
</tr>
<tr>
<td>4 to 5 years</td>
<td>$50 million</td>
</tr>
<tr>
<td>6 years</td>
<td>$40 million</td>
</tr>
<tr>
<td>7 to 8 years</td>
<td>$30 million</td>
</tr>
<tr>
<td>9 to 10 years</td>
<td>$25 million</td>
</tr>
<tr>
<td>11 to 15 years</td>
<td>$20 million</td>
</tr>
<tr>
<td>16 to 20 years</td>
<td>$10 million</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maturity</th>
<th>Notional Principal</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;= 6 months fixed against 1 month floating</td>
<td>$200 million</td>
</tr>
<tr>
<td>&gt; 6 months fixed against 1 month floating</td>
<td>$100 million</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maturity</th>
<th>Notional Principal</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>$400 million</td>
</tr>
</tbody>
</table>

- The minimum market parcel for all swaps in a fly is double the notional of the standard market parcel in the belly of the fly. This also applies to Bills/Libor and Domestic Basis swaps

<table>
<thead>
<tr>
<th>Maturity</th>
<th>Notional Principal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 month</td>
<td>$500 million</td>
</tr>
<tr>
<td>2 months</td>
<td>$300 million</td>
</tr>
<tr>
<td>3 months</td>
<td>$200 million</td>
</tr>
<tr>
<td>4 months</td>
<td>$150 million</td>
</tr>
<tr>
<td>5 months</td>
<td>$125 million</td>
</tr>
<tr>
<td>6 to 8 months</td>
<td>$100 million</td>
</tr>
<tr>
<td>9 to 11 months</td>
<td>$75 million</td>
</tr>
<tr>
<td>1 year +</td>
<td>$50 million</td>
</tr>
</tbody>
</table>

For CPI linked swap standard transaction size (market parcel) refer to Section 3.7.

There are currently no standard dealing parcels for cross currency swaps.
3.5. Two Way Pricing

No specific convention.

3.6. Quotation and Dealing

- The margin on term basis swaps across all underlying tenor combinations is applied to the shorter leg.

3.7. Other Instrument Conventions

3.7.1. CPI Linked Swap Conventions (self contained)

Most conventions for CPI linked swaps are the same as those for standard interest rate swaps contained in these conventions.

The transactions can be dealt under an ISDA master agreement (the preferred dealing method) with all additional definitions required to be contained in the bilateral confirmations exchanged by the deal counterparties.

3.7.2. Standard Interbank CPI Swap Structures

**Capital Indexed Swap (CIS) –** Capital Indexed Bond (CIB) style swap vs nominal floating.

- The real leg follows the CIB profile.
- The nominal leg follows the standard nominal swap profile, but always quarterly.
- The quotation is on the basis of the fixed real rate that applies to the real leg calculations.

The quarterly payments are calculated as follows:

<table>
<thead>
<tr>
<th></th>
<th>CPI Leg</th>
<th>Floating Leg</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial Exchange</strong></td>
<td><strong>Notional</strong></td>
<td><strong>Notional</strong></td>
</tr>
<tr>
<td><strong>Quarterly Payment</strong></td>
<td><strong>Notional × ( \frac{r}{4} \times \frac{K(n)}{100} )</strong></td>
<td><strong>Notional × BKBM(3month) \times \frac{days}{365}</strong></td>
</tr>
<tr>
<td><strong>Final Exchange</strong></td>
<td><strong>Notional × ( \frac{K(last)}{100} )</strong></td>
<td><strong>Notional (standard final principal exchange)</strong></td>
</tr>
</tbody>
</table>

\( r \) = the dealing fixed real rate expressed as a percentage per annum
\( n \) = the number of full coupon periods since the start date
\( days \) count basis is actual days/365 fixed
\( K_0 \) factor is set at 100 at deal time and applies to swap start date. From then on \( K(n) \) is calculated as:

\[
K(n) = K(n-1) \times \left(1 + \frac{P(n)}{100}\right)
\]

\[
P(n) = \left(\frac{CPI(n-1)}{CPI(n-3)} - 1\right) \times \frac{100}{2}
\]

\( K \) is rounded to 2 decimal places
\( P \) is rounded to 2 decimal places

\( CPI(n) \) is the most recently available CPI at the time the \( n \)th payment would be due

BKBM (3month) days defined as per standard swap
**Index Annuity Swap (IAS)** - CPI Indexing flow vs fixed indexing flow.

- The real leg is annuity style following the standard IAB profile (e.g., TCV 15/12/21 IAB).
- The nominal leg is an escalating nominal annuity at a fixed escalation rate.
- The quotation is on the basis of the fixed escalation rate for the nominal side.

The quarterly payments are calculated as follows:

<table>
<thead>
<tr>
<th>Quarterly Payment</th>
<th>CPI Leg</th>
<th>Floating Leg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Notional Base Payment</td>
<td>Notional Base Payment</td>
</tr>
<tr>
<td></td>
<td>$\times \frac{CPI(n)}{CPI(0)}$</td>
<td>$\times \left(1 + \frac{Index\ Factor}{4}\right)$</td>
</tr>
</tbody>
</table>

\(n\) = the number of full coupon periods since the start date  
\(CPI(n)\) = the most recently available CPI index at the time the nth payment is due  
\(CPI(0)\) = the most recently available CPI index at the start date (base CPI)  
Index Factor = the fixed escalation rate on which the swap is quoted  
Notional Base Payment = the dealing notional payment size

**Zero Coupon Swap (ZCS)** - zero coupon CPI versus zero coupon fixed (ZCS).

- The CPI leg is notional increasing with CPI.  
- The floating leg is notional increasing at an agreed fixed rate.  
- Both legs have no interim interest payments and are netted upon exchange at maturity.  
- The quotation is on the basis of the price for inflation quoted on the fixed leg for the term.

The payments are calculated as follows:

<table>
<thead>
<tr>
<th>Initial Exchange</th>
<th>Fixed Leg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notional</td>
<td>Notional</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Final Exchange</th>
<th>CPI Leg</th>
<th>Fixed Leg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notional $\times \frac{CPI(n)}{CPI(0)}$</td>
<td>Notional $\times (1 + x)^n$</td>
<td></td>
</tr>
</tbody>
</table>

All payments are netted, hence there is no initial payments exchanged  
In all cases \(CPI(n)\) and \(CPI(0)\) are agreed between the two transacting counterparties  
Rounding on CPI leg is to 8 decimal places  
\(CPI(n)\) usually = the most recently available CPI index at maturity  
\(CPI(0)\) = the most recently available CPI index at the start date (base CPI)  
\(x\) = the dealing price for inflation quoted as an effective percentage per annum  
\(n\) = the number of years between the start date and the end date
3.7.3. **Definition of CPI**

The definition and contingencies for non publication, revisions, etc will come under the ISDA 2006 guidelines.

3.7.4. **Standard Transaction Size (market parcel)**

<table>
<thead>
<tr>
<th>Zero Coupon Swaps [ZCS] (notional face value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 months</td>
</tr>
<tr>
<td>Between 1 and 10 years</td>
</tr>
<tr>
<td>Greater than 10 years</td>
</tr>
</tbody>
</table>

3.7.5. **Standard Terms**

Standard swaps are based on terms of 3 months, 1, 2, 3, 4, 5, 7, 10, 12, 15, 20, 25 and 30 years.

Unless otherwise stated, scheduled maturities will be rolled to the next quarterly date, being the 15th of March, June, September and December, upon release of the quarterly CPI figure. Thus a five year trade on 10 October 2008 will terminate on 15 September 2013, and a five year trade on 30 October 2008 will terminate on 15 December 2013.

3.7.6. **Right to Break Clauses**

Standard market right to break is at five years and annual thereafter on a Bermudan basis.

Bilateral arrangements between counterparties are to be organised for longer transactions, if necessary.

3.8. **Basis**

Swaps are quoted on a semi/quarterly basis for all maturities.

Swaps can be quoted on any other basis if the terms are agreed to by both parties.

All rates are quoted on an actual/365 day fixed basis. The standard convention denominator doesn’t adjust for leap years unless otherwise stated.

Bills/LIBOR trades are quoted on a quarterly/quarterly basis.

For overnight index swaps less than 12 months to maturity interest is payable and settled at maturity.

For overnight index swaps greater than 12 months to maturity net interest is payable at the end of the front end stub period (if any) and annually in arrears thereafter until maturity.

Dealing Prices can be obtained on many different bases (e.g. “back end stub”) and to avoid confusion the matter of settlement of the “broken” interest period or “stub period” should be clarified at the time of inquiry or quotation.
For NZD the following default applies unless otherwise stated in the confirmation:

Earliest Exercise time: 9am Wellington time
Latest Exercise time: 11am Wellington time
Cash Settlement valuation Time/Expiration Time: 11am Wellington time

Expiration Date Early termination: Five (5) exercise business days prior to cash settlement payment date.

3.9. Maturity Conventions

In general NZFMA recommends that transactions should not be negotiated for settlement or price fixing (rollover) on a non business day.

3.10. Settlement Rate or Index

Most NZD interest rate swaps are settled against BKBM FRA and overnight index swaps settle against RBNZ OCR.

3.11. Premium Payment Date(s)

Not applicable.

3.12. Expiry Conventions

Not applicable.

3.13. Broker Conventions

The following conventions should be followed when dealing through brokers:

- If a dealer provides a firm order with a broker and is hit on such an order the dealer must deal at the level specified for the minimum market parcel. If the dealer reneges on such a quote (i.e. drops the broker) the counterparty wishing to deal at the quoted price may request that the name of the other party be provided. After the broker informs the party who has reneged the broker is obliged to pass the party’s name.
  
  If such a dispute cannot be resolved bilaterally between the 2 parties the party with the grievance may refer to NZFMA for assistance in resolving the matter.

- If an order is placed with a broker under reference then the broker should refer to the dealer before dealing at the specified price.

- When providing quotes to brokers dealers should attempt to specify the basis on which they are prepared to deal, e.g. the curve must be trading at or within half a point from a specified price. If the curve moves more than half a point against the dealer the quote is no longer firm.

- When a dealer has a price with a broker it is expected that the dealer will deal at least the minimum market parcel if they have not specified a particular amount to the broker. It is then the responsibility of the broker to promulgate that information.
• If a dealer provides the same firm order in two or more brokerage firms they will be obliged to deal at least market parcel (see Section 3.4) in each brokerage firm they have been dealt. The dealer cannot use the excuse that they have been dealt in another brokerage firm in order to renege on a trade.

3.14. Confidentiality

• Names of counterparties should not be passed by brokers prior to dealing unless both parties agree to the passing of names.

• Brokers should not pass counterparty names or the size of deals to other market participants.

• When dealers are trading directly or through a broker neither of the parties should disclose the name of the counterparty or the size of the transaction dealt to other market participants.

3.15. Credit

The ability to deal is subject to credit constraints/limits. Dealers should advise the counterparty if they are unable to deal because of credit limits as quickly as possible. The transaction is not finalised until both parties have agreed with the other party that credit is available. Both parties have the right to request a change in price of the deal up until the time that credit limits have been finalised.

3.16. Exercise of Options

Not applicable.

3.17. Data Source

Interest rate swap prices can be found on NZdata NZ Swaps Close.

Overnight index swaps reference index is available on Reuters page RBNZ02.

3.18. Pricing Formulae

Overnight index swaps fixed amount:

\[ FixA = \text{Notional} \times \frac{D \times F}{365 \times 100} \]

*FixA* = fixed amount
*Notional* = notional amount
*D* = day count (between start date & maturity date)
*F* = fixed rate

Overnight index swaps floating amount:

\[ FA = \text{Notional} \times FR \]
\[
FR = \left[ \left(1 + \frac{RBNZ(1)}{365 \times 100} \right) \left(1 + \frac{RBNZ(2)}{365 \times 100} \right) \ldots \right] - 1
\]

\(FA = \) floating amount  
\(FR = \) floating rate (rounded to 4 decimal places)  
\(Notional = \) notional amount  
\(RBNZ(1) = \) the NZD Official Cash Rate for the first reset day of the OIS transaction as shown on Reuters RBNZ02  
\(RBNZ(n) = \) the NZD Official Cash Rate for the last reset day of the OIS transaction as shown on Reuters RBNZ02  
\(D(1) = \) the day count on the first reset day of the OIS transaction  
\(D(n) = \) the day count on the last reset day of the OIS transaction

Local non-business days are included as extra days in the day count of the previous local business day, eg. the day count for a Friday preceding a normal weekend is 3 days.

Settlement is calculated as the difference between the fixed amount and the floating amount and is paid two business days after the maturing date.

Reset day means any good business day in accordance with contractual holiday conventions. The overnight cash rate for any business day is the rate specified for that business day on the screen page RBNZ02 at or about 9am on that day. The reference page RBNZ02 is quoted to 2 decimal places and the floating amount is rounded to the nearest cent.

**4. Confirmations**

**4.1. Timing**

Confirmations are to be provided as soon as possible after the details of the transaction are agreed. Generally, this should take place within one hour of dealing.

**4.2. Confirmation Standards**

The initial confirmation for this type of product supplements and forms part of the ISDA Master Agreement, and therefore the transaction must be confirmed using the standard form of confirmation.
4.3. Transaction Information

The complete transaction information must be confirmed.

- Trade Date
- Date of ISDA Master Agreement
- Fixed Rate Payer
- Floating Rate Payer
- Notional Amount(s) and Currencies
- Effective Date
- Termination Date
- Reset Date
- Payment Date for each Party
- Business Day Convention
- Day Count Fraction
- Floating Rate Option
- Designated Maturity
- Business Centres for each Party
- Office of each Party

5. Settlements

5.1. Physical Settlements

Not applicable.

5.2. Cash Settlements

In general, NZFMA recommends that transactions should not be negotiated for settlement or price fixing (rollover) on a non-business day (see Section 3.9). Other conventions can be utilised if agreed at the time of dealing.

Adjustment of Settlement Date and Maturity Date - If the Settlement Date or the Maturity Date does not fall on a Business Day (see Section 3.3), then it is generally to be adjusted on a ‘Modified Following Business Day’ basis.

Note that settlements on NZD and AUD Overnight Index Swaps are paid two business days following maturity. Similarly, settlements for the Cash/BKBM (BOB) basis swap are also paid two business days following maturity.

For OIS greater than 12 months to maturity, net interest is payable at the end of the “front end stub” period (if any) and annually in arrears thereafter, until maturity (refer to Section 3.9).
Appendix 1 - Glossary

**Accreting Swap** - A swap whose notional principal increases over time.

**Amortising Swap** - An interest rate swap with a decreasing principal amount.

**Annuity Swap** - A swap involving an initial payment or receipt then an exchange of equal coupons during the life of the swap.

**Asset Swap** - A swap where the fixed payment stream of the swap is generated by an asset, eg. a bond held by a party to the swap.

**Basis Swap** - An interest rate swap carried out between two floating rates set against two different reference rates.

**Bills/OIS Basis Swap** – A form of single currency floating/floating interest rate swap. There is no exchange of principal. The floating rate of the Cash side of the swap is tied to a daily Interbank Overnight Cash reference rate (RBNZ02). The other floating rate payment is based on BKBM. Settlement is the 2nd business day after termination date.

**Coupon Swap** - A conventional fixed for floating interest rate swap.

**Cross Currency Swap** - A swap where counterparties exchange equal principal amounts of 2 currencies at the spot exchange rate. During the life of the swap the counterparties exchange fixed or floating rate interest payments in the swapped currencies and at maturity. The principal amounts are again swapped at a predetermined rate of exchange (usually the initial spot rate).

**Discount Swap** - A swap with payments made on a discounted basis in advance.

**Domestic Swap** - An interest rate swap in the domestic currency.

**Forward Swap** - A swap that takes effect at a future date.

**Interest Rate Swap** - A basic fixed rate for floating rate swap organised in one currency with interest rate flows paid in arrears and settled on a net cash basis.

**Long Dated Forward** - A forward contract where settlement date is more than 365 days away.

**Non Par Swap** - A swap where one or both of the securities underlying the swap sells at a discount or premium.

**Overnight Index Swap** - A fixed/floating interest rate swap where the floating leg is fixed by reference to an overnight rate. Both the fix and floating interest legs are calculated according to New Zealand money market conventions (act/365 fixed). The floating amount is calculated on a compounding basis using the RBNZ02 rate fixes. Settlement is the 2nd business day after termination date.

**Plain Vanilla Swap** - A par value, generally same currency, swap with standard terms and conditions.

**Roller Coaster Swap** - A swap where the notional principal fluctuates over time.

**Unmatched Swap** - A swap not matched by an offsetting swap or asset/liability. The mismatch can be in the principal amount, date structure or both.

**Zero Coupon Swap** - A swap where the fixed coupon is discounted/accumulated to be paid at commencement/maturity.