Inflation Product Conventions

Contents

AFMA Code of Conduct

AFMA promotes efficiency, integrity and professionalism in Australia's financial markets. The AFMA Code of Conduct (the Code) clearly articulates the ethical principles for minimum acceptable standards of behaviour and supports responsible decision making by firms and individuals engaged in financial markets activities.

All AFMA Financial Markets Members and Partner Members[1] are expected to observe the Code and operate with integrity, professionalism and competence. The Code is designed to support behaviors that put the interests of clients, the firm and the wider community ahead of personal or individual interests, and promotes confident participation by users in Australia's OTC markets.

The Code is presented in two parts – the Ethical Principles and the Guidelines.

Market participants are reminded that they are generally expected to observe and adhere to the market standards and conventions as set out below when engaging in any form of market dealing.

1.   Description

Inflation Products
Inflation Products are debt instruments that provide cashflows that are linked to an inflation rate. In Australia, the common inflation rate used for these products is the Headline Consumer Price Index or CPI. The CPI that is used for the purposes of these conventions is the `All groups CPI: Weighted average of eight capital cities' as maintained and published quarterly by the Australian Bureau of Statistics. The following Inflation Product Conventions cover the two primary inflation products in the Australian market. These are: • **CPI Bonds**, which include Capital Indexed Bonds and Inflation Indexed Annuities. These are long-term debt instruments issued by a variety of different issuers. • **CPI Swaps**, which include Capital Indexed Swaps, Indexed Annuity Swaps, Zero Coupon Swaps and Year on Year Swaps. These are a form of over-the-counter derivative where one side of the swap is linked to the CPI. 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. These Conventions reflect current market practices and are maintained by the AFMA Inflation Products Committee.

2.   Products

2.1. Capital Indexed Bonds

Capital Indexed Bonds
Capital Indexed Bonds (CIBs) feature quarterly indexation of the outstanding capital or principal value, which is repaid in full at maturity. The capital value of the bond is adjusted for movements in the Consumer Price Index (CPI) published quarterly by the Australian Bureau of Statistics, although other price and wage indices have occasionally been used. A coupon interest rate on the bond is set at issue. Interest payments will vary over time in line with the indexed capital or principal value. CIBs provide the investor with inflation protection. Nominal bond returns are subject to erosion from inflation. CIB returns are linked to the inflation rate to ensure that the real return expected by the investor over the life of the bond is maintained.

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[1] As defined in the AFMA Constitution

2.2. Inflation Indexed Annuities

Inflation Indexed Annuities
An Inflation Indexed Annuity (IIA) is a stream of regular payments that are adjusted with reference to the inflation rate to protect the real value of the payments from being eroded over time. The relevant inflation index is usually the one quarter lagging CPI.

2.3. Capital Indexed Swaps

Capital Indexed Swaps
Capital Indexed Swaps (CIS) are CPI swaps where one side of the swap emulates the cash flow profile of a Capital Indexed Bond. The other side of the swap is similar to the floating leg of a vanilla interest rate swap, which is linked to a floating benchmark, such as BBSW. Note that, unlike a vanilla interest rate swap, notional values are exchanged initially and at maturity.

2.4. Indexed Annuity Swaps

Indexed Annuity Swaps
Indexed Annuity Swaps (IAS) are CPI swaps where one side of the swap emulates the cash flow profile of an Inflation Indexed Annuity. The other side of the swap is an escalating nominal annuity (with amortising principal) at a fixed escalation rate, or a floating rate (usually based on BBSW). Note that notional values are exchanged with each cash flow in an amortising fashion, and hence the notional value is zero after the final cash flow.

2.5. Zero Coupon Swaps

Zero Coupon Swaps
Zero Coupon Swaps (ZCS) are CPI swaps where one side of the swap is similar to the cash flow profile of the inflation indexed notional principal of a Capital Indexed Bond, which is payable at maturity. In other words, the notional which is eventually payable is indexed to the CPI. The other side of the swap represents an indexed notional principal which is indexed at an agreed fixed rate. There are no coupon payments on either side of the swap. Both legs have no interim interest payments and the indexed notionals are netted upon exchange at maturity. Notional values are exchanged initially and at maturity. 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 (which is before the September CPI release) would effectively start on 15 September 2015 and terminate on 15 September 2020, and a five year trade on 30 October 2015 will terminate on 15 December 2020.

2.6. Year on Year Swaps

Year on Year Swaps
Year on Year Swaps (YOY) are CPI swaps where one side of the pays an annual fixed rate coupon on a fixed notional and the other side pays an annual coupon determined by the year-on-year rate of inflation (E.g.; $CPI_{Sep2014}/CPI_{Sep2013} -1$) based on a fixed notional. Inflation is paid out annually instead of paying cumulative inflation (which is the case for Zero Coupon Swaps).

3. Dealing

3.1. Methods of Dealing

All Products
The main methods of dealing within the inflation products market consist of: • Directly via the telephone • Directly via the broker screen market • Directly via other electronic platforms or other electronic communication methods, such as via chat systems.

3.2. Electronic Dealing

All Products
The increasing sophistication of financial markets has created a space for brokers, dealers and clients to access markets via electronic platforms or other electronic communication methods.

3.3. Business Days

All Products
Good Business Day: A good business day is defined as any day on which banks in the state of New South Wales (NSW) are generally open for business, or a day other than one on which banks in NSW are obliged or permitted to close excluding Saturday and Sunday. Essentially, NSW business days are weekdays (Monday to Friday) other than NSW public holidays as gazetted under the NSW state government's Banks and Bank Holidays Act 1912. That said Australian OTC markets generally tend to operate in a reduced capacity on gazetted NSW public holidays that are not similarly gazette in Victoria. **Non Business Day:** A non-business day is defined as any day on which banks in the state of NSW are generally obliged or permitted to close, including Saturday and Sunday. In general, AFMA recommends that transactions should not be negotiated for settlement or price fixing (rollover) on a non-business day. Other conventions can be utilised, if agreed upon at the time of dealing by the bilateral parties to the transaction.

3.4. Standard Transaction Size (market parcel)

Capital Indexed Bonds
The standard market parcel size is AUD 5 million

Inflation Indexed Annuities
No specific convention.

Capital Indexed Swaps
No specific convention

Indexed Annuity Swaps
No specific convention

Zero Coupon Swaps

Maturity	Notional Principal
< 1 year	$ 50 million
>= 1 and =<6 years	$ 25 million
> 6 years	$ 10 million

Year on Year Swaps
No specific convention

3.5. Two Way Pricing

All Products
No specific convention.

3.6. Quotation and Dealing

CPI Bonds – CIBs and IIAs
The market is quoted on a quarterly real yield to maturity basis, rather than a price basis.

The standard bid/offer spread for securities longer than one year to maturity is the spread dictated by market price makers given prevailing market conditions at that time.

Dealers generally quote on one of three bases:

- *Exchange of Futures for Physicals (EFP)* - Is a service offered by the SFE. In the OTC market each stock trades at a spread to either the three year bond futures contract or the ten year bond futures contract. EFP works by two counterparties striking a deal to trade long term securities and agreeing to swap an agreed number of relevant

futures contracts. Unless otherwise agreed, the number of contracts is a function of the ratio of the PVBP of the stock to the PVBP of the relevant futures contract. Refer to ASX 24 Operating Rules Procedures 4800.

- *Outright* - When a dealer deals on an outright basis they quote a yield to maturity at which they are willing to buy or sell the stock. There is no exchange of futures.
- *Switch* - A switch is where a counterparty wants to buy one stock and sell another. This is generally quoted in terms of the difference between the yields to maturity of the two stocks.

Capital Indexed Swaps
The quotation is on the basis of the fixed real rate that applies to the real leg calculations, or as agreed

Indexed Annuity Swaps
The quotation is on the basis of the fixed escalation rate for the nominal side, or as agreed

Zero Coupon Swaps
The quotation is on the basis of the escalation rate quoted on the fixed leg for the term.

Year on Year Swaps
The quotation is on the basis of the effective annual fixed rate coupon rate for the nominal side.

3.7. Basis

CPI Bonds – CIBs and IIAs
Not applicable.

Capital Indexed Swaps
Swaps are quoted on a quarterly fixed real rate basis. The day count basis for the floating leg is actual days/365 fixed

Indexed Annuity Swaps
Swaps are quoted on a quarterly fixed escalation rate basis.

Zero Coupon Swaps
Swaps are quoted as an effective annual escalation rate applied to the notional amount.

Year on Year Swaps
Swaps are quoted as an effective annual rate applied to the notional amount.

3.8. Maturity Conventions

CPI Bonds – CIBs and IIAs
Not applicable.

CPI Swaps – CIS, IAS, ZCS and YOY
In general AFMA recommends that transactions should not be negotiated for settlement or price setting (rollover) on a non business day.

3.9. Settlement Rate or Index

CPI Bonds – CIBs and IIAs
The index for CPI Bonds is the 'Weighted Average of Eight Capital Cities All Groups CPI' maintained and published quarterly by the Australian Bureau of Statistics.

CPI Swaps – CIS, IAS, ZCS and YOY
The index for the inflation side of the swap is the Consumer Price Index (or as defined within the ISDA confirmation if different). The index for the floating side of a Capital Indexed Swap is 3 month BBSW.

3.10. Premium Payment Date(s)

All Products
Not applicable.

3.11. Expiry Conventions

All Products
Not applicable.

3.12. Broker Conventions

All Products
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 AFMA 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.

In instances where a dealer has submitted prices to multiple brokers and is subsequently simultaneously dealt on current unrevoked prices, the dealer must, subject to credit availability, honour and transact the minimum market parcel (as described in section 3.4 of the Conventions) with each impacted broker.

3.13. Confidentiality

All Products
Names of counterparties will not be passed by brokers prior to dealing unless both parties agree to the passing of names. Brokers should not pass counterparty names to other market participants. Brokers should pass the size of counterparty deals on request to other market participants as they occur in a timely manner. 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.

3.14. Credit

All Products
The ability to deal is subject to credit constraints. Dealers should advise the counterparty as soon as possible if they are unable to deal because of credit limits.

3.15. Exercise of Options

All Products
Not applicable.

3.16. Data Source

All Products
Not applicable.

3.17. Pricing Formulae

Capital Indexed Bonds
Settlement formula: $$P = V^{f/d}[g(Z + A_n^i) + 100v^n].\frac{K_t\left(1 + \frac{p}{100}\right)^{-f/d}}{100}$$

$K_t = K_{t-1}\left(1 + \frac{p}{100}\right)$ rounded to two decimal places = nominal value of the principal at the next interest payment date (whether or not there is an interest payment due to the buyer of the bonds)

K_{t-1} = nominal value of the principal at the previous interest payment date. K_{t-1} is equal to $100 (the face value of the stock) at the date one quarter before the date on which the stock pays its first coupon

i = the annual real yield (per cent) to maturity divided by 400

$p = \frac{100}{2} \times \left(\frac{CPI_t}{CPI_{t-2}} - 1\right)$ = half the semi annual change in the Consumer Price Index over the two quarters ending in the quarter which is two quarters prior to that in which the next interest payment falls (eg. if the next interest payment is in November, p is based on the movement in the CPI over the two quarters ended in the June quarter preceding)

f = the number of days from the date of settlement to the next interest payment date

d = the number of days in the quarter ending on the next interest payment date

g = the fixed quarterly coupon rate payable (equal to the annual fixed rate divided by 4)

n = the number of full quarters between the next interest payment date and the date of maturity

$v = \dfrac{1}{1+i}$

$A_n^i = v + v^2 + \cdots + v^n = \frac{1-v^n}{i}$ $\;except\; if\; i = 0\; then\; A_n^i = n$

Z = 1 if there is an interest payment to the purchaser at the next interest payment date (cum interest), or 0 if there is no payment to the purchaser at the next interest payment date (ex interest)

The settlement amount will be rounded to the nearest cent (0.50 cent being rounded up).

Interest payments:

Interest payments for stock shall be calculated on the basis of the following formula and rounded to the nearest cent (0.50 cent being rounded up).

$g \times \dfrac{K_t}{100}$

Number of decimal places:

	Capital Indexed Bonds
Price per $100	3
p	2
K_t	2
K_{t-1}	2

Price per $100 is rounded to the third decimal place except the last interest period (the period beginning when a Capital Indexed Bond goes ex-interest for the second last time) when there is no rounding)..

Inflation Indexed Annuities

Settlement Formula:

$$P = \left(\frac{v}{q}\right)^{f/d} \times B_{T-1} \times q \times \left(Z + A_n^i\right)$$

B_{T-1} = previous annuity payment (or B_0, prior to first annuity payment)

q = quarterly inflation factor = CPI_j/CPI_{j-1} (but not less than 1)

CPI_j = highest CPI index released inclusive from CPI_0 to the settlement date, inclusive

CPI_{j-1} = highest *CPI* index inclusive from CPI_{-1} to the second latest released CPI index (inclusive) as at the settlement date

$$A_n^i = v + v^2 + \cdots + v^n = \frac{1-v^n}{i} \ \ except \ if \ i = 0 \ then \ A_n^i = n$$

$$v = \frac{1}{1+i}$$

i = settlement real yield (divided by 4) and expressed as a decimal

n = number of full quarters from next annuity payment to maturity

f = number of days from settlement date to next annuity payment date

d = number of days in the full quarter ending on the next annuity payment date

Z = 1 if there is an annuity payment to the purchaser at the next annuity payment date (cum interest) or 0 if there is no payment to the purchaser at the next annuity payment date (ex interest)

When the next annuity payment is known the formula becomes (cum interest):

$$P = \left(\frac{v}{q}\right)^{f/d} \times B_T \times (Z + A_n^i)$$

When settlement takes place on an annuity payment date the formula becomes (ex interest):

$$P = B_T \times A_n^i$$

B_T = current annuity payment

n = number of full quarters to maturity

q as a Factor Convention

q is used in the settlement formula for calculating the next quarterly coupon adjustment and prior to the relevant CPI release the market convention is that *q* is based on the previous inflation adjustment. If there is significant inflation volatility an alternative value of *q* may be agreed for transactional purposes, or a pricing adjustment may be agreed to take place upon the CPI release by recalculating the settlement price using the actual inflation adjustment. For either of these alternatives to apply, they must be agreed by both buyer and settler at the time of trade, otherwise the existing market convention will apply.

That is, if transactions take place before, or on, the CPI release date (but prior to the actual release time), where the settlement date is on or after the CPI release date, then the *q* factor is determined by the old CPI data unless otherwise agreed.

Annuity Payments:

Payable quarterly in arrears in accordance with the following formula:

$$B_T = B_O \times \frac{CPI_T}{CPI_O}$$

B_T = annuity payment at time *T*

B_O = base annuity payment

CPI_O = CPI index for the full calendar quarter prior to issue date

CPI_T = highest CPI index inclusive from CPI_O to the full calendar quarter preceding the annuity payment date

Number of decimal places:

Inflation Indexed Annuities

Price per $100	3
Base annuity	6^2
Latest annuity	6

[2] Recommendation for future issues. Some existing issues have a different rounding which is detailed in their specific information memoranda. It is not proposed to change the rounding methods of issues already in the market.

Capital Indexed Swaps

The quarterly payments are calculated as follows:

	CPI Leg	Floating Leg
Initial Exchange	$Notional$	$Notional$
Quarterly Payment	$Notional \times \dfrac{r}{4} \times \dfrac{K_{(n)}}{100}$	$Notional \times BBSW\,(3month) \times \dfrac{days}{365}$
Final Exchange	$Notional \times \dfrac{K_{(last)}}{100}$	$Notional$ (standard final principal exchange)

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:

$$K_{(n)} = K_{(n-1)} \times \left(1 + \frac{P_{(n)}}{100}\right)$$

$$P_{(n)} = \left(\frac{CPI_{(n-1)}}{CPI_{(n-3)}} - 1\right)\frac{100}{2}$$

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

BBSW (3month) days defined as per standard swap.

Indexed Annuity Swaps

The quarterly payments for IAS where the non-CPI leg is fixed are calculated as follows:

	CPI Leg	Fixed Leg
Quarterly Payment	$NotionalBasePayment \times \dfrac{CPI_{(n)}}{CPI_{(0)}}$	$NotionalBasePayment \times \left(1 + \dfrac{IndexFactor}{4}\right)$

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 Swaps

The payments are calculated as follows:

	CPI Leg	Fixed Leg
Initial Exchange	N/A	N/A
Final Exchange	$Notional \times \dfrac{CPI_{(n)}}{CPI_{(0)}}$	$Notional \times (1 + x)^n$

All payments are netted. 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

$CPI_{(n)}$ = the quarterly CPI index n years after $CPI_{(0)}$. This is usually the last released CPI index at the final exchange date

$CPI_{(0)}$ = 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

Year on Year Swaps

The payments are calculated as follows:

	CPI Leg	Fixed Leg
Initial Exchange	N/A	N/A
Annual Payment	$Notional \times \left\{ \dfrac{CPI_t}{CPI_{t-1}} - 1 \right\} \times act/365$	$Notional \times r \times act/365$
Final Exchange	N/A	N/A

All payments are netted. There is no initial or final payments exchanged

$CPI_{(t)}$ is the CPI index for the current quarter prior to the relevant payment date

$CPI_{(t-1)}$ is the CPI index that is 12 months prior to $CPI_{(t)}$

r = the dealing fixed rate expressed as a percentage per annum

3.18. Other Dealing Conventions

All Products
Not applicable.

4. Confirmation

4.1. Timing

CPI Bonds – CIBs and IIAs
All trades entered into must be confirmed either electronically or in writing by both parties on the day that the transaction was executed.

CPI Swaps – CIS, IAS ,ZCS and YOY
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. Obligations of Dealers

All Products
Every endeavour should be made for dealers to complete dealing tickets or enter trades into the front office dealing systems in a timely manner to assist back office to generate and deliver confirmations to the transacting party.

4.3. Documentation

CPI Bonds – CIBs and IIAs
No specific convention.

CPI Swaps – CIS, IAS, ZCS and YOY
Most interbank Zero Coupon Swaps (ZCS) are matched via the Markitwire system, which effectively negates the requirement for written confirmations. For other CPI Swaps, 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. Complete transaction information must be confirmed. The confirmation must include all applicable items from the list below: • 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

4.4. Other Confirmation Conventions

All Products
No specific convention.

5. Settlement

5.1. Physical Settlements

CPI Bonds – CIBs and IIAs
In general AFMA recommends that transactions should not be negotiated for settlement or price fixing (rollover) on a non-business day. Other conventions can be utilised if agreed upon at the time of dealing.

Settlement dates on Australian fixed interest securities are open to negotiation however, the following times are standard:

Type of Security	Settlement
All CPI Bonds	Trade date plus two business days.

The settlement date is open for negotiation between the parties. Should a non-standard settlement apply this fact must be disclosed before negotiating the price.

Ticket Size

Due to liquidity restrictions that sometimes prevail when undertaking settlements, large ticket size deals (i.e.; greater than $500 million) should be broken down to smaller sizes for settlement purposes.

CPI Swaps – CIS, IAS,ZCS and YOY
Not applicable.

5.2. Cash Settlements

CPI Bonds – CIBs and IIAs
Not applicable.

CPI Swaps – CIS, IAS and ZCS
In general, AFMA recommends that transactions should not be negotiated for settlement or price setting (rollover) on a non-business day. 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, then it is generally to be adjusted on a Modified Following Business Day basis.

5.3. Other Settlements Conventions

CPI Bonds – CIBs and IIAs
Settlements Failures: Non Deliverability The following procedures should be followed in relation to short selling stock: • If failed settlement occurs the deal will settle on the following business day with no rate adjustment, i.e. at the original agreed settlement price. If settlement continues to fail the settlement price does not alter unless the two parties agree. This is in fact a penalty to the defaulting party as one days interest is accrued to the buyer. • If a deal has not settled within one hour of the scheduled settlement time (i.e. close of RITS or Austraclear) and the seller believes settlement is unlikely, they should contact the buyer to inform them of this. This will at least provide a warning for the company receiving stock. Dealers should be aware if a particular line of stock is in short supply. If the repo rate on a particular line falls this is an indication of illiquidity and dealers should ensure that they have stock available for future settlements. Dealers should not sell stock if they believe that they cannot deliver that stock at settlement.

CPI Swaps – CIS, IAS and ZCS
No specific convention.