

Estimating the Return on Debt – Economic Regulation Authority Discussion Paper, 4 March 2015

Overview and Instructions

UBS has been engaged by DBNGP (WA) Nominees Pty Ltd ("DBP") to act as its financial adviser in relation to assisting DBP to determine the cost of debt in relation to a submission to the Economic Regulation Authority ("ERA") issues paper. Specifically:

- (a) Estimate debt raising costs for an ERA determined Benchmark Efficient Entity assuming a trailing average approach as outlined in DBP's access arrangement submission and the ERA's version of the hybrid approach as outlined in its 4 March 2015 discussion paper;
- (b) Estimate hedge costs for an ERA determined Benchmark Efficient Entity assuming both domestic and offshore debt issuance;
- (c) Examine tracking error risk in regard to the debt risk premium calculation;
- (d) Review the risk associated where the ERA decision is not made available until after the commencement of the next regulatory period.

All estimates and work product by UBS are designed to be consistent with the objectives and principles of the NGL and NGR. These are that the regulated return on debt should achieve, as far as possible:

- efficient financing – contribute to the achievement of the allowed rate of return objective, such that the 'rate of return for a service provider is commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to the service provider in respect of the provision of reference services';
- efficiency in investment and use – 'promote efficient investment in, and efficient operation and use of natural gas services, for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas';
- cost recovery – allow the service provider 'reasonable opportunity to recover at least the efficient costs the service provider incurs';
- best practice regulation – minimise transactions costs of regulation, and provide for effective transitional processes¹.

ERA requires the Benchmark Efficient Entity to estimate the return on debt based on a risk premium over and above the risk free rate, combined with a margin for administrative and hedging costs:

"The Authority will base its estimates of the return on debt on a risk premium over and above the risk free rate, combined with a margin for administrative and hedging costs:

Return on Debt = Risk Free Rate+ Debt Risk Premium+ Debt raising costs + Hedging costs"²



Where, it is assumed the Risk Free Rate is the return on the 5 year interest rate swap over a short averaging period and the Debt Risk Premium is consistent with an average term of issuance of 10 years and will be based on the yield to maturity of an observed sample of bonds. Debt Raising Costs have been quantified at 12.5bp p.a. and an allowance of 2.5bp was made in relation to Hedging Costs.

Section 1: Executive Summary

UBS has determined that the ERA Rate of Return Guideline understates the cost of debt to an ERA determined Benchmark Efficient Entity by a range of 35.0bppa to 43.9bppa (less the 2.5bppa allowance) derived as follows:

- Risk Free Rate hedge costs 3.5 – 8.5bppa
- Debt Risk Premium
 - o Excluded conversion factor 13.5 – 17.4bppa
 - o Cross currency swap costs 18.0bppa

This report notes discussion regarding new issue premiums and the two approaches outlined in the calculation of Debt Raising Costs, but offers no view on the accuracy of the pricing of either. No additional adjustment has been made for deferral costs or tracking error risk as there is insufficient information available in the Rate of Return Guidelines to determine whether the additional risks are material.

A summary of key points and issues raised in this report are as follows:

- Cost of debt - a cost of debt determined by efficient financing costs is the appropriate benchmark to determine returns and not a rate that is based on returns to investors. The ERA process is one where it sets guidelines for a Benchmark Efficient Entity – not one driven by where an investor buys debt in a Benchmark Efficient Entity;
- The Australian long-dated corporate debt capital market is illiquid – illiquidity means that the ERA determined Benchmark Efficient Entity only has access to 10 year debt issued in non-AUD debt capital markets and swapped back into AUD. The alternative is to raise shorter dated debt locally and accept refinancing risk. The cost of executing the cost currency swap and the efficient pricing of the credit, capital and execution cost components, forms part of the all-in cost of debt to the Benchmark Efficient Entity;
- Conversion factors - the ERA calculation of AUD equivalent rates from its sample of bonds is flawed as it does not take into consideration conversion costs. There is no precedent for this approach and it is incorrect. We have priced 10 year bonds issued at UST +150bp and UST +200bp and on that basis, we believe that the ERA understates the cost of debt by 13.5bppa and 17.4bppa respectively;
- Hedge costs understated - the ERA has made an allowance of 2.5bppa for hedge costs but has provided no details regarding how the allowance has been derived or calculated. UBS has calculated hedge costs to be in the range of 21.5bppa to 26.5bppa. On that basis, we believe that the ERA has understated the cost of debt by 19bppa to 24bppa.



Section 2: Introduction

Sources of Debt for the ERA determined Benchmark Efficient Entity – Debt Capital Markets

The first step in this process is to examine how and where an ERA determined Benchmark Efficient Entity derives funding to ensure that it meets the objective of efficient financing costs. The focus is on local and offshore debt capital markets.

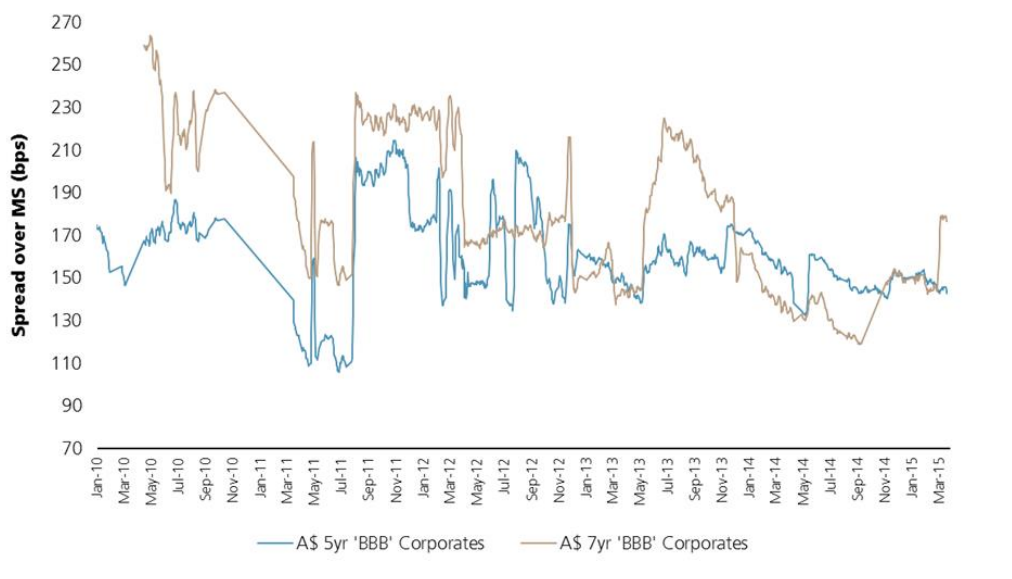
UBS therefore approached this assessment of the ability of an ERA determined Benchmark Efficient Entity to access debt capital markets from a pricing, tenor and volume perspective on the assumption of a BBB-band rating. The analysis draws upon data looking at the last five years of issuance for BBB rated corporates across global markets, with a focus on the domestic Australian institutional market.

Section 2.1: Pricing for BBB-band corporate issuance

Corporate 'BBB' credit spreads have materially reduced since 2008 / 2009 when they were significantly affected by the Global Financial Crisis ("GFC"). For Australian corporates, market access proved difficult during these times with no issuance in the immediate aftermath of the GFC in 2008, with the domestic AUD market completely closed and only supporting \$2.4b of domestic issuance in 2009³. Spreads peaked again towards the end of 2011 / early 2012 and again in mid-2012 driven by the Eurozone credit and subsequent sovereign crisis in addition to Greek Eurozone exit concerns.

Section 2.2: AUD BBB-band corporate spreads

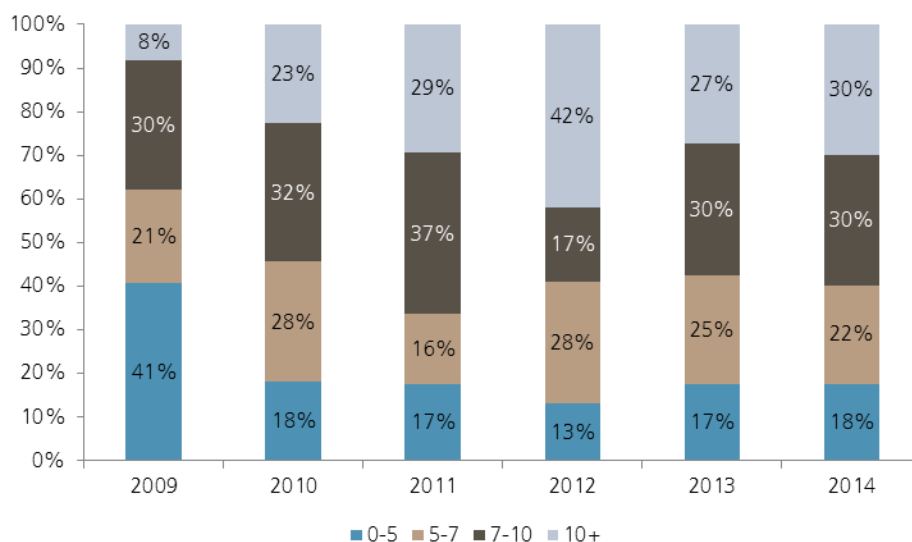
The Australian corporate market is relatively small compared to the Euro and USD markets and as such is unable to support the requirements of the regulated utility sector. New issues may therefore (and do from time to time) skew the index. As with the Euro and USD market, domestically we have seen a steady contraction in spreads since the GFC and widening in the market in line with offshore political events. The story in the domestic market in the past 2 years however has been positive with corporates taking advantage of a relative lack of supply to achieve tighter pricing, larger volumes and less onerous covenant structures.



Source: Bloomberg, UBS, MS refers to semi-annual mid swaps

Section 2.3: Tenor—Australian corporate historical issuance

Australian corporate issuers have been able to benefit from the current global low yield environment by achieving longer dated transactions as investors seek higher yielding investments. Over the years, investors have become more supportive of longer dated transactions in order to achieve yield targets. The graph below depicts the lengthening of tenor for Australian corporates in the global debt capital markets, with the tenor sweet-spot moving from 0-5yrs in 2009 to 7+yrs in 2014.



Source: UBS, Dealogic

Section 2.4: Market trends

The Australian corporate domestic debt capital market has developed since the GFC - reaching a highpoint for debt issuance of ~\$14b in 2012 before falling away some 30% to \$10b in 2014⁶. It is nevertheless important to place the level of domestic issuance in 2014 in the context of the debt requirements of the sector. Lally states "*The aggregate asset value of the businesses that are regulated by the AER is about \$74b. Assuming leverage of 60%, the aggregate debt level would be \$44b*"⁴. The aggregate debt requirement of the sector regulated just by the AER alone is 4.4 times the total issuance by all Australian corporates across all maturities.

In 2009, most Australian corporates looked to the US market in USD Private Placement ("USPP") and 144A formats to fulfil their funding needs as these markets offered the deepest pools of liquidity⁵. Australian corporates are increasingly looking to issue offshore.

There have been two Australian BBB-band Australian corporates that have issued 10 year debt in the Australian debt capital markets in the 8 years since 2007 – APA (2010) and Asciano (2015). Given lack of access to Australian debt capital markets and the quantum of the debt requirement in the sector, both AER and ERA determined Benchmark Efficient Entities have been restricted to accessing non AUD denominated debt capital markets and swapping the proceeds back into AUD. AUD debt is raised by Benchmark Efficient Entities, but it is for a term of less than 10 years and it requires the firm to take on refinancing risk that is not compensated for in the Guidelines.

Section 3: Summary and conclusions

Section 3.1: Common Ground

Both the ERA and DBP agree that the Return on Debt is appropriately calculated as follows:

Risk Free Rate + Debt Risk Premium + Debt Raising Costs + Hedge Costs.

Section 3.2: Economic Differences

The ERA and DBP differ however in their interpretation and costing of the Return on Debt components. The differences can be summarised as follows:

	ERA	DBP
Risk Free Rate	5 years	10 years
Debt Risk Premium	Based on returns to investors Excludes Conversion Factor No allowance for cross currency swap credit, capital and execution charges No allowance for new issue premium	Based on efficient financing costs Includes conversion Factor Allows for cross currency swap credit, capital and execution charges Allowance for new issue premium
Debt Raising Costs	Based on Allen Consulting Group report in 2004	Based on Incenta report in 2015 ⁶
Hedge Costs	Flat 2.5bpps	Hedge of Risk Free Rate Hedge of AUD fixed rate issuance Cross currency swap credit, capital and execution charges

Pricing differences are as follows:

	ERA	DBP
Risk Free Rate	5 years	10 years
Debt Risk Premium	Based on returns to investors	Based on efficient financing costs
	Excludes Conversion Factor	Includes conversion Factor - 13.5 to 17.4bpps
	No allowance for cross currency swap credit, capital and execution charges	Allows for cross currency swap credit, capital and execution charges - see below
	No allowance for new issue premium	Allowance for new issue premium - 27bpps
Debt Raising Costs	12.5bpps	20bpps
Hedge Costs	Flat 2.5bpps	Hedge of Risk Free Rate - 3.5bpps Hedge of AUD fixed rate issuance - 5bpps Cross currency swap credit, capital and execution charges - 18bpps

Section 3.3: Fundamental Differences

Cost of Debt versus Return on Debt

The Guidelines interchangeably make reference to the Cost of Debt and the Return on Debt with a very different basis. Simply, the Cost of Debt concept is designed to be built upon a rate of return commensurate with the efficient financing costs of a Benchmark Efficient Entity. Financing costs include conversion factors in a cross currency swap, charges for credit, capital and execution for both interest rate and cross currency swaps and new issue margins. All are additive to the Cost of Debt.

The Return on Debt concept used at times in the Guidelines is built upon a rate equivalent to a return to investors for purchasing the debt of an ERA determined Benchmark Efficient Entity.

The Guideline is in place to determine financing costs for an ERA determined Benchmark Efficient Entity – not the financing costs for an investor purchasing the debt of a Benchmark Efficient Entity.

Conversion Factors

The ERA uses an observed sample of bonds to determine the Debt Risk Premium. We note that 63% of those bonds are non AUD denominated and are swapped back into AUD. The majority of the AUD denominated bonds in the sample have either a term of less than 10 years or have embedded optionality e.g. callable features.

The ERA calculates an equivalent AUD rate for each bond issued offshore. We note however that the ERA excludes Conversion Factors in determining the AUD equivalent rate for each of the bonds issued in non AUD debt capital markets.



We know of no reason why a Conversion Factor (the means of valuing a foreign currency basis point and calculating its AUD equivalent) is excluded. We know of no precedent for this approach and note that the RBA includes Conversion Factors in its calculation of equivalent yields for non AUD issued bonds⁷.

The remainder of this report looks to value the differences between the ERA approach and that of DBP.

Authorship and Federal Court guidelines

This report was prepared by Peter Kingston. My CV is included as Attachment B. In summary, I have worked in derivative markets since 1988 in Australia and Asia during which time I have advised and transacted with firms in currency, credit, rates and commodity derivative markets. I most recently prepared reports for Networks NSW, Transgrid and Jemena Gas on the transaction cost component in the return on debt calculation in relation to the AER draft decision.

I have read, understood and complied with the *Federal Court of Australia's Practice Note CM 7, Expert Witnesses in Proceedings in the Federal Court of Australia*. I provide financial advice and transaction support for a number of entities including to the DBNGP (WA) Nominees Pty Ltd (and related companies), but have no current or future potential conflicts.

I confirm that I have made all the inquiries that I believe are desirable and appropriate and no matters of significance that I regard as relevant have, to my knowledge, been withheld from this report.

Section 4: Return on Debt Calculation

The core principles used in the determination of an appropriate return on debt calculation are as follows:

1. Cost of debt – DBP has adopted a cost of debt methodology that recognises efficient financing costs as opposed to a return on debt methodology that is built around the return to an investor from purchasing DBP debt. The DBP approach is consistent with the objectives and principles of the NGL and NGR and recognises that the ERA Determination will set an appropriate rate of return for DBP and not to an investor in DBP debt.
2. Debt raised offshore and swapped back into AUD – both the sample of bonds used by the ERA and the bond data outlined earlier indicate that there is little to no liquidity in the Australian debt capital markets to allow an ERA determined Benchmark Efficient Entity to raise 10 year debt locally. Two issues by BBB-band corporate credits in 8 years confirms that to be the case. That being the case, the ERA determined Benchmark Efficient Entity will raise debt offshore and swap the proceeds back into AUD. The cost of debt to that ERA determined Benchmark Efficient Entity includes costs for credit, capital and execution of the cross currency swap that ensures that currency risk is mitigated. An alternative approach for the ERA determined Benchmark Efficient Entity is to raise shorter dated debt in the Australian debt capital markets and avoid the cross currency swap credit, capital and execution costs. However shorter dated funding involves refinancing risk that is not provided for in the Guidelines.

Section 4.1: Risk Free Rate

UBS understands that the Risk Free Rate is now based on the 5 year AUD swap rate calculated using an "on the day" approach over an averaging period. We offer no view on the appropriateness of using a 5 year swap rate other than to comment that the methodology differs from that adopted by the Australian Energy Regulator ("AER") – a transitional 10 year trailing average⁸.

The ERA has an expectation that the Benchmark Efficient Entity will hedge the Risk Free Rate during a 40 day averaging period⁹. We note that no source has been provided by which to determine the 5 year swap rate, the time at which the rate will be determined and the basis for the rate i.e. whether the swap cash flows will be based on a quarterly or semi-annual rate. We are indifferent on the swap basis other than to comment that we could expect that it would be consistent with the derivation of the Debt Risk Premium.

We note that an ERA determined Benchmark Efficient Entity that hedged the Risk Free Rate would incur hedge costs – execution, credit and capital charges. These are outlined in Section 1.4: Hedge Costs.

We recommend that the ERA use a publicly available source to determine the Risk Free Rate – the AFMA end of day swap valuation rates published on Reuters Monitor System page SWAPEOD. The appropriate rate would be the MID rate if hedge costs are to be accounted for separately.

Section 4.2: Debt Risk Premium

UBS notes the benchmark sample used by the ERA to determine the Debt Risk Premium and agree that it is an appropriate sample¹⁰. We note the inclusion of bonds with Callable / Puttable redemptions and that 37% of bonds in the sample are AUD denominated. The remainder are foreign currency denominated with proceeds and coupons swapped back into AUD by the issuer. The ERA will use Bloomberg data to construct the benchmark sample¹¹.

As noted earlier, UBS disagrees that the data provided from the benchmark sample is an appropriate reflection of the cost of debt for an ERA determined Benchmark Efficient Entity. The yield data from the benchmark sample reflects the return to investors rather than the cost of debt and as such it is inconsistent with a regulatory approach where "the primary objective is to achieve an allowed rate of return for a service provider 'commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk in respect of the provision of reference services'"and where "the rate of return must remunerate the efficient financing costs of the service provider over the lives of the assets, in terms of net present value"¹².

We have outlined below a step by step guide for the cost of debt calculation assuming an ERA determined Benchmark Efficient Entity issues 10 year USD denominated debt and swaps the notional principal amount and coupons back into AUD over the life of the issue.

Given the illiquidity of the Australian capital markets and the lack of precedent issuance, we have assumed that the 10 year debt risk premium will be derived from the issuance of debt offshore swapped back into AUD. That being the case, the calculation of efficient financing costs should reflect all costs to determine the landed cost of debt. The table below calculates all costs.

The step by step guide is based off a UBS cross currency swap pricing protocol. Similar protocols are used by all banks in order to provide transparency in the cross currency swap pricing process.



The protocol assumes an ERA determined Benchmark Efficient Entity issues 10 year USD denominated debt pricing alternatively at US Treasuries +150bp and US Treasuries +200bp. We have shown a range of pricing in order to measure the impact of credit spreads on the conversion factor. The pricing protocol works through all of the steps necessary in order to price the cross currency swap back to AUD. The process allows us to examine and quantify the ERA cost of debt calculation and compare it with the RBA methodology and the actual cost of debt to the issuer.

A summary of the methodology is as follows:

1. We assume bonds are priced to investors at a debt risk premium over the 10 year US Treasury ("UST") of 150bp and 200bp;
2. We add the debt risk premium to the 10 year UST to determine the all-in USD rate;
3. We price a 10 year USD interest rate swap, make adjustments where applicable for any forward start or gross down, and calculate the all-in rate – after the interest rate swap – as a margin over 3 month USD Libor;
4. We calculate the conversion factor to "convert" the USD margin over 3 month USD Libor into AUD terms and add the cost of the AUDUSD cross currency basis swap.
5. We now have a debt risk premium over the 3 month AUD bank bill rate.
6. The next step is to convert the 3 month AUD bank bill rate into a 6 month rate (3 month versus 6 month basis swap) and fix the rate using an AUD interest rate swap. Any other rate adjustments e.g. forward start, are made at this time;
7. We add on all credit, capital and execution charges for the counterparty risk in order to determine an all-in cost of debt.

Implicit in the calculation is an exchange of principal amounts. At the time that the bond is issued, the Benchmark Efficient Entity will pay the USD principal amount to UBS. UBS will, in turn, pay an equivalent AUD amount adjusted for the current exchange rate. On the maturity date these flows are reversed – the Benchmark Efficient Entity pays the AUD amount to UBS and UBS pays the USD amount to the Benchmark Efficient Entity. The Benchmark Efficient Entity uses the USD to repay investors.

Cross Currency Swap Pricing Spreadsheet			Comments
	USD	USD	
Tenor	10y	10y	
USD notional	100,000,000.00	100,000,000.00	
AUD notional	126,582,278.48	126,582,278.48	
Effective date	29/04/2015	29/04/2015	
Maturity date	10 years	10 years	
Notes parameters			
Reference US Treasury yield for Notes pricing	(a)	2.16%	2.16% Bloomberg PX1
Notes re-offer margin to Reference UST	(b)	1.500%	2.000%
Notes re-offer yield	(c)	3.660%	4.160% (a) + (b)
Notes coupon		3.660%	4.160% Notes coupon may get rounded
1. Spread to 3m US\$ Libor			
Reference US swap rate	(d)	2.2410%	2.2410% Bloomberg ICCS5 - mid semi-annual (30/360) swap rate
Gross down and forward start adjustment	(e)	0.9825	0.9825 Forward start and conversion of margins from semi to quarterly compounding
Spread to 3m USD Libor	(f)	1.394%	1.885% [(c) - (d)] * (e)
2. Margin over 3m BBSW			
AUDUSD Basis Swap	(g)	0.2950%	0.2950% Bloomberg ICAA3 mid basis swap rate (London time) / IAUS 13 (Sydney time)
Conversion Factor ¹³	(h)	1.097	1.092 Conversion of margin from USD to AUD at spot exchange rate
Margin to 3m BBSW before credit and execution charge	(i)	1.824%	2.354% (f) * (h) + (g)
3. AUD fixed rate			
AUD 3m to 6m basis swap	(j)	0.0813%	0.0813% Bloomberg IAUS15 (Sydney time)
Reference AUD swap rate (semi-annual)	(k)	3.170%	3.1700% Bloomberg ICAA1 mid swap rate (London time) / IAUS10 (Sydney time)
Gross Down and Forward start adjustment	(l)	0.001%	0.001% Forward start and conversion of margins from semi to quarterly compounding
Roll dates adjustment	(m)	0.000%	0.000% Adjustment for mid month/end of month rolls
AUD fixed rate (quarterly)	(n)	4.914%	5.444% (i) + (j) + (k) + (l) + (m)
Credit and execution charges ¹⁴	(o)	0.180%	0.180%
All in AUD fixed rate (quarterly)	(p)	5.094%	5.624% (n) + (o)
4. FX rate			
AUDUSD exchange rate		0.7900	0.7900 Bloomberg AUD Curncy, bid rate
5. USD initial makewhole amount based on re-offer price			
Re-offer price	(r)	100.000	100.000
USD upfront fee (per USD 100m)		400,000	400,000 USD 100m * [100 - (r)] / 100
Initial exchange (per USD 100m)			
Issuer pays USD Notional	(s)	100,000,000.00	100,000,000.00 USD 100m
Issuer receives AUD Notional	(t)	126,582,278.48	126,582,278.48 USD 100m / AUDUSD FX
Final exchange (per USD 100m)			
Issuer receives USD Notional		100,000,000.00	100,000,000.00
Issuer pays AUD Notional		126,582,278.48	126,582,278.48

Summary:

	<u>UST+150bp</u>	<u>UST+200bp</u>
ERA cost of debt calculation = AUD fixed rate (n) – Conversion	4.779%	5.270%
RBA cost of debt calculation = AUD fixed rate (n)	4.914%	5.444%
Issuer cost of debt = All in AUD fixed rate (p)	5.094%	5.624%
ERA understates BEE cost of debt by:	31.5bpps	35.4bpps

The RBA cost of debt methodology appears to calculate the AUD fixed rate but it excludes hedge costs relating to credit, capital and execution. The RBA sample effectively calculates the rate at which an investor could buy the ERA determined Benchmark Efficient Entity's debt. The RBA calculation does not reflect the cost of debt for an ERA determined Benchmark Efficient entity and as such it is not consistent with "the anchor for any regulatory decision will be the regulatory approach that is considered to best deliver the requirements of the NGL, NGR, NGO, RPP and the allowed rate of return objective.....the primary objective is to achieve an allowed rate of return for a service provider 'commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk in respect of the provision of reference services'" ¹⁵.

The ERA methodology replicates the RBA methodology but excludes conversion factors¹⁶. We see no rational reason to exclude the conversion calculation from the cost of debt calculation. The conversion factor translates the value of a foreign currency denominated basis point into an AUD basis point. While we agree with the ERA comment that "the cross currency basis swap is generally the most significant hedging cost", we do not see that this is a valid reason to exclude other factors in the determination of the cost of debt calculation. Cross currency swap pricing in global financial markets always includes a calculation of conversion factors.

The quantum of a conversion factor will be determined by the debt risk premium on the underlying issuance plus the AUDUSD interest rate differential. UBS values the difference between the ERA cost of debt calculation and the cost of debt for an ERA determined Benchmark Efficient Entity - assuming issuance priced at UST+150bp - to be 31.5bpps and where issuance is priced at UST+200 - to be 35.4bpps

Section 4.3: Debt Raising Costs

The ERA considers that an estimate of 12.5bpps is the most relevant estimate of debt raising costs for a Benchmark Efficient Entity based on the direct cost components recommended in an Allen Consulting Group 2004 report to the ACCC¹⁷. We note that Incenta has more recently investigated market data and estimated debt raising transaction costs for a BEE as being 20bpps in a February 2015 report¹⁸.



Section 4.4: Hedge Costs

This hedge cost analysis makes reference to bank counterparty execution, credit and capital costs. We define each to be as follows:

- Execution costs – financial markets show pricing on a mid-rate basis with bid and offer prices depending upon whether risk is being bought or sold. The bid and offer prices reflect the cost to the counterparty bank of transacting a hedge over a mid-rate basis. Execution costs are added to the mid-market price;
- Credit costs – counterparty banks assess risk of default on a two standard deviation basis and apply a cost that – in theory – is compensation for that risk of default;
- Capital costs – a derivative transaction creates a risk weighted asset position for a bank and capital needs to be applied to generate a return on that risk weighted asset.

As noted earlier, we assume that the ERA determined Benchmark Efficient Entity will hedge the risk free rate using interest rate swaps. In addition:

- Where fixed rate debt is issued in the Australian debt capital markets, it will be swapped back into a floating rate;
- Where debt is issued in offshore debt capital markets, principal and coupon amounts will be swapped back into floating rate AUD risk.

We note that an allowance of 2.5bpps¹⁹ has been provided for hedge costs as part of the on the day approach. We have not found the methodology used to determine this allowance and believe that it materially understates hedge costs.

UBS estimates hedge costs to be as follows:

- | | |
|---------------------|---------------|
| - Risk Free Rate | 3.5 – 8.5bpps |
| - Debt Risk Premium | 18.0bpps |

In total we estimate hedge costs to be in the range of 21.5bpps and 26.5bpps assuming a 5 year term for the hedge of the risk free rate and a 10 year term for the debt risk premium. Insufficient information is available in the Rate of Return Guidelines to determine if an additional allowance should be made for deferral and tracking error risk.

In the section below we examine the derivation of the UBS estimated hedge costs.

Section 4.4.1: Risk Free Rate

The Rate of Return Guidelines have an implicit assumption that the Risk Free Rate – defined as the 5 year swap rate – will be hedged by the ERA determined Benchmark Efficient Entity. UBS has estimated hedge costs – assuming a 20% cost to income ratio, a 25% return on attributed equity and a stress factor of 1.1 to be as follows for a notional amount of up to A\$300m:



- Credit charge offset by funding benefit	1.0bppa
- Cost of capital	1.5bppa
- Execution	<u>1.0bppa</u>
	3.5bppa

By comparison, UBS estimates that the cost of transacting a 10 year interest rate swap for a BBB-band BEE – for notional risk of up to \$300m – is 5bppa.

The total cost would therefore be 8.5bppa where 10 year debt is issued in the Australian debt capital markets and is swapped back to a floating rate. We note that this is at the lower end of similar estimates that calculate the same risk at up to 16bppa²⁰ (based on 10 year debt issuance and a 10 year interest rate swap).

While credit and capital costs are not impacted by the size of the interest rate swap, execution levels may increase where the size of the hedge is greater than A\$300m.

By way of benchmarking, we note that the Allen Consulting Group final report to the ACCC "Debt and Equity Raising Transaction Costs" December 2004, used by the ERA as the basis for determining debt raising costs to be 12.5bppa, specified 5bppa as the cost of hedging the fixed rate risk for a AUD corporate bond²¹. We note that at the time the final report was released in 2004, it was not customary for swap pricing to take account of counterparty credit and capital costs in the derivation of hedge cost margins. Any adjustment for credit and capital costs would result in a higher adjustment than the 5bppa specified in the Allen Consulting Group final report.

On that basis alone, the UBS estimates, derived some 11 years later, appears conservative.

Section 4.4.2: Debt Risk Premium

As noted earlier, two BBB-band Australian corporates have issued 10 year debt into the Australian debt capital markets since 2007. Total issuance by all corporate issuers across all tenors in the Australian domestic capital markets in 2014 was \$10b²². Given the estimate by Lally that the debt requirements of the AER determined Benchmark Efficient Entities is A\$44b, not surprisingly, it has been the practice of the AER and ERA determined Benchmark Efficient Entities to issue foreign currency debt in the long dated offshore debt capital markets and swap both the initial proceeds and all interim cash flows / interest payments back into AUD²³. UBS is not aware of any firms in the sector that take currency risk and do not swap the proceeds back into AUD using cross-currency swaps.

UBS estimates that the total execution, credit and capital costs associated with a 10 year AUDUSD cross currency swap (to floating AUD bank bill) for a BBB-band ERA determined Benchmark Efficient Entity is 18bppa. This estimate assumes a benchmark issue size of \$500m. No premium has been assumed for liquidity for larger issuance.

The UBS pricing methodology is outlined below.



Methodology

In order to measure Debt Risk Premium hedge costs associated with 10 year issuance and associated cross currency swap, we look to the US debt capital markets as the deepest and most liquid global capital market.

Each bank calculates cross currency swap credit and capital charges using their own proprietary systems. Variation exists based on whether a bank has adopted Basel III regulatory reforms and whether pricing is adjusted for the funding benefit or cost associated with the swap. Capital charges – the minimum add-on required to cover the cost of capital associated with counterparty risk and the exposure associated with the swap over its life – varies on a bank by bank basis.

The UBS calculation of the credit and capital charges is based on a required capital return assuming a 20% cost to income ratio and 25% target return on equity. Note that this calculation assumes a stress factor of 1.1. The stress factor measures credit value adjustment ("CVA") value at risk ("VaR") or how credit risk changes over time. This is a minimum guideline and forms the basis for all pricing of derivative risk at UBS.

The sum of the net credit charge (after adjusting for the funding benefit) plus the required capital return is 17.8bp.

The cost of execution includes both the swap from USD fixed to USD floating and the cross currency basis swap from USD floating rate to AUD floating rate. The cost of executing both swaps is 1.5bpps.

Total credit, capital and execution costs for the BBB-band ERA defined Benchmark Efficient Entity raising debt in the USD debt capital markets is therefore 19.3bpps. Our analysis reduced this to 18bpps in order to take a conservative approach. As outlined, no premium is added for liquidity or any other additional margin that a bank may apply e.g. a profit component.

It is worth noting that liquidity issues have the potential to have a material and negative impact on the ERA determined Benchmark Efficient Entity and its ability to hedge interest rate risk.

In addition, counterparty risk limits for banks fall away materially after 5 years. Those banks with 10 year credit limits for ERA determined Benchmark Efficient Entities may reasonably be expected to widen the cost of execution where risk is transacted by several different entities over averaging periods that may overlap or be closely related. This analysis and pricing for transaction and related costs assumes 10 year interest rate risk of up to \$300m per day and a single cross currency swap of up to \$500m for a term of 10 years. No price has been determined or taken into account to adjust liquidity for what may be hedge requirements of up to \$44b for AER regulated entities together with the hedge requirements of ERA regulated entities.

Section 4.4.3: Other Factors

From a hedge cost perspective, the ERA Rate of Return Guidelines differ from those of the AER in two additional ways. Specifically, the ERA Guidelines indicate that deferral costs and tracking error costs may not apply to ERA determined Benchmark Efficient Entities.

Deferral

The AER return on debt calculation is based on nominal rates derived during an averaging period while the interest rate hedge set during the averaging period will have a start date based on the commencement of the next regulatory period. Counterparty banks will adjust swap prices for this deferred start period. In a normal yield, the deferral is always a cost.

The ERA Guidelines indicate that the averaging period will be set just prior to each regulatory year. To the extent that the averaging period is set just prior to each regulatory year, the cost of deferral in hedging the RFR may be de-minimus. We define "just prior" to be a term of one month or less. Where the averaging period is set more than one month prior to the commencement date of a regulatory year, banks will add a deferral cost component to the risk free rate hedge.

The other risk to consider is where the ERA final decision is made available after the commencement of the next regulatory period. In that case, two alternatives require consideration: -

- Where the averaging period is set after the commencement of the regulatory period. In that case – given that the term of the risk free rate hedge will be less than 5 years and that the Australian interest rate swap curve is "normal", the Benchmark Efficient Entity will derive a benefit; and
- Where the averaging period is set to dates in the past i.e. retrospectively, the risk free rate cannot be hedged and the Benchmark Efficient Entity will be exposed to unlimited interest rate risk. This risk cannot be quantified.

Tracking Error

The AER return on debt calculation is derived from RBA and Bloomberg adjusted and interpolated curves. While the AER determined benchmark efficient entity can only hedge the risk free rate component using interest rate swaps, The debt risk premium component of the calculation cannot be hedged. The difference between the 10 year interest rate swap and the RBA and Bloomberg curves may create tracking error that will reduce the debt risk premium.

The ERA Rate of Return Guidelines indicate that the debt risk premium will be derived from the yield to maturity of an observed sample of bonds issued by comparator firms with similar credit ratings as the regulated entity. We expect that this approach minimises tracking error risk provided the following conditions are met:

- The debt risk premium is measured in relation to the 10 year swap rate as opposed to the 10 year rate for Commonwealth Government Securities. Credit spreads in the Australian debt capital markets are measured as a margin over swap rates and not as a margin over Commonwealth Government Securities. The spread or differential between the 10 year swap rate and the 10 year rate for Commonwealth Government Securities over the period 2005-2015 was 55bpps. To the extent that the Debt Risk Premium was measured based on a margin over Commonwealth Government Securities, the Debt Risk Premium for an ERA determined Benchmark Efficient Entity would be understated by an average of 55bpps (based on the average differential for the period 2005-2015).



Source: Bloomberg

- The debt risk premium data is available daily during the averaging period.

Section 4.4.4: On the day versus hybrid trailing average

Risk Free Rate

From a hedge cost perspective, UBS sees no difference between the on the day and hybrid trailing average approaches. The same quantum of debt is hedged at inception as part of the risk free rate hedge, so hedge costs are unchanged during the transition period. At the end of the transition period, there is no requirement for additional interest rate hedging.

We note reference in the Discussion Paper to a spread cost in the 10 year swap of around 10bps – half of which is incurred by the service provider.²⁴ While no details are provided to verify the rate, we assume that it relates to the bid-offer spread for a 10 year swap i.e. 5bps either side of the mid-rate. UBS has valued the bid-offer spread on a swap at 2bps i.e. 1bps either side of the mid-rate. We note that this spread may be volatile. The spread is however not an execution level as it excludes the adjustment for credit and capital costs.

Debt Risk Premium

The adjustment required for the debt risk premium is the same under the on the day and hybrid trailing average. Illiquidity for BBB-band corporate credit in the Australian debt capital markets means that – regardless of the approach – 10 year debt is still raised offshore and swapped back into AUD. All credit, capital and execution costs will be applicable under both the on the day and hybrid trailing average approaches.

Section 5: Disclaimer

UBS AG, Australia Branch ("UBS" or "we") has acted as a financial adviser to DBNGP (WA) Nominees Pty Ltd ("DBP" or "you") and will receive a fee upon delivery of this report. In preparing

this report, we have used such customary calculation methodologies as we have deemed necessary or appropriate for the purposes of this report and have reviewed certain publicly available business and historical information in relation to DBP and general market data. In connection with our review, we have assumed and relied upon, without independent verification, the accuracy and completeness of the information that was publicly available or was furnished to us by or on behalf of DBP, or otherwise reviewed by us for the purposes of this report, and we have not assumed and we do not assume any responsibility or liability for any such information. This report does not constitute an offer by us, or represent a price at which we would be willing to purchase, sell, enter into, assign, terminate or settle any transaction. This report is necessarily based on the economic, regulatory, monetary, market and other conditions as in effect on, and the information made available to us as of, the date hereof (or as otherwise specified above in relation to certain information). It should be understood that subsequent developments may affect this report, which we are under no obligation to update, revise or reaffirm. This report is provided solely for the benefit of DBP in connection with and for the purposes of their determination of the cost of debt. This report is not on behalf of, and shall not confer rights or remedies upon, may not be relied upon, and does not constitute a recommendation by UBS to, any other person. This report may not be used for any other purpose, or reproduced, disseminated or quoted at any time and in any manner without our prior written consent, save that you may provide a copy of this report upon express requirement of any regulatory or judicial authority having jurisdiction over DBP. We accept no responsibility to any person other than DBP in relation to the contents of this report, even if it has been disclosed with our consent.

Reference sources:

1. "Estimating the return on debt", Discussion paper, 4 March 2015, Economic Regulation Authority, Western Australia page 3
2. "Estimating the return on debt", Discussion paper, 4 March 2015, Economic Regulation Authority, Western Australia page 4
3. UBS
4. "Transitional Arrangements for the Cost of Debt" Dr Martin Lally, 24 November 2014, page 21
5. The US 144a market generally requires issuance of US\$500m or more in a single tranche. There is no requirement for financial covenants. The US Private Placement market allows for customised tranche sizing, smaller issuance across several tenors but it does require financial covenants.
6. "Rate of Return on Debt: Proposal for the 2016 to 2020 Regulatory Period", Attachment to UE Regulatory Proposal prepared by United Energy, page 44
7. Reserve Bank of Australia "New Measures of Australian Corporate Credit Spreads" Bulletin December Quarter 2013, Appendix A, page 12.
8. Explanatory Statement, Rate of Return Guidelines, December 2013, Australian Energy Regulator, page 12
9. Rate of Return Guidelines, 16 December 2013, Economic Regulation Authority, Western Australia, page 14
10. ERA Draft Decision on Proposed Revisions to the Access Arrangement for the Mid-West and South-West Gas Distribution System, Appendix 5
11. ERA Draft Decision on Proposed Revisions to the Access Arrangement for the Mid-West and South-West Gas Distribution System, page 198
12. "Estimating the return on debt", Discussion paper, 4 March 2015, Economic Regulation Authority, Western Australia page 3
13. Conversion is expressed as a factor. At pricing of UST+150bp, the conversion factor is 1.097 times. Expressed in basis point terms it is 13.5bppa. At pricing of UST+200bp, the conversion factor is 1.092 times. Expressed in basis point terms it is 17.4bppa.
14. Derivation of credit, capital and execution is based on UBS internal modelling. Available upon request.
15. "Estimating the return on debt", Discussion paper, 4 March 2015, Economic Regulation Authority, Western Australia page 3

16. ERA Draft Decision on Proposed Revisions to the Access Arrangement for the Mid-West and South-West Gas Distribution System, footnote 447, page 198
17. The Allen Consulting Group "Debt and Equity Raising Transaction Costs" Final Report, December 2004 Report to the Australian Competition and Consumer Commission
18. "Rate of Return on Debt: Proposal for the 2016 to 2020 Regulatory Period", Attachment to UE Regulatory Proposal prepared by United Energy, page 44
19. Rate of Return Guidelines, 16 December 2013, Economic Regulation Authority, Western Australia, page 28
20. Evans and Peck, SEQ Retail Water Price Review, 4 February 2013
21. The Allen Consulting Group "Debt and Equity Raising Transaction Costs" Final Report, December 2004 Report to the Australian Competition and Consumer Commission, page xvii
22. UBS, Dealogic
23. For example, AusNet is one of the few service providers with publicly available financial accounts. Their financial accounts show that 72% of total debt is raised offshore and swapped back into AUD using cross currency swaps. AusNet Services Debt Securities Information
<http://www.ausnetservices.com.au/None/Debt+Securities+Information+Folders.html>
24. "Estimating the return on debt", Discussion paper, 4 March 2015, Economic Regulation Authority, Western Australia page 23

Attachment – Resume

PETER KINGSTON

Executive Director UBS, Derivatives

Nationality:	Australian
Professional qualifications:	B. Comm, University of Melbourne
Years with UBS:	15
Years within the industry:	25+
Location	Sydney

RELEVANT EXPERIENCE

- Peter is a part of the Australian Derivatives team focusing on the derivative requirements for Australian counterparties
- Peter has 25+ years derivative experience working out of Melbourne, Sydney and Hong Kong—covering interest rate, currency, commodity and credit derivative markets in order to hedge risk throughout the region
- Since joining UBS in 2000, Peter has worked on transactions within the investment banking, debt capital markets, hybrid capital and private equity businesses. Some areas of specific emphasis during that time have included defined benefit superannuation, hedge accounting effectiveness, regulatory capital effectiveness for financial institutions, inflation hedging, derivative underwriting structures, AREIT risk management and distressed debt restructuring
- Infrastructure experience – part of teams involved in the NSW Ports consortium's acquisition of Port Botany and Kembla, NSW Government potential lease of the NSW electricity networks, Queensland Motorways acquisition of the CLEM7 tunnel, closeout of the Brisconnections and Cross City Tunnel debt & derivatives positions, initial submission on the cost for debt for Networks NSW submission to the Australian Energy Regulator. Most recently, he has provided advice to Networks NSW, Transgrid and Jemena Gas in relation to return on debt submissions to the AER.