



Confidential
Marketing Material

AONIA Linked Floating Rate Note

December 2018

South Australian Government Financing Authority Announcement

Public announcement – Thursday 29th November 2018

"The South Australian Government Financing Authority ("SAFA") is investigating the issuance of an AONIA linked AUD Floating Rate Note (AONIA-FRN). Information regarding the proposed issue, coupon calculation methodology and draft product conventions can be found on SAFA's website

<http://www.safa.sa.gov.au/treasury-and-client-lending/safa-financial-markets>

SAFA has mandated IHS Markit as the Independent Calculation Agent for the proposed notes and UBS as Arranger for the issue.

SAFA, in conjunction with IHS Markit and UBS, will conduct a series of market consultations regarding the proposed methodology.

Group investor meetings will be held in Melbourne, Brisbane and Sydney from 12 December 2018.

A potential capital markets transaction may follow in 2019, subject to market conditions."

Executive summary







- The objectives of the group with respect to the implementation of a security referencing Risk Free Rate (RFR) benchmark are:
 1. Introduce a floating rate note (FRN) product referencing a RFR rate, complementary to the existing FRN product suite
 2. Develop a RFR referencing product for use by market participants which does not contain embedded credit risk within the reference rate
 3. Align the Australian market with progression seen in offshore markets
- The group see an opportunity for a floating rate product referencing a RFR to be introduced into the market which may better align with the risk profile of some market participants – both on the buy and sell side
- Given the calculation methodology change to the Bank Bill Swap Rate (BBSW) and surrounding public commentary, it is acknowledged the usefulness and robustness of BBSW will continue beyond the 2021 phase out of other Interbank Offered Rates (IBORs) globally
- The intention of the product is not to replace FRN products referencing BBSW – but intended to be available as a complementary market tool and operate in parallel to the existing FRN product suite available in Australia
- The proposed methodology for the AONIA linked Floating Rate Note product harnesses:
 - **a)** formulae similar to the existing FRN methodology which already exists within the Australian market and communicated by the Australian Financial Markets Association (AFMA) and;
 - **b)** alignment with methodology utilised offshore in 2018 multiple times by global issuers, particularly in the Sterling Overnight Index Average (SONIA) referencing market
- The rapid development and broad adoption of primary market issuance referencing RFRs globally should provide a strong platform for an Australian parallel product to be implemented and adopted in the market
- The adoption of a complementary RFR referencing FRN we believe should be a market led initiative. The intention of the group will be to conduct a broader market consultation process to ensure broad adoption of the methodology and systems are appropriate for its consumption

Section 1

Global market perspective

Overview of alternative risk-free reference rates

Working Groups around the world have recommended robust, alternative RFRs to transition away from existing IBORs. The alternative RFR benchmarks are overnight, whereas current use of IBORs is largely in term rates

Jurisdiction	Alternative RFR	Rate administration	Characteristics		Description	Bonds issued to date		Initial investor feedback
			Secured vs. unsecured	Anticipated publication date		# deals	Participating issuers	
 UK	SONIA "Reformed Sterling Overnight Index Average"	Bank of England	Unsecured	Currently being published (since 23-Apr-18)	<ul style="list-style-type: none"> Fully transaction-based Encompasses a robust underlying market Overnight, nearly risk-free reference rate Includes an expanded scope of transactions to incorporate overnight unsecured transactions negotiated bilaterally and those arranged with brokers Includes a volume-weighted trimmed mean 	13	<ul style="list-style-type: none"> SSA Financials 	<ul style="list-style-type: none"> Initial trades had c.30-50% of usual investor base, now up to 70-80% Those yet to participate broadly cite system setup as broad reason for non-participation, however being addressed Consultation paper with respect to term SONIA extended to 26 October 2018
 US	SOFR "Secured Overnight Financing Rate"	New York Fed	Secured	Currently being published (since 3-Apr-18)	<ul style="list-style-type: none"> Fully transaction-based Encompasses a robust underlying market Overnight, nearly risk-free reference rate that correlates closely with other money market rates Covers multiple repo market segments, allowing for future market evolution 	17	<ul style="list-style-type: none"> US Govt. SSA Financials Insurance 	<ul style="list-style-type: none"> Majority of investors fully capable of booking and trading SOFR FRNs, incl. front-end accounts, term buyers and state funds
 Europe	ESTER "Euro Short Term Rate"	European Central Bank	Unsecured	October 2019 ⁽¹⁾	<ul style="list-style-type: none"> Fully transaction-based on a robust unsecured market Overnight, nearly risk-free reference rate that correlates closely to the currently used EONIA rate 	N/A	N/A	<ul style="list-style-type: none"> Working Group announced preference for ESTER on 13th September 2018 Longer time horizon for implementation from investor perspective SSA market participants the likely first movers in this space
 Switzerland	SARON "Swiss Average Rate Overnight"	Six Swiss Exchange	Secured	Currently being published	<ul style="list-style-type: none"> Became the reference interbank overnight repo on 25 August 2009 Secured rate that reflects interest paid on interbank overnight repo 	N/A	N/A	<ul style="list-style-type: none"> Discussion only just started Some investors able to buy SARON FRNs operationally, however further discussion on credit margin differential needed
 Japan	TONA "Tokyo Overnight Average Rate"	Bank of Japan	Unsecured	Currently being published	<ul style="list-style-type: none"> Fully transaction-based benchmark for the uncollateralised overnight call rate market An average, weighted by the volume of transactions corresponding to the rate 	N/A	N/A	<ul style="list-style-type: none"> As yet not a focus given historical focus on fixed product
 Australia	AONIA "Australian Overnight Index Average or RBA Interbank Overnight Cash Rate"	Reserve Bank of Australia	Unsecured	Currently being published (RBA30 and RBA07)	<ul style="list-style-type: none"> BBSW is robust and has the backing of the RBA as a benchmark, and will continue to be used Acknowledgment that utilising alternative benchmarks may be appropriate, including near RFR The natural focus on RFR in the market would be on the RBA Interbank Overnight Cash Rate 	N/A	N/A	<ul style="list-style-type: none"> It is likely the adoption of RFR transactions will be a market-led initiative in terms of issuance BBSW still broadly used given transactional based calculation

Global issuance

2018 has seen a number of issuers in both the GBP SONIA and USD SOFR markets adopting the new floating rate note methodology. 2018 has seen GBP 6.9 billion and USD 28.8 billion in issuance referencing SONIA and SOFR respectively

GBP SONIA issuance

Date	Issuer	Rating	Type	Size (GBP m)	Maturity	Maturity (years)	Reoffer Spread
9-Nov-18	Yorkshire Building Society	Aaa/AAA	Covered	500	19-Nov-23	5.0	SONIA+60bps
6-Nov-18	Coventry Building Society	Aaa/AAA	Covered	500	13-Nov-23	5.0	SONIA+60bps
1-Oct-18	Asian Development Bank	Aaa/AAA	Senior Unsecured	600	12-Oct-23	5.0	SONIA+25bps
27-Sep-18	World Bank	Aaa/AAA	Senior Unsecured	1,250	4-Oct-23	5.0	SONIA+24bps
10-Sep-18	Santander UK	Aaa/AAA	Covered	1,000	20-Sep-21	3.0	SONIA+43bps
5-Sep-18	Lloyds Bank	Aaa/AAA	Covered	750	13-Sep-21	3.0	SONIA+43bps
22-Jun-18	European Investment Bank	Aaa/AAA	Senior Unsecured	1,000	29-Jun-23	5.0	SONIA+35bps

USD SOFR issuance

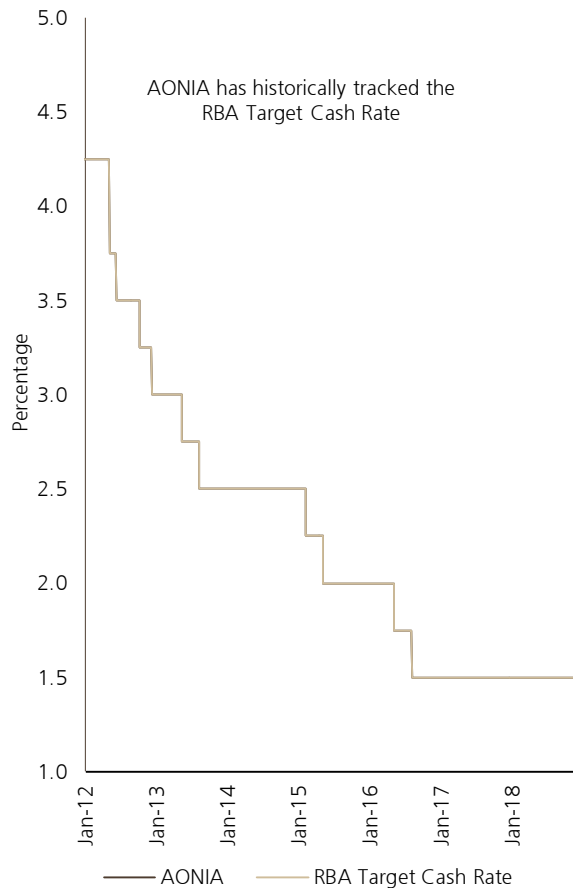
Date	Issuer	Rating	Type	Size (USD m)	Maturity	Maturity (years)	Reoffer Spread
6-Dec-18	Federal Home Loan Banks	Aaa/AA+	Senior Unsecured	2,050	10-Sep-19	0.8	SOFR+6bps
6-Dec-18	Federal Home Loan Banks	Aaa/AA+	Senior Unsecured	1,500	10-Jun-20	1.5	SOFR+11bps
28-Oct-18	European Investment Bank	Aaa/AAA	Senior Unsecured	1,000	8-Oct-21	3.0	SOFR+32bps
27-Oct-18	African Development Bank	Aaa/AAA	Senior Unsecured	100	18-Nov-20	2.0	SOFR+32bps
25-Oct-18	Fannie Mae	Aaa/	Senior Unsecured	2,000	30-Apr-19	0.5	SOFR+4bps
25-Oct-18	Fannie Mae	Aaa/	Senior Unsecured	1,500	30-Oct-19	1.0	SOFR+7bps
25-Oct-18	Fannie Mae	Aaa/	Senior Unsecured	1,500	30-Apr-20	1.5	SOFR+10bps
12-Oct-18	JPMorgan Chase Bank	Aa2/A+	Senior Unsecured	800	19-Oct-20	2.0	SOFR+55bps
18-Sep-18	Wells Fargo	Aa2/A+	Senior Unsecured	1,000	25-Mar-20	1.5	SOFR+48bps
30-Aug-18	MetLife	Aa3/AA-	FA-Backed	1,000	7-Sep-20	2.0	SOFR+57bps
14-Aug-18	World Bank	Aaa/AAA	Senior Unsecured	1,000	21-Aug-20	2.0	SOFR+22bps
26-Jul-18	Fannie Mae	Aaa/	Senior Unsecured	2,500	30-Jan-19	0.5	SOFR+8bps
26-Jul-18	Fannie Mae	Aaa/	Senior Unsecured	2,000	30-Jul-19	1.0	SOFR+12bps
26-Jul-18	Fannie Mae	Aaa/	Senior Unsecured	1,500	30-Jan-20	1.5	SOFR+16bps

Source: Bloomberg, UBS
Note: Benchmark transaction only

AONIA – comparison to other rates

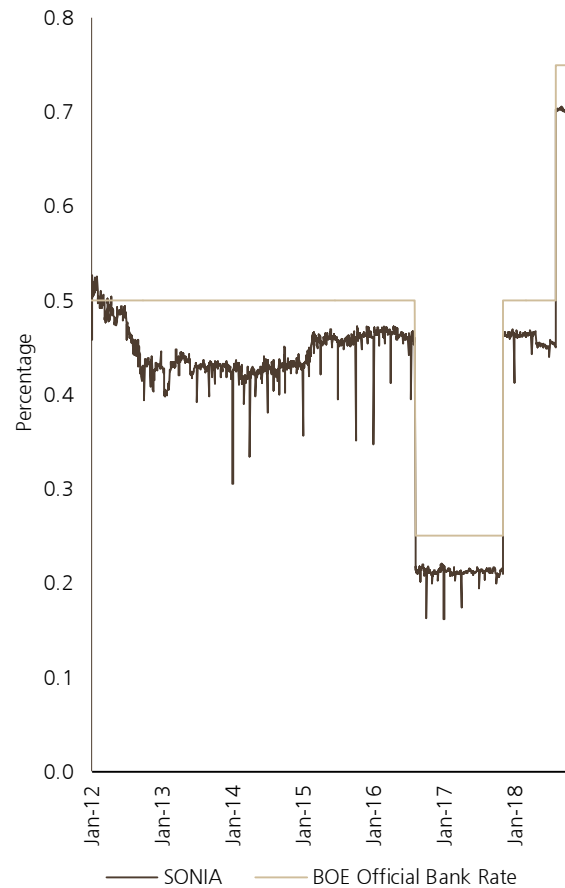
The relationship between the respective central bank target cash rates and the overnight cash rate function differs across jurisdictions

RBA Target Cash Rate vs. AONIA



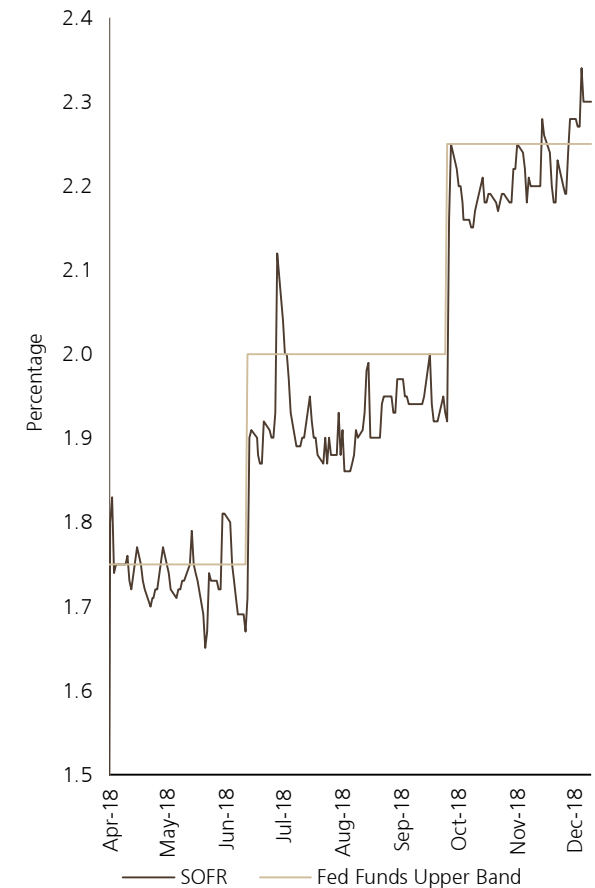
Source: Bloomberg, Reserve Bank of Australia
 Note: As at 10 December 2018

BoE Official Bank Rate vs. SONIA



Source: Bloomberg, Bank of England
 Note: As at 10 December 2018

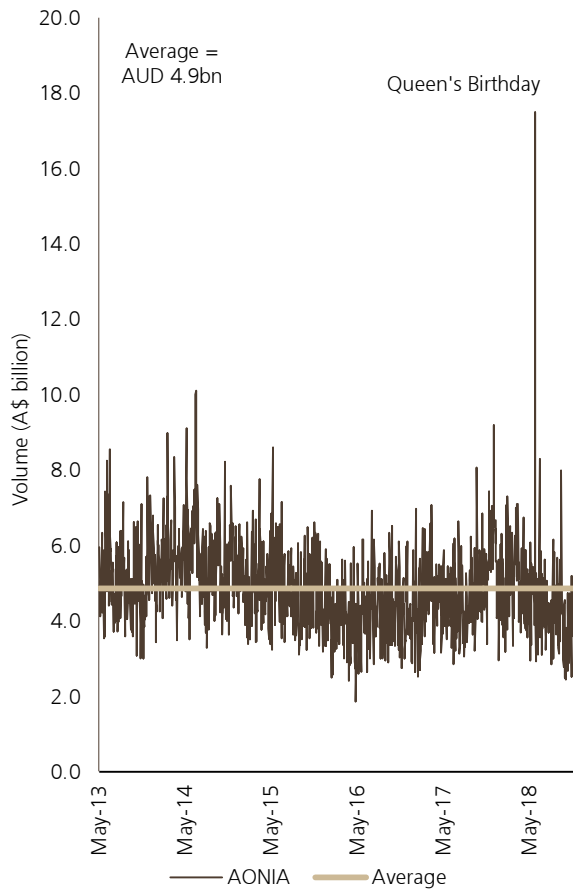
Fed Funds Upper Band vs. SOFR



Source: Bloomberg, Federal Reserve Bank of New York
 Note: As at 10 December 2018

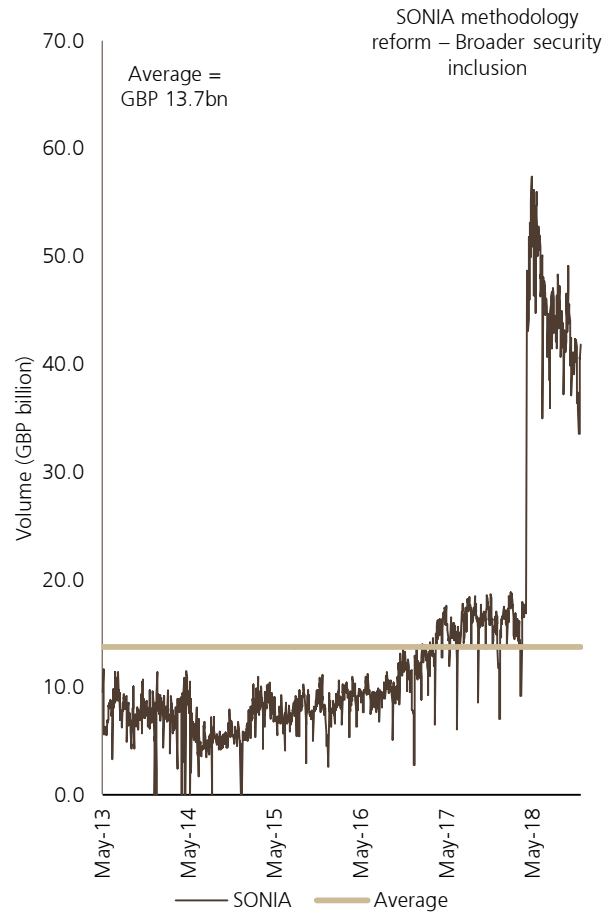
AONIA – comparison to other rates

AONIA daily volume



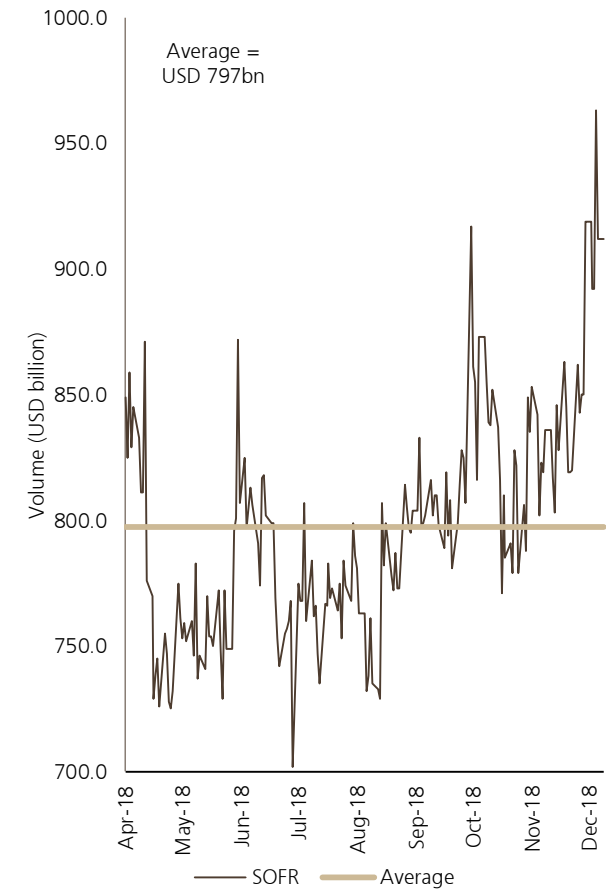
Source: Bloomberg, Reserve Bank of Australia
 Note: As at 10 December 2018

SONIA daily volume



Source: Bloomberg, Bank of England
 Note: As at 10 December 2018

SOFR daily volume

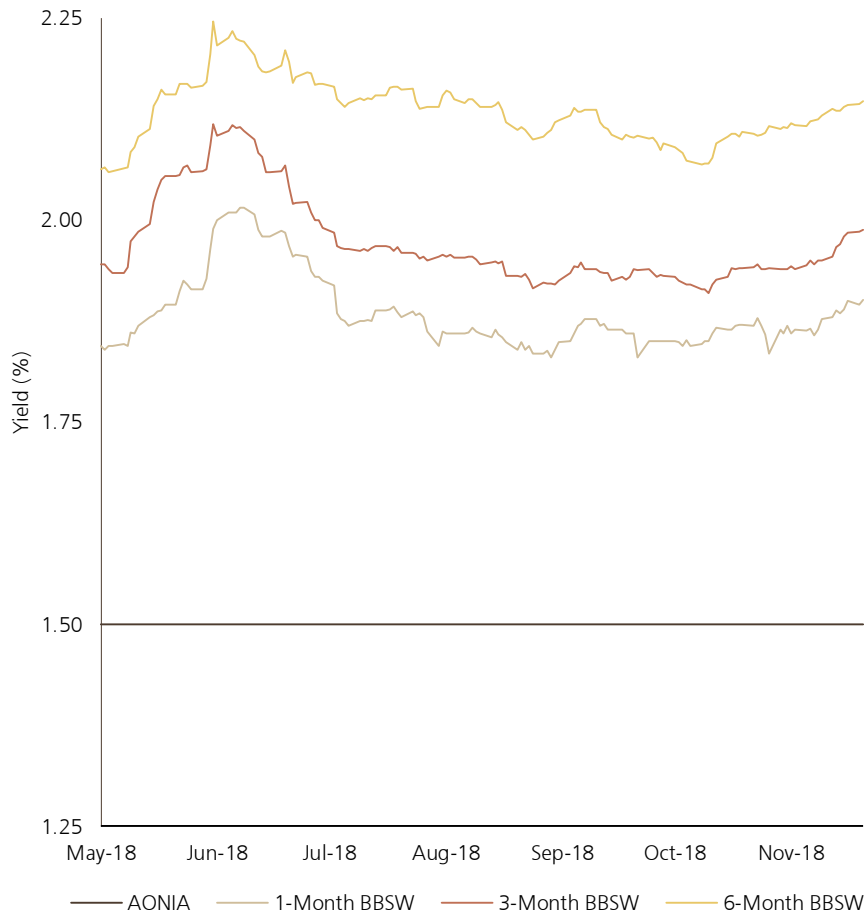


Source: Bloomberg, Federal Reserve Bank of New York
 Note: As at 10 December 2018

AONIA – comparison to other rates

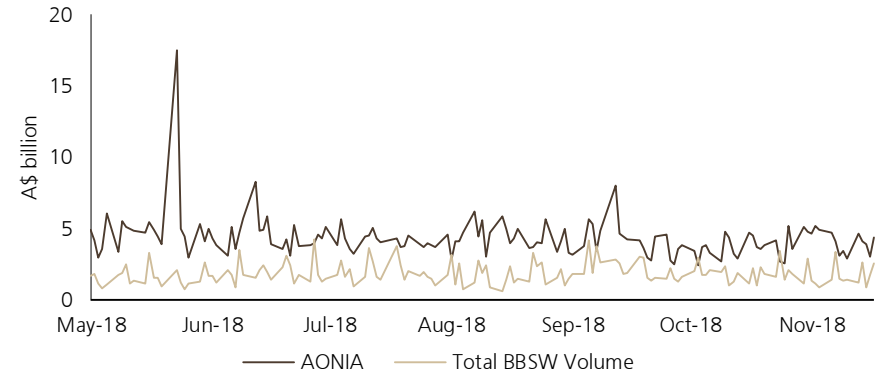
The total daily volume reported through AONIA eclipses that of the reported transactions which comprise the BBSW calculation

Historical rate comparison – 21 May 2018 to present



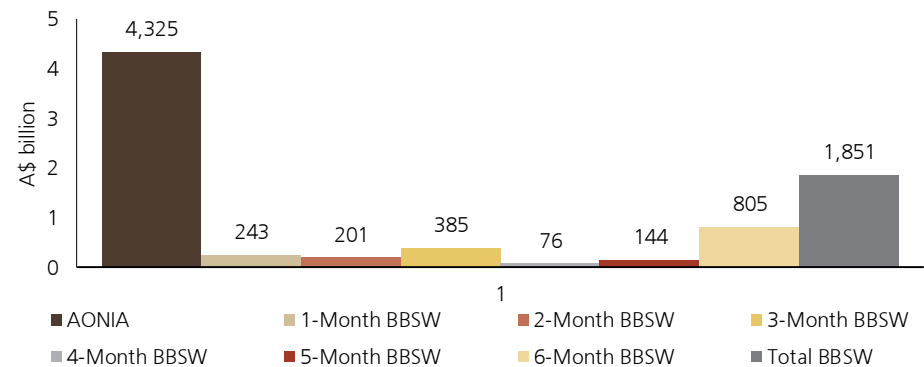
Source: Bloomberg, Reserve Bank of Australia, Australian Stock Exchange
 Note: 21 May 2018 to 10 December 2018 being from the start of the VWAP calculation

Historical daily volume comparison – 21 May 2018 to present



Source: Bloomberg, Reserve Bank of Australia, Australian Stock Exchange
 Note: Total BBSW volume includes all transactions across 1-6 month of A\$10 million+ and transaction between the 8:30am – 10:00am window

Average daily volume – 21 May 2018 to present



Source: Bloomberg, Reserve Bank of Australia, Australian Stock Exchange
 Note: Total BBSW volume includes all transactions across 1-6 month of A\$10 million+ and transaction between the 8:30am – 10:00am window

Section 2

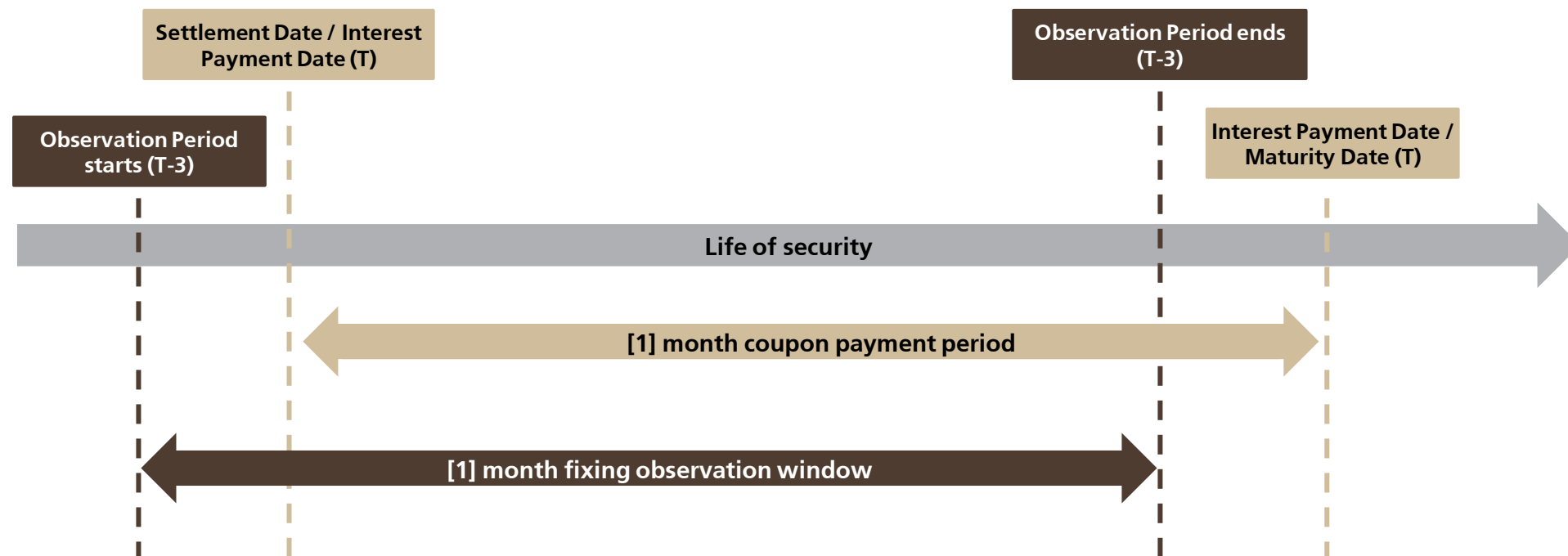
AONIA linked FRN product mechanics

Illustration of the compounded AONIA product

Product mechanics

- The product proposed will utilise the following methodology
 - **Coupon:** Daily Compounded RBA Interbank Overnight Cash Rate (AONIA) + Margin
 - **Coupon payment period:** [Monthly] coupon payments subject to day count conventions
 - **Observation period:** Coupon payment period, subject to a 3-business day lag
 - We note the use of a 5-business day lag in the SONIA FRN product in the GBP market
 - Given the requirement for a lag to be embedded in the product due to information/data availability, minimising the length of the lag intuitively will closer approximate the payment period dates
 - We have used a 3-day lag as it is the shortest lag for which all relevant fixings are available, regardless of trade time
- AONIA has been identified as the most appropriate rate in the Australian context for a Risk Free Referencing (RFR) security which will adhere to International Organisation of Securities Commissions (IOSCO) benchmarking principles
- Examples in the global capital markets evidencing progression of RFR securities include:
 - USD Secured Overnight Financing Rate (**SOFR**) bonds
 - GBP Sterling Overnight Index Average (**SONIA**) bonds
- We favour the SONIA methodology given:
 - The use of the full rate fixing data vs. a lockout period utilised in SOFR securities
 - The use of daily compounding given its truer approximation of the market's daily movements throughout the coupon payment periods
 - The USD market's significant depth in secured overnight (Repo) transactions makes this a more logical choice for the USD market

Illustrative example



The lagged reference period in detail

An observation period utilising a 3-day lag for the daily compounded coupon calculation is the initial preferred window

Comment

- The product is designed for the following operations:
 - 3-day lagged reference period for fixing calculations
 - T+3 initial settlement on the bond
 - T+2 settlement in the secondary market, in line with existing conventions
- Minimising the reference period lag results in a better interest rate hedge embedded in the product
- The size of the time lag needs to be considerate of current publically available data and when this is released. This is to ensure the clean cash price plus accrued interest is known at the time of trading in the secondary market
 - A 2-day lag will result in the fixing being unavailable for a given T+2 settlement date prior to AONIA publication on a Sydney business day settlement date
- A 3-day lag is optimal when balancing the need to minimise the length of the lag and the timeliness of information when trading the security in the market

The reference period lag in effect

- In a primary transaction, the relevant last fixing of AONIA will be equal to the trade date of the security
- In the secondary market on a T+2 settlement basis, the relevant last fixing will be 1 Sydney business day before the trade date – meaning after 9:30am AEST/AEDT there are more fixings available than required under the coupon calculation
- The cut-off of the rate which applies for each fixing is that which applies overnight for a given fixing (i.e. the rate published on the 29th November applies to the overnight period between 29th and 30th November)

	Primary	Secondary
Trade date	20 November 2018	30 November 2018
Settlement date	23 November 2018	4 December 2018
Last fixing	19 November 2018	28 November 2018

RBA Interbank Overnight Cash Rate

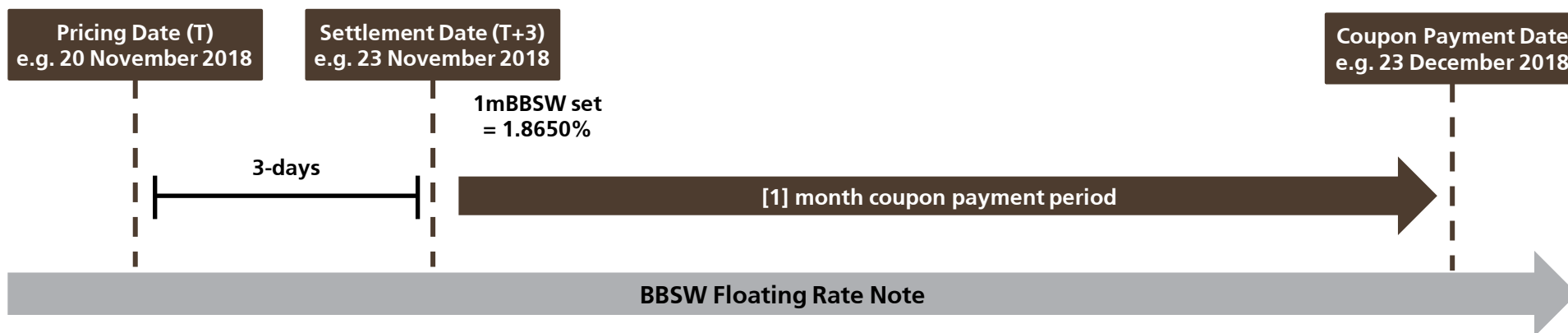
RBACOR Index		96 Export		97 Settings	
RBA Interbank Overnight Cash Rate					
Range	12/12/2017 - 12/10/2018	Period	Daily	High	Low
Market	Mid Yield	First Revisio	Currency	AUD	Average
View	Price Table				Net Chg
Date	Mid Yield	First Rev...	Date	Mid Yield	First Rev...
Fr 12/14/18			Fr 11/23/18	1.5000	T+3
Th 12/13/18			Th 11/22/18	1.5000	
We 12/12/18			We 11/21/18	1.5000	
Tu 12/11/18			Tu 11/20/18	1.5000	T
Mo 12/10/18	1.5000		Mo 11/19/18	1.5000	
Fr 12/07/18	1.5000		Fr 11/16/18	1.5000	
Th 12/06/18	1.5000		Th 11/15/18	1.5000	
We 12/05/18	1.5000		We 11/14/18	1.5000	
Tu 12/04/18	1.5000	T+2	Tu 11/13/18	1.5000	
Mo 12/03/18	1.5000		Mo 11/12/18	1.5000	
Fr 11/30/18	1.5000	T	Fr 11/09/18	1.5000	
Th 11/29/18	1.5000		Th 11/08/18	1.5000	
We 11/28/18	1.5000		We 11/07/18	1.5000	
Tu 11/27/18	1.5000		Tu 11/06/18	1.5000	
Mo 11/26/18	1.5000		Mo 11/05/18	1.5000	

Source: Reserve Bank of Australia, Bloomberg
 Note: As at 11 December 2018

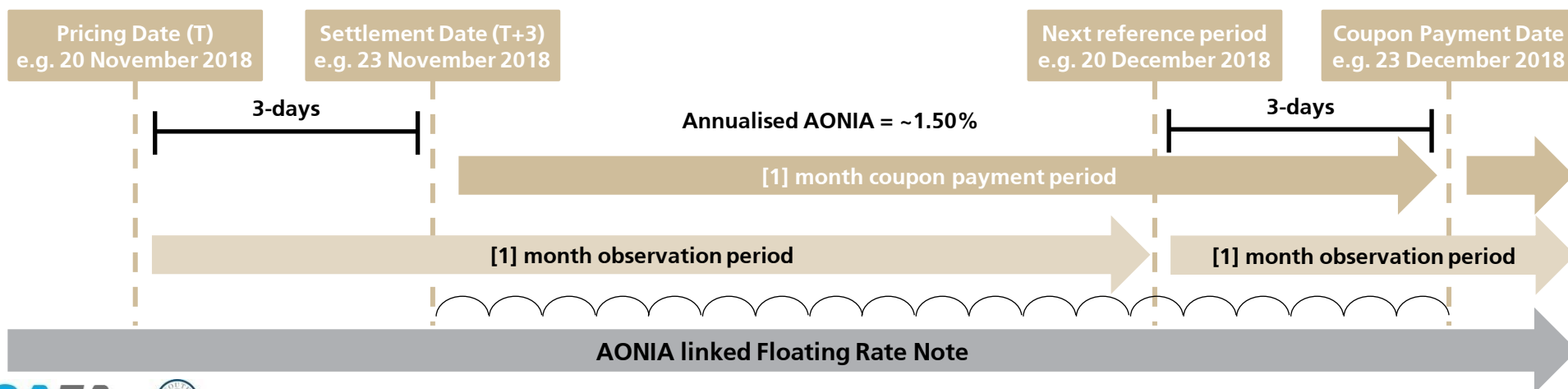
Illustrative comparison – BBSW and AONIA floating rate note

The below provides an illustrative comparison of an BBSW and AONIA floating rate notes through a 1-month coupon payment period

BBSW Floating Rate Note



AONIA Floating Rate Note



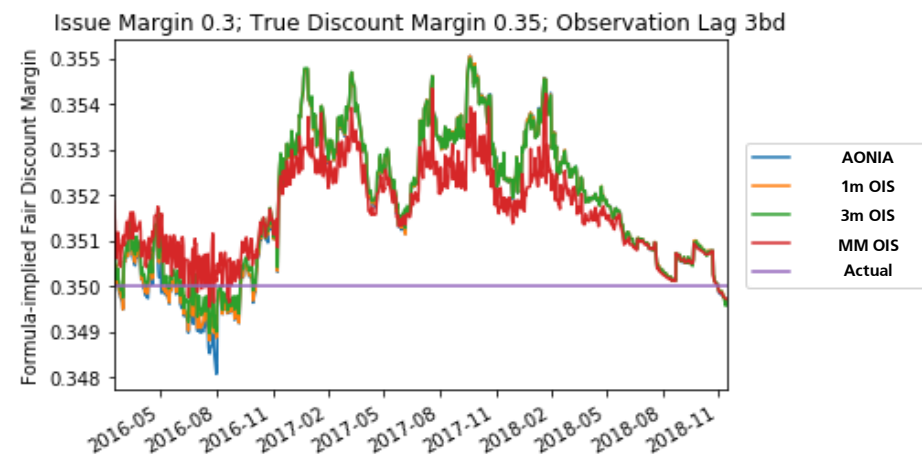
Back-testing AONIA security valuation

The following back-testing analysis is for a 3-year security with monthly coupon payments between 25 January 2016 and 25 January 2019, incorporating the most recent AONIA changes

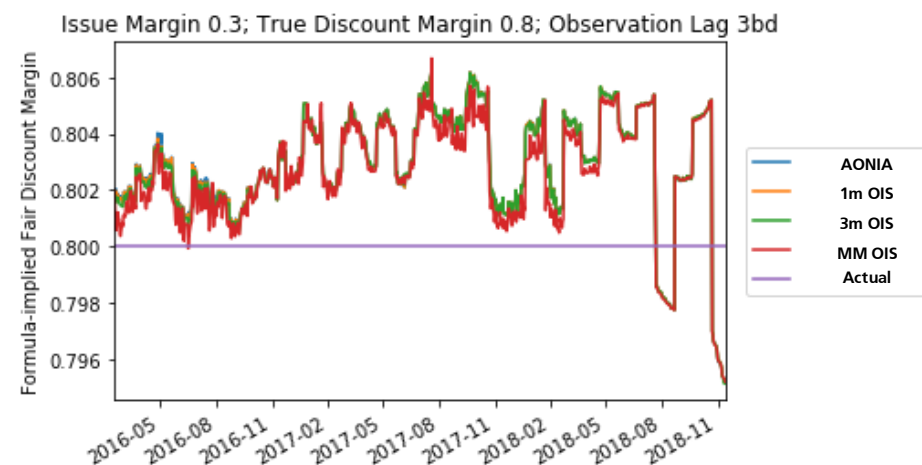
Impact on security – discount rate

- The analysis first conducted is to ascertain what impact, if any, the choice of convention for the discount rate has on the valuation of the security
 - This is then compared versus the "true" discount margin of the security
- Two scenarios are analysed to perform the analysis:
 1. A steady trading scenario where the true discount or trading margin is at +35bp versus an issue margin of +30bp (i.e. at a slight discount to par)
 2. A stressed trading scenario where the true discount or trading margin is 50bp above the issue margin (i.e. +80bp)
- The discount rates which have been tested are:
 1. The RBA Interbank Overnight Cash Rate (AONIA)
 2. 1-month Overnight Index Swap (1m OIS)
 3. 3-month Overnight Index Swap (3m OIS)
 4. a matched maturity Overnight Index Swap (MM OIS)
- The analysis shows that despite the use of different discount rates, the product simulation behaves very similarly across the life of the 3-year security.
 - This is true for both the steady and stressed trading scenarios
 - Some noticeable jumps occur over coupon dates as the security approaches maturity in the stressed scenario. This is because of the growing contribution of each coupon period in the pricing formula's annuity stream, which is non-negligible when the security trades far away from par and changes discretely over coupon dates.
- While the use of AONIA would allow for the same rate to be used as the input for the both the compounded coupon and the discount rate, the historical binary nature of AONIA's operation leads to consideration of a discount rate being used that incorporates market expectation of the future RBA Cash Rate
- We therefore favour the use of 1m OIS or 3m OIS as the discount rate for the AONIA linked FRN product
 - The choice of rate would depend on the maturity and coupon frequency of the individual security

Steady trading scenario – 3-year tenor | Monthly coupon payments



Stressed trading scenario – 3-year tenor | Monthly coupon payments



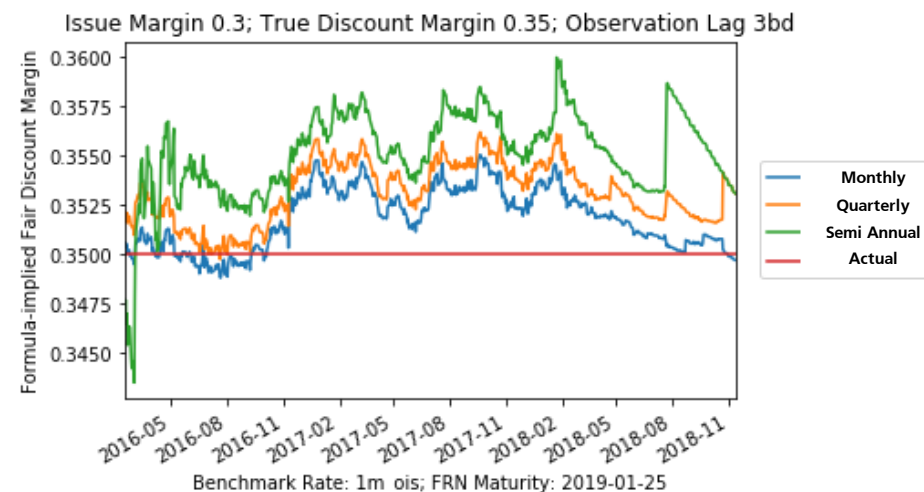
Source: UBS

Back-testing AONIA security valuation

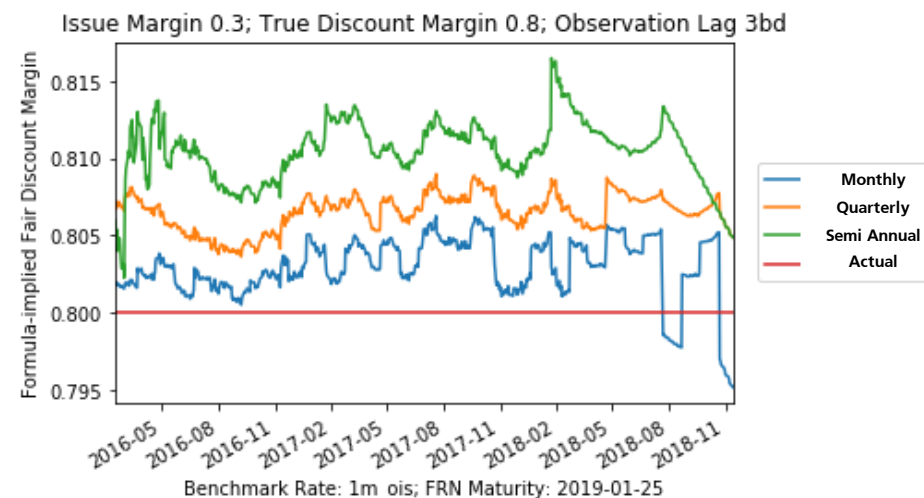
Impact on security – coupon frequency

- The following analysis has been performed using a 1m OIS discount rate given the findings on page 13
- The same time period and tenor of the security is analysed in this instance
- The same steady and stressed trading scenarios also apply
- The objective of this analysis is to ascertain what impact, if any, the coupon payment frequency has on the valuation security
- The following coupon frequencies have been tested:
 1. Monthly
 2. Quarterly
 3. Semi-annual
- In both the steady state and the stressed trading scenarios, the product follows with a relatively high degree of precision across the true discount margin across the life of the security
- Given the RBA meetings are held monthly (excluding January) where new information is relayed into the market, the payment frequency which aligns closer to the true discount margin is the monthly pay scenario
 - The scenarios decrease with their precision the longer the coupon payment period
- The analysis ultimately shows that the product is robust for various coupon payment frequencies

Steady trading scenario – 3-year tenor | 1m OIS discount rate



Stressed trading scenario – 3-year tenor | 1m OIS discount rate



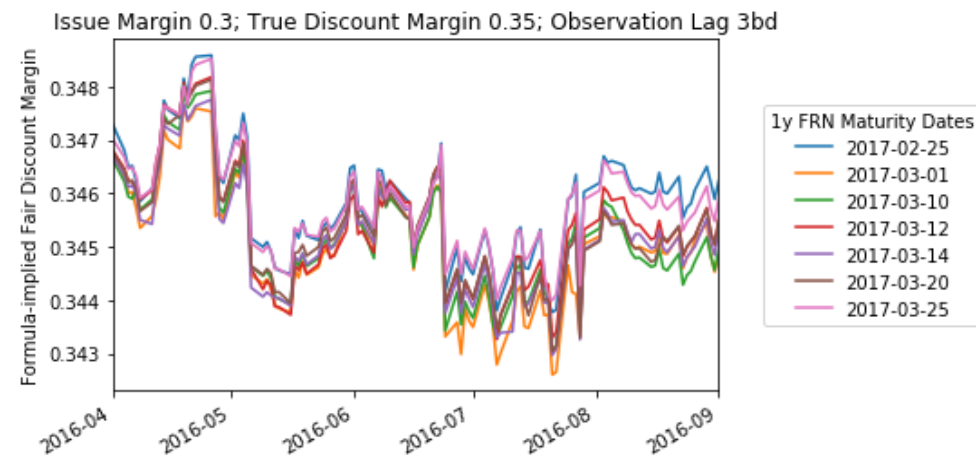
Source: UBS

Back-testing AONIA security valuation

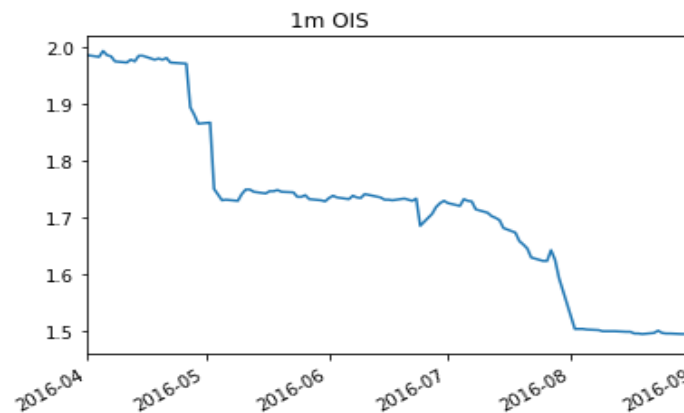
Impact on security – reset dates

- Given the analysis performed on page 13 and 14, the following analysis is performed on the proposed structure of the initial considered security, being:
 - 1-year tenor
 - Monthly coupon payments
 - 1m OIS discount rate for valuation purposes
- The purpose of the analysis is to consider what impact, if any, the choice of coupon payment and maturity dates has on the valuation of the security
 - Essentially this is to ascertain the impact of a change in AONIA on the security
- The maturity date for the analysis has been set over the last period of AONIA movement
- It can be seen that while there is some variabilities in the back-testing due to the selection of the specific roll date, most scenarios track each other well.
- The analysis also shows that the valuation of the product correlates with (the more gradual) changes in the 1m OIS rate (i.e. the discount rate) rather than experiencing jumps only when AONIA itself is moved.
- While the security could be designed to consider irregular coupon payment dates to ensure the outcome of the RBA meeting is known and considered in each coupon payment period, this has been discounted as a possible structure given:
 - This would only be possible for a monthly pay security given the current frequency of the RBA meeting
 - Would be increasingly cumbersome from a systems perspective given the need to map specific payment dates
 - Would diverge from global market precedent seen in the space to date
- The use of standard floating rate conventions (e.g. Actual / 365 (Fixed) and Modified Following) harnesses existing technology and system setup, allowing for a quicker and more intuitive implementation from both buy and sell side participants
- The analysis ultimately shows that the product is robust for any given coupon payment date, including those immediately prior/after RBA meeting dates

Steady trading scenario – 1-year tenor | 1m OIS discount rate | Variable coupon payment dates



1 month Overnight Indexed Swap – Matched period



Source: UBS

Section 3

Comparison with existing Floating Rate Note conventions

AONIA linked FRN convention comparison

The proposed AONIA linked FRN product conventions mirror that of existing credit floating rate note conventions, however replace the existing reference to BBSW with the Daily Compounded AONIA

Draft AONIA linked floating rate note conventions

$$P = \frac{Z(\tilde{b} + IM) \times \frac{d}{365} + \left(\frac{IM - TM}{k}\right) A_n^i + 1}{1 + (r + TM) \times \frac{f}{365}} \times 100$$

- P = price per \$100 per face value
- Z = 1 if there is an annuity payment to the purchaser at the next annuity payment date, 0 if there is no payment to the purchaser at the next annuity payment date
- d = number of days in the current interest period
- IM = interest margin (as a percentage) paid in addition or deduction from the floating benchmark
- TM = trading margin (as a percentage) paid in addition to the floating benchmark
- k = payment frequency of FRN (e.g. 2 = semi-annual, 4 = quarterly, 12 = monthly)
- r = Overnight Index Swap (OIS) as applicable to the payment frequency of the FRN (e.g. 1-month for monthly, 3-month for quarterly)
- f = number of days from pricing/settlement to next interest payment date

$$A_n^i = \frac{1 - (1 + i)^{-n}}{i} \quad i = \frac{r + TM}{k}$$

- n = number of complete interest periods to maturity as at the next interest payment date
- \tilde{b} = daily compounded AONIA fixings:

$$\left[\prod_{j=1}^D \left(1 + \frac{AONIA_j \times n_j}{365} \right) - 1 \right] \times \frac{365}{d}$$

- D = number of business days in the current interest period
- n_j = number of calendar days from and including business day j from the current interest period, up to but excluding the following business day
- $AONIA_j$ = AONIA fixing for business day j from the observation period (the current interest period offset by the observation lag); when unknown, assumed equal to r

Current BBSW floating rate note conventions

$$P = \frac{Z(b + IM) \times \frac{d}{365} + \left(\frac{IM - TM}{k}\right) A_n^i + 1}{1 + (r + TM) \times \frac{f}{365}} \times 100$$

- P = price per \$100 per face value
- Z = 1 if there is an annuity payment to the purchaser at the next annuity payment date, 0 if there is no payment to the purchaser at the next annuity payment date
- b = the floating benchmark rate from last interest reset date to next interest rate date
- d = number of days in current interest period
- IM = interest margin (as a percentage) paid in addition or deduction from the floating benchmark
- TM = trading margin (as a percentage) paid in addition to the floating benchmark
- r = the floating benchmark rate to the next interest rate reset date
- f = number of days from pricing/settlement to next interest payment date

$$A_n^i = \frac{1 - (1 + i)^{-n}}{i} \quad i = \frac{s + TM}{k}$$

- k = payment frequency of FRN (e.g. 2 = semi-annual, 4 = quarterly)
- s = yield from settlement to the maturity of the FRN (with frequency k)
- n = number of complete interest periods to maturity as at the next interest payment date

For a floating rate note referencing BBSW, both b and r will equal the BBSW fixing

Source:

SAFA, UBS

Source:

AFMA Long Term Government Debt Securities Conventions (June 2017)

Section 4

AONIA linked FRN timeline

Project timeline

The following steps have been undertaken by SAFA in conjunction with IHS Markit and UBS

Project master plan – steps

- 1.** Review global regulatory and market developments in RFR benchmarking and products
- 2.** Identify reference rate, discount rates, applicable coupon frequency including calculation methodology for local market adaptation
- 3.** Proposed pricing formula for review and comment
- 4.** Confirm pricing formula in line with Australian Accounting Standards Board (AASB) requirement for statutory reporting
- 5.** Review the capability of Treasury Management Systems to ensure the pricing formula and relevant reporting is supported
- 6.** Identify and assess interest rate risk profile of instrument
- 7.** Create draft issuance documentation for initial review
- 8.** Meet with RBA for discussion and review on the project to date, including formula and coupon calculation methodology
 - Dialogue with the RBA to continue through life of the pre-launch project with respect to valuation, calculation, repo-eligibility etc.
- 9.** Identify / analyse interest rate risk and hedging strategy
- 10.** Provide updated documentation for internal and external review
- 11.** Confirm coupon payment calculation process and acceptability with Calculation Agent (IHS Markit)
- 12.** Provide public communication on project including public mandate announcement and draft transaction termsheet
- 13.** Engage investors during market consultation process, including discussion on formula, coupon calculation methodology and systems timelines
- 14.** Provide draft documentation to Australian Financial Markets Association (AFMA) for review/ inclusion in market product guidelines
- 15.** Consult and establish AONIA linked FRN product and protocol with clearing house for settlement
- 16.** Consult and establish AONIA linked FRN product on trading platforms for pricing, trading and revaluation
- 17.** Provide procedures for reference rate calculation mechanism and settlement for stakeholders
- 18.** Finalise testing instrument in Treasury Management System, including risk reporting and credit
- 19.** Engage in further investor consultation to Identify issue spread and other marketing components
- 20.** Launch AONIA linked Floating Rate Note with SAFA as issuer and UBS as arranger

Appendix A

Indicative termsheet

**SOUTH AUSTRALIAN GOVERNMENT FINANCING AUTHORITY (“SAFA”)
A\$ Floating Rate Bond [•] Select Line SAFA Bonds (“Bonds”)
Series: Tranche: One**

Draft Term Sheet

This Term Sheet is subject to and must be read in conjunction with the Information Memorandum dated 14 August 2015 (“**Information Memorandum**”) which sets out the terms and conditions of the Bonds, the Bond Deed Poll dated 14 August 2015 and the final pricing supplement (“**Pricing Supplement**”) to be entered into in connection with the Bonds. The Pricing Supplement prevails to the extent of any inconsistency with this Term Sheet. Terms used but not otherwise defined in this Term Sheet have the meaning given to them in the Information Memorandum.

Issuer:	South Australian Government Financing Authority (“SAFA”)
Guarantor:	The Treasurer on behalf of the Government of South Australia
Rating:	Standard & Poor’s Rating Services: AA+ (stable) Moody’s Investor Services, Limited: Aa1 (stable)
Arranger:	UBS AG, Australia Branch
Status:	Unsecured and unsubordinated obligations of the Issuer
Governing Law:	The laws of the State of South Australia
Issue Amount:	A\$[•]
Trade Date:	[•]
Maturity Date:	[•]
Reference Rate:	Compounded Daily Reserve Bank of Australia (“RBA”) Interbank Overnight Cash Rate (“AONIA”) as set out in Annex 1
Interest Rate:	Compounded Daily AONIA +[•]% as set out in Annex 1
Interest Payment Dates:	[•], and then monthly, on [•] each month, with the first Full Interest Payment Date being [•] and the last Interest Payment Date being the Maturity Date as adjusted in accordance with the Modified Following Business Day Convention
Interest Determination Date:	The third business banking day prior to the end of the interest period
Denominations:	A\$1,000 Minimum consideration payable on issue will be A\$500,000
Day Count Fraction:	Actual/365 (Fixed)
Business Days:	Sydney, Adelaide

Business Day Convention:	Modified Following Business Day Convention
Ex-Interest Period:	Zero calendar day prior to the Interest Payment Date.
Issue Date:	[•]
Issue Price:	Clean Price: [•]% Accrued: [•]% ([•]days) Issue Price: [•]%
Issue Yield:	Compounded Daily AONIA + [•]bps
ISIN:	[•]
Registrar, Issuing and Paying Agent:	Link Market Services Limited (ABN 54 083 214 537)
Calculation Agent:	IHS Markit Benchmark Administration Limited
Record Date:	As specified in the Pricing Supplement.
Form:	Inscribed stock of the Issuer issued in registered form by entry in a register maintained by the Registrar.
Settlement:	The Notes will be held within and traded in the Austraclear System.
Section 128F exemption:	The Tranche of Bonds is intended to be issued in a manner which will satisfy the requirements for exemption from interest withholding tax under section 128F of the Income Tax Assessment Act 1936 of Australia.
Selling Restrictions:	As set out in the Information Memorandum.
Listing:	Unlisted
Supplementary information to Information Memorandum:	Nil

Important notice

This Term Sheet has been prepared by SAFA for distribution, in conjunction with the Information Memorandum, to prospective professional investors whose ordinary business includes the buying or selling of securities. It should not be distributed to, and is not intended for, any other person. The Pricing Supplement to be issued in connection with the Bonds prevails to the extent of any inconsistency with this Term Sheet.

This Term Sheet is not an offer to sell, or solicitation of an offer to buy the Bonds.

Persons contemplating the purchase of Bonds must make their own decision as to the sufficiency and relevance for their purpose of the information contained herein and in the Information Memorandum, and undertake their own independent investigation of the appropriateness of the Bonds for them taking into account their financial and taxation circumstances investment objectives and particular needs and take all appropriate advice from qualified professional persons as they deem necessary.

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Annex 1

Payment Calculation

Each coupon payment will be calculated as being the Compounded Daily RBA Interbank Overnight Cash Rate ("**AONIA**") plus or minus the margin as specified in the final terms.

Compounded AONIA means the rate of return of a daily compounded investment as calculated by the calculation agent on the Interest Determination Date, as follows, and the resulting percentage be rounded if necessary to the fourth decimal place (i.e. to the nearest one ten-thousandth of a percentage point), with 0.00005 being rounded upwards:

$$\left[\prod_{i=1}^{d_0} \left(1 + \frac{AONIA_{i-3\ SBD} \times n_i}{365} \right) - 1 \right] \times \frac{365}{d}$$

where:

d is the number of calendar days in the relevant Interest Period

d₀ is the number of Sydney business days in the relevant Interest Period

i is a series of whole numbers from one to **d₀**, each representing the relevant Sydney business day in chronological order from, and including, the first Sydney business day in the relevant Interest Period;

Sydney business day or **SBD** means any day on which commercial banks are open for general business in Sydney

n_i, for any day "i", means the number of calendar days from and including such day "i" up to but excluding the following Sydney business day

Observation Period means the period from and including the date falling three Sydney business days prior to the first day of the relevant Interest Period (and the first Interest Period shall begin on and include the Interest Commencement Date) and ending on, but excluding, the date falling three Sydney business days prior to the Interest Payment Date for such Interest Period (or the date falling three Sydney business days prior to such earlier date, if any, on which the securities become due and payable);

the AONIA reference rate, in respect of any Sydney business day, is a reference rate equal to the daily Reserve Bank of Australia ("RBA") Interbank Overnight Cash Rate for such Sydney business day as provided by the RBA and then published to the Relevant Screen Page (Reuters RBA30; Bloomberg RBA07); and

AONIA_{i-3 SBD} means the RBA Interbank Overnight Cash Rate ("AONIA") for the Sydney business day falling three Sydney business days prior to the relevant Sydney business day "i".

Annex 2

Indicative conventions

$$P = \frac{Z(\tilde{b} + IM) \times \frac{d}{365} + \left(\frac{IM - TM}{k}\right) A_n^i + 1}{1 + (r + TM) \times \frac{f}{365}} \times 100$$

P = price per \$100 per face value

Z = 1 if there is an annuity payment to the purchaser at the next annuity payment date, 0 if there is no payment to the purchaser at the next annuity payment date

d = number of days in the current interest period

IM = interest margin (as a percentage) paid in addition or deduction from the floating benchmark

TM = trading margin (as a percentage) paid in addition to the floating benchmark

k = payment frequency of FRN (e.g. 2 = semi-annual, 4 = quarterly, 12 = monthly)

r = Overnight Index Swap (OIS) as applicable to the payment frequency of the FRN (e.g. 1-month for monthly, 3-month for quarterly)

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

$$A_n^i = \frac{1 - (1 + i)^{-n}}{i}$$

$$i = \frac{r + TM}{k}$$

n = number of complete interest periods to maturity as at the next interest payment date

\tilde{b} = daily compounded AONIA fixings:

$$\left[\prod_{j=1}^D \left(1 + \frac{AONIA_j \times n_j}{365} \right) - 1 \right] \times \frac{365}{d}$$

D = number of business days in the current interest period

n_j = number of calendar days from and including business day j from the current interest period, up to but excluding the following business day

$AONIA_j$ = AONIA fixing for business day j from the observation period (the current interest period offset by the observation lag); when unknown, assumed equal to r

Appendix B

Draft AFMA convention update



Long Term Government Debt Securities Conventions – Marked Up Version

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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 Members¹ are expected to observe the Code and operate with integrity, professionalism and competence. The Code is designed to support behaviours 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

Long Term Government Debt Securities

Long term government debt securities are debt instruments issued by the Australian Commonwealth and State Government Financing Agencies. They create an obligation for the issuer to pay a series of periodic interest payments at regular intervals and return the face value to the holder at maturity. These payments can be either set at a fixed rate or floating rate. Long-dated government debt securities have terms to maturity ranging from 6 months to 25 years.

The following entities are Australian Commonwealth and State Government Financing Agencies (GFA) for the purpose of these conventions:

- Commonwealth of Australia
- New South Wales Treasury Corporation
- Treasury Corporation of Victoria
- Queensland Treasury Corporation
- Western Australia Treasury Corporation
- South Australian Government Financing Authority
- Tasmanian Public Finance Corporation
- Northern Territory Treasury Corporation
- ACT Treasury

Long term government debt securities are the primary mechanism for the Commonwealth, State Governments and Territories of Australia to meet their long-term funding requirements.

The following Long Term Government Debt Securities Conventions cover the two primary fixed income products issued by these authorities. These are Fixed Rate Bonds and Floating Rate Notes.

These Conventions reflect current market practices and are maintained by the AFMA Debt Securities Committee.

¹ As defined in the AFMA Constitution

2. Products

2.1. Fixed Rate Bonds

Fixed Rate Bonds

A Fixed Rate Bond is a debt instrument which pays a fixed rate of interest (coupon) at specified dates over the term of the debt, as well as repaying the principal on the maturity date. Typically the interest is paid semi-annually.

2.2. Floating Rate Notes

Floating Rate Notes

A Floating Rate Note is a debt instrument which pays a variable rate of interest (coupon) at specified dates over the term of the debt, as well as repaying the principal on the maturity date. The floating rate is usually a money market reference rate, plus a fixed margin. Typically the interest is paid quarterly, although may be paid at other intervals.

3. Dealing

3.1. Methods of Dealing

All Products

The main methods of dealing in the Australian long dated securities market are direct via telephone, via brokers or via electronic platforms.

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.

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 gazetted 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.

Market Trading Hours:

Market trading hours are 8.30am to 4.30pm in Sydney on all good business days however market participants may use their discretion when quoting clients or offshore counterparties outside of these hours.

3.4. Standard Transaction Size (market parcel)

All Products

No specific convention.

3.5. Two Way Pricing

All Products

No specific convention.

3.6. Quotation and Dealing

Fixed Rate Bonds

The market is quoted on a semi-annual yield to maturity basis, not 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. 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.

Floating Rate Notes

The market is quoted on a trading margin basis, usually as a margin to the reference rate prescribed.

3.7. Basis

All Products
Not applicable.

3.8. Maturity Conventions

All Products
Not applicable.

3.9. Settlement Rate or Index

All Products
Not applicable.

3.10. Premium Payment Date(s)

All Products
Not applicable.

3.11. Expiry Conventions

All Products
Not applicable.

3.12. Broker Conventions

All Products
Not applicable.

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 their names. When dealers are trading directly neither party should disclose the name of the counterparty to the transaction dealt or to other market participants. In support of the ideals of price discovery and market transparency brokers may pass the size of deals dealt and the rate at which they were dealt (post trade) to other broker screen participants only. Brokers will not pass names of counterparties to a deal to other market participants.

3.14. Credit

All Products

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

Note that there are many variations in fixed interest trading which result in a combination of standard procedures being applied, such as securing borrowed stock with either cash or substitute stock.

Refer to the Code of Ethics and Code of Conduct (6. Fairness and 6.3. Name rejection citing non availability of credit limits to avoid a deal).

3.15. Exercise of Options

All Products

Not applicable.

3.16. Data Source

All Products

Pricing information for debt securities can be found on *AFMAData* reference rate page for end of day long term securities.

3.17. Pricing Formulae

Fixed Rate Bonds

Fixed Rate Bonds are traded on a yield basis with the price per \$100 face value calculated using the AOFM treasury bond pricing formula with the gross price rounded to three decimal places.

For semi-annual securities that are near maturing (specifically those entitling a purchaser to only the final coupon payment and repayment of principal) the bank bill formula is applied to principal outstanding plus the final coupon.

In the case of securities that do not qualify for the AOFM pricing formula, the pricing formula specified by the applicable issuers for primary and secondary market trading will apply.

Disputes over the application of any formula are to be referred to the issuer for arbitration.

1) Basic formula:

$$P = v^{f/a}[g(1 + a_n) + 100v^n]$$

2) Ex-interest securities:

$$P = v^{f/a}[ga_n + 100v^n]$$

3) Near maturity bonds maturing between the record date for the second last coupon and the record date for the final coupon:

$$P = \frac{100+g}{1+(\frac{f}{365})i}$$

4) Near maturity bonds maturing between the record date for the final coupon and the maturity of the bond:

$$P = \frac{100}{1+(\frac{f}{365})i}$$

If the maturity date falls on a weekend or other non-business day the proceeds date (ie. the next business day) is used in the calculation of f .

P = the price per \$100 face value

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

where $100i$ = the half yearly yield (per cent) to maturity in formulae (1) and (2), or the annual yield (per cent) to maturity in formula (3)

f = the number of days from the date of settlement to the next interest-payment date in formulae (1) and (2) or to the maturity date in formula (3)

d = the number of days in the half year ending on the next interest-payment date

g = the half yearly rate of coupon payment per \$100 face value

n = the term in half years from the next interest-payment date to maturity

$$a_n = v + v^2 + \dots + v^n = \frac{1-v^n}{i} \text{ except if } i = 0 \text{ then } a_n = n$$

Floating Rate Notes – BBSW

$$P = \frac{Z(b + IM) \times \frac{d}{365} + \left(\frac{IM - TM}{k}\right) A_n^i + 1}{1 + (r + TM) \times \frac{f}{365}} \times 100$$

P = price per \$100 per face value

Z = 1 if there is an annuity payment to the purchaser at the next annuity payment date, 0 if there is no payment to the purchaser at the next annuity payment date

b = the floating benchmark rate from last interest reset date to next interest rate date

d = number of days in current interest period

IM = interest margin (as a percentage) paid in addition or deduction from the floating benchmark

TM = trading margin (as a percentage) paid in addition to the floating benchmark

r = the floating benchmark rate to the next interest rate reset date

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

$$A_n^i = \frac{1 - (1 + i)^{-n}}{i}$$

$$i = \frac{s + TM}{k}$$

k = payment frequency of FRN (e.g. 2 = semi-annual, 4 = quarterly)

s = yield from settlement to the maturity of the FRN (with frequency k)

n = number of complete interest periods to maturity as at the next interest payment date

Market participants are under no obligation to use the benchmark rates referred to above if the market has moved since the benchmarks were set.

When the floating reference rate being used is the BBSW rate, b and r should be the average figure quoted BBSW rounded to two decimal places. s should be the swap rate negotiated by the counterparties entering into the transaction, ensuring rates used are of similar frequency (or converted) to the FRN, then straight line interpolated to the maturity date if necessary, then rounded to two decimal places. The FRN price should be calculated to three decimal places.

Interpolation

- Dates for BBSW are based on the modified following business day basis.

- Actual next interest payment date and maturity date are used.
- When interpolating r , BBSW is supplemented by the RBA target cash rate (RBA30) with a date of the next business day.
- Swap rates 4 years and over need to be converted from semi-annual fixed rates versus 6 month BBSW to quarterly fixed rates versus 3 month BBSW (assuming quarterly frequency on FRN).
- When interpolating s , swap rates are supplemented by the 1 to 6 month BBSW rates and the RBA target cash rate.
- Linear interpolation is used unless otherwise stated and agreed.

Floating Rate Note - AONIA

$$P = \frac{Z(\tilde{b} + IM) \times \frac{d}{365} + \left(\frac{IM - TM}{k}\right) A_n^i + 1}{1 + (r + TM) \times \frac{f}{365}} \times 100$$

P = price per \$100 per face value

Z = 1 if there is an annuity payment to the purchaser at the next annuity payment date, 0 if there is no payment to the purchaser at the next annuity payment date

d = number of days in current interest period

IM = interest margin (as a percentage) paid in addition or deduction from the floating benchmark

TM = trading margin (as a percentage) paid in addition to the floating benchmark

k = payment frequency of FRN (e.g. 2 = semi-annual, 4 = quarterly, 12 = monthly)

r = Overnight Index Swap (OIS) as applicable to the payment frequency of the FRN (e.g. 1-month for monthly, 3-month for quarterly)

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

$$A_n^i = \frac{1 - (1 + i)^{-n}}{i}$$

$$i = \frac{r + TM}{k}$$

n = number of complete interest periods to maturity as at the next interest payment date

\tilde{b} = daily compounded AONIA fixings:

$$\left[\prod_{j=1}^D \left(1 + \frac{AONIA_j \times n_j}{365} \right) - 1 \right] \times \frac{365}{d}$$

D = the number of business days in the relevant interest period

n_j = number of calendar days from and including business day j from the current interest period, up to but excluding the following business day

$AONIA_j$ = AONIA fixing for business day j from the observation period (the current interest period offset by the observation lag); when unknown, assumed equal to r

Market participants are under no obligation to use the benchmark rates referred to above if the market has moved since the benchmarks were set.

The FRN price should be calculated to three decimal places.

Interpolation

- Dates for Interbank Overnight Cash Rate are based on the modified following business day basis.

3.18. Other Dealing Conventions

4. Confirmation

4.1. Timing

All Products

All trades entered into must be confirmed either electronically or in writing by both parties on the day that the transaction was executed.

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

All Products

Not applicable.

4.4. Other Confirmation Conventions

All Products

Not applicable.

5. Settlement

5.1. Physical Settlements

All Products

In general AFMA recommends that transactions should not be negotiated for settlement or price fixing (rollover) on a non-business day (see *Section 3.3.2*). 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
Commonwealth treasury bonds and semi government bonds that are near maturing (as defined in <i>Section 3.17</i>).	Same day if dealt before noon, otherwise next business day.
Commonwealth treasury bonds and semi government bonds which are not near maturing.	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 ticket size should be limited to AUD\$50million, i.e. a deal of AUD\$200million commonwealth government bonds should be settled in four lines of AUD\$50million.

5.2. Cash Settlements

All Products

Not applicable.

5.3. Other Settlements Conventions

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.

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