Expert Opinion

Prepared for N.T. Gas Pty Limited

Estimating the Debt Risk Premium

Philip Bayley

Australia Ratings

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Contents

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The Board of Australia Ratings includes Jarrod Brown, Chris Dalton and Mike Dontschuk. The Board structure reflects that recommended for credit rating agencies in the European Union, in having two non-executive directors.

Jarrod Brown is the Chief Executive Officer of Bennelong Funds Management and has over 18 years of experience in banking and funds management. He has an extensive understanding of investment markets developed through various executive positions with Standard & Poor's, IOOF Investment Management and ING Australia. Prior to transition to asset management Jarrod's career was focused on credit, primarily with NAB.

As Chief Executive Officer, Bennelong Funds Management, Jarrod is charged with developing Bennelong Group's asset management capability and is both the Responsible Manager and Director of various Bennelong Group companies.

The career of **Chris Dalton** includes more than 30 years in Australia's financial markets including 18 years with Standard & Poor's including three years in a senior executive role in the New York office and eight years as Managing Director of Standard & Poor's Australian and New Zealand operations from 2000-2008.

Mike Dontschuk has an extensive career in Australia's banking and debt capital markets including roles as Chief Executive Officer at Treasury Corporation of Victoria (TCV) and Group Treasurer of ANZ Bank. He has international experience in investment banking and consulting including 3 years in London spearheading BTAL's fixed income business. He is the current President of the Finance & Treasury Association (FTA).

The initial analysts engaged by Australia Ratings include Belinda Smith, Chris Cudsi, Daniela Crisafi, Phil Bayley and Chris Dalton.

Belinda Smith is an experienced credit analyst and has held a variety of roles with the debt capital markets both in Australia, Japan and the UK. Belinda most recently held the position of Group Manager – Corporate Finance with Country Energy. Prior to this role Belinda worked for Standard & Poor's for nine years as a senior credit and rating analyst with responsibilities for markets across Asia-Pacific. Belinda previously worked for Perpetual Trustees Australia, Toyota Finance Australia and Macquarie Bank.

Chris Cudsi is a one of Australia and New Zealand's leading debt capital analysts. After leaving Standard & Poor's Chris established Tyber Capital, a firm providing independent and specialist financial services to companies seeking debt financing. Chris' role at Standard & Poor's included assigning credit ratings to companies and projects in the energy, infrastructure, water, utilities, and airport sectors. Prior to joining Standard & Poor's, Chris was Senior Economist at the Victorian Employers' Chamber of Commerce and Industry (VECCI) and an analyst at Commonwealth Treasury.

Phil Bayley is the Principal of ADCM Services, publisher of The DCM Review, an independent electronic provider of commentary, analysis and data on the debt capital markets of Australia and New Zealand. He is currently undertaking a PhD at Monash University, furthering his research into the domestic debt capital market.

Previously, Phil spent over 12 years working in, and researching the Australian and New Zealand debt capital markets. Most recently, as Director of Capital Markets at Standard & Poor's, where he produced independent analysis and opinion on the debt capital markets, influencing the perceptions of all market participants. From 2000-2005, Phil was Head of

Fixed Interest, Credit Research, with the National Australia Bank and prior to that was Head of Research at Westpac Banking Corporation.

Daniela Crisafi has been rating debt and assessing risk for more than 15 years. Prior to joining Australia Ratings Daniela worked Standard & Poor's as a senior analyst in both Australia and Europe. She held primary responsibility for infrastructure ratings and highly-geared securitised debt programs, and focussed on the operational and financial risks of government-owned and privatised entities. During her time at Standard & Poor's Daniela also worked with the Federal Government in assessing the enterprise-wide risk management practices of its agencies.

About The DCM Review

The DCM Review is published by ADCM Services of which, Philip Bayley is the principal. ADCM Services and The DCM Review were established as an adjunct to the PhD research being undertaken by Phil.

The DCM Review is a weekly industry newsletter that provides coverage of global and local events that impact the debt capital markets of Australia and New Zealand. Coverage ranges across basic systemic liquidity, government support and regulatory developments to the adequacy and cost of bank funding, corporate bond issuance, securitisation, credit default swaps and CDS indices.

Credit rating actions by the three main agencies S&P, Moody's and Fitch, on issuers and other key participants relevant to the domestic markets, are also covered.

Readership comprises investors, issuers, intermediaries, credit rating agencies, regulators, academics and other media. The DCM Review is also syndicated in part, by the Finance & Treasury Association.

Preamble

The Australian Energy Regulator (AER) released its draft decision on the 'N.T. Gas - Access arrangement proposal for the Amadeus Gas Pipeline 1 July 2011 – 30 June 2016' for N.T. Gas Pty Limited (NT Gas) in April. Submissions on the draft decision must be lodged with the AER by May 27.

For the purposes of lodging a submission with the AER in relation to its determination of the debt risk premium (DRP), I have been asked to give my opinion on the following matters:

1. What are the appropriate methods to measure the cost of debt "commensurate with the prevailing conditions in the market for funds", particularly focusing on the use of independent indices?
2. Would it be reasonable or appropriate to include bonds outside an index to "refine" the index? Specifically, would it be reasonable to weight an independent index with yield information of a particular bond issue?
3. In particular, would it be reasonable or appropriate to use the APT 2020 bond to determine the "cost of debt commensurate with the market for funds" in determining a benchmark cost of debt to be applied to NT Gas in the present case, and other APA Group businesses as similar reviews take place on other APA Group assets?

Background

In determining the DRP to be applied to NT Gas and indeed, in determining its overall cost of capital, the AER is required by regulation to consider market conditions. Rule 87 of the National Gas Rules provides that the rate of return on the capital base is to be "commensurate with prevailing conditions in the market for funds". Similarly, the AER notes in its consultation paper "AER draft approach for measuring the debt risk premium for the Victorian Electricity Distribution Determinations" 27 September 2010, that under the National Electricity Rules (NER) it is "required to set the DRP with respect to the

Australian benchmark corporate bond". The AER goes on to say that its "Statement of Regulatory Intent (SORI) on the revised WACC parameters (distribution) published on 1 May 2009 adopted a credit rating of BBB+ and a maturity of 10 years for the benchmark corporate bond. Specifically, it is Clause 6.5.2(e) of the NER that requires the AER to make a market based determination of the DRP with its reference to "the observed annualised Australian benchmark corporate bond rate". And, in its final decision on the distribution determination 2011-2015 for the Victorian electricity distribution network service providers (DNSPs), October 2010, the AER agreed that the "estimation of DRP should be based on the 'Australian benchmark corporate bond rate".

However, this approach has been affected by a number of recent developments. AER is cognisant of a directive from the Australian Competition Tribunal (ACT), given in its decision on the related matter, ActewAGL (ACT 1 of 2010) handed down on 17 September 2010. The ACT primarily directed that AER should calculate the DRP by taking an average of the relevant market data provided by Bloomberg and the CBASpectrum corporate bond yield curves. Moreover, the ACT made the point that the market data (yield curves) used should be published, widely used and market respected. The ACT also encouraged the AER to investigate other ways to determine the DRP.

Since then the calculation and production of the CBA Spectrum corporate bond yield curves has ceased. The reasons variously given for this range from a lack of suitable data to problems with the methodology used to calculate the indices (this was noted by the Victorian DNSPs). A lack of data across the whole bond market seems implausible, while problems with the methodology seems more consistent with the observation of market participants that the yield curves did not appear to reflect market conditions as they were seeing them.

Bloomberg has also reduced the availability of some of its fair market indicators due to a lack of data, most notably its indicators for 'BBB' rated bonds beyond seven years. But it continues to produce its other fair market indicators with no complaints from market participants.

The AER has adapted its methodology for determining the DRP accordingly, and this is reflected in subsequent determinations made. In its December 2010 decision on the Victorian electricity DNSPs, the AER measured the DRP by combining the extrapolated Bloomberg BBB fair value yields with the yield on a BBB rated bond, maturing in 2020 issued by APT Pipelines. A weighting of 75% to 25% was used. More recently, in its draft decision on the APT Allgas access arrangement the AER used the same methodology but moved to a 50:50 weighting, and most recently has taken this approach again in its draft decision on the NT Gas access arrangement.

Prevailing conditions in the market for funds and the use of independent indices

1. *What are the appropriate methods to measure the cost of debt "commensurate with the prevailing conditions in the market for funds", particularly focusing on the use of independent indices?*

   A: An independent index has significant advantages in measuring the cost of debt in prevailing market conditions, including the averaging of the idiosyncratic risks attached to individual bonds. A complete view of prevailing market conditions is obtained and not a biased one.

In moving away from the regulatory requirement that consideration be given to market conditions and the use of a market benchmark – the Australian benchmark corporate bond rate - the AER seems to have taken the encouragement of the ACT to investigate other ways to determine the DRP, too literally. It would seem equally likely that the ACT was encouraging the AER to consider the use of other market indices or indicators and/or to find alternative methods of extrapolating Bloomberg's 'BBB' bond yield data out to 10 years.

The advantages of using market data

By discounting the Bloomberg fair market indicator and weighting against it an individual bond, the DRP is now being influenced by the many factors that influence the pricing of

one individual bond. The advantages of using market data as set out by ACT, that the data is published, widely used and market respected, is being lost. And as noted by CEG[1] the use of published fair value curves has the benefit of:

- the relative expertise of the publisher of the fair value curves
- the independence of the publishers from regulatory proceedings
- continuity of regulatory precedent.

It should also be noted that in the case of Bloomberg, its fair market indicators are applied on a consistent basis to bond markets around the world.

The AER has justified its approach on concerns over the reliability of the Bloomberg fair market indicators, given the problems encountered by CBASpectrum. Yet as noted above, market participants have expressed no such concerns.

The matter to be considered here is not the use of Bloomberg's BBB rated bond yield data per se, but rather the consideration of prevailing market conditions and how these might be reflected in independent indices, as opposed to in the price of an individual bond. Let's start by considering the components that make up the credit spread of a corporate bond. For the purpose of this consideration the credit spread will be defined as the difference between the yield of the corporate bond and the yield of the underlying risk free asset i.e. a government bond of the same maturity. The important point to recognise here is that the credit spread is not determined solely by the default risk of the corporate bond issuer (as reflected in the issuer's credit rating) and the term to maturity of the bond. There are a number of other components and indeed, these components are yet to be fully identified. Academic research is yet to completely explain how credit spreads are determined.

Components of corporate bond credit spreads and idiosyncratic risk

Nevertheless, there is a body of literature that examines the components of the credit spread applied to corporate bonds, with the earliest coming from Jones Mason & Rosenfeld (1984), Longstaff & Schwartz (1995), Duffie & Singleton (1997) and Duffee (1999) and others and more recently, Elton, Gruber, Agrawal & Mann (2001), Collin-

[1] Competition Economists Group, Use of the APT bond yield in establishing the NER cost of debt: A report for Victorian Distribution Businesses, 12 October 2010, p.7

Dufresne, Goldstein & Martin (2001), Longstaff, Mithal & Neis (2005), Amato & Remolona (2005), Chen, Lesmond & Wei (2007) and Plantin (2009). In the more recent literature, the starting point for much of the analysis has been to explain what is commonly referred to as the credit spread puzzle: why the spread (difference in yield) between a corporate bond and an equivalent risk free government bond is so much greater than that required to compensate for the expected loss given default on the corporate bond?

The more recent literature has broadly settled on the determinants of the credit spreads being[2]:

- the expected loss given the default of the issuer[3];
- the size of the coupon (the market distinguishes between high and low coupon bonds)
- the bid-ask spread (a measure of secondary market liquidity)
- the size of the bond issue (larger bond issues are more liquid)
- the term to maturity (shorter dated bonds are considered to have greater secondary market liquidity).
- industry sector (this relates to bonds issued by financial institutions which are considered to be more liquid than bonds issued by other issuers) and
- credit rating (bonds issued by highly rated issuers (AAA/AA) are more liquid than those issued by lower rated issuers (A/BBB).

Indeed, it can be seen that most of the components listed here are factors that affect the liquidity of a bond in the secondary market. In other words, there are numerous idiosyncratic risk factors that will determine the price of an individual bond in the secondary market[4]. The significant advantage of using a benchmark indicator or index for determining the cost of debt to be applied across an industry sector or sectors is that these idiosyncratic risks are averaged out – a complete view of prevailing market conditions is obtained and not a biased one.

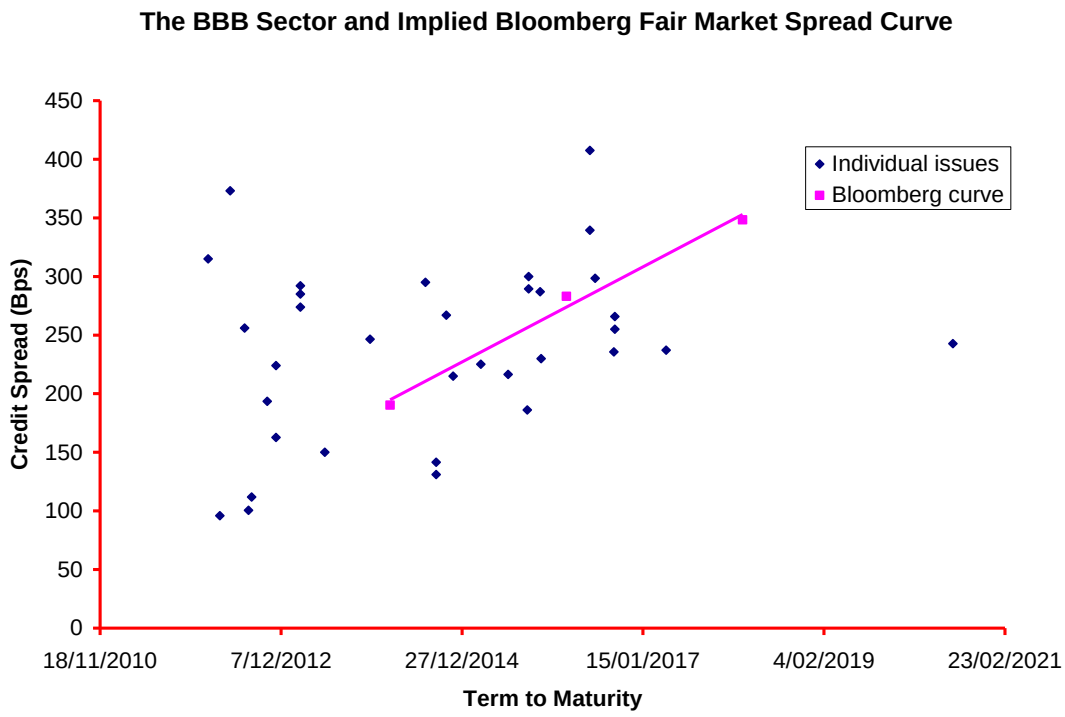
[2] Taxes are another determinant but have been excluded from consideration here, as all coupons are taxable.
[3] Expected loss given default is the product of the probability of default (reflected in the credit rating assigned to the issuer/bond) and the loss that would be incurred if default occurs.
[4] The expected price of a bond in the secondary market will have a significant bearing on the price paid on primary issuance.

Consideration should also be given to what the Australian market for 'BBB' rated corporate bonds looks like. This data can also allow consideration of the question of whether the Bloomberg fair market indicators for 'BBB' corporate bonds provide an accurate reflection of prevailing market conditions.

The BBB sector of the Australian corporate bond market

Using data sourced from Yieldbroker[5] and comprised of both fixed and floating rate bonds, the BBB sector of the market is graphically presented in Chart 1 below. Fixed and floating rate bonds have been used to provide a complete picture of the sector and while not completely interchangeable given varying investor preferences, the pricing of the bonds is typically compared by using the credit spread of the bond over the interest rate swap curve or the bank bill rate[6].

Chart 1: The BBB sector of the Australian corporate bond market



Source: Yieldbroker and Bloomberg

[5] Yieldbroker is a co-operative venture between leading debt market participants. It was established to provide the systems infrastructure, regulatory framework and compliance oversight necessary to facilitate the growth of orderly electronic marketplaces in Australian and New Zealand debt securities and derivatives.

[6] Many primary market bond issues are undertaken in two tranches: one fixed rate the other floating. The bonds will be sold at an identical credit spread over the relevant swap and bank bill rates. These spreads can differ slightly over time through secondary market trading.

The line shown in the chart is effectively the Bloomberg BBB Australian corporate bond yield curve. It is the credit spreads of the yield curve to swap that have been plotted, determined from Bloomberg's indicator yields for three, five and seven years[7]. The Bloomberg BBB Australian corporate bond spread curve appears consistent with the credit spreads of the bonds that make up the sector.

It should also be noted that the sector comprises bonds (often more than one) issued by[8]:

- Adelaide Bank
- APT Pipelines Ltd
- Bank of Queensland
- BBI (DBCT) Finance
- Brisbane Airports Corp
- Broadcast Australia Finance
- CLP Australia Finance
- Coles Myer Finance
- DBNGP Finance Co
- Dexus Finance
- Holcim Finance
- Leighton Finance
- Meridian Energy
- Mirvac Capital
- New Terminal Financing Co (Adelaide Airport)
- Santos Finance
- SLM Corp
- Snowy Hydro
- Southern Cross Airports
- Sydney Airport Corp
- United Energy Distribution
- Wesfarmers

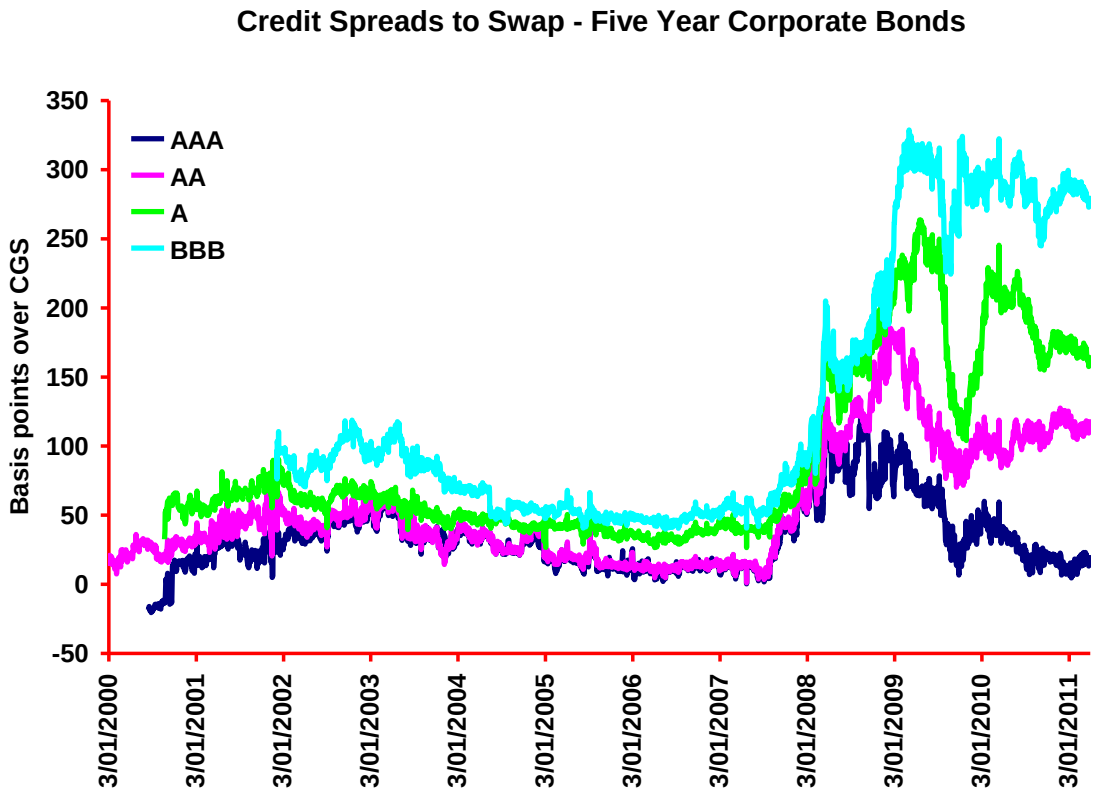
[7] Professor Handley's comments about Bloomberg fair market indicators being calculated from a par coupon yield curve are noted. Comments on the CEG Report: Estimating the 10 year BBB+ cost of debt, 10 February 2011. The difference is not considered significant for illustrative purposes.
[8] This is the sector as presented in Chart 1. The floating rate bonds and some of the longer dated bonds shown in the chart are not included in the Bloomberg BBB fair market indicators.

The bonds are all BBB rated, senior ranking (i.e. not subordinated obligations) and without call options, margin step-ups or price resets. Moreover, many of these issuers are regulated entities
and/or operate in related industry sectors to NT Gas. From this perspective, these issuers and the yields on their bonds provide an excellent picture of prevailing conditions in the market for funds.

Re-pricing of credit risk post-GFC

Furthermore, in its draft decision for NT Gas, the AER noted that it had compared the performance of Bloomberg's BBB fair market indicator with that of the S&P/ASX 200 Australian share market index. Contrary to a generally expected observation that the DRP should move inversely to equity market returns, the AER observed that Bloomberg's spreads had continued to increase with improving conditions in the equity market. "Indeed, the Bloomberg DRP was actually higher in December 2010 than at any time in recent history, including periods spanning the GFC."

Chart 2: Australian corporate bond spreads to swap by rating category



Source: The DCM Review, Australian & New Zealand Corporate Bond Markets Chartpack, March 31, 2011. Derived from Bloomberg data.

The accuracy of the observation is not disputed but an explanation for the cause is offered. Chart 2 illustrates the performance of the five year AAA, AA, A and BBB Australian credit curves expressed as a credit spread to the five year interest rate swap.

Some pertinent observations can be made from Chart 2. Firstly, since almost the start of the last decade, A rated and BBB rated corporate bond spreads have been at distinctly wider levels from the AAA and AA corporate bond spreads. This is consistent with the theory on the components of corporate bond spreads, as discussed above. Secondly, a clear relief rally can be seen in credit spreads in the second half of 2009. This is particularly evident in the A and BBB credit spreads and coincides with the sharp recovery in global equity markets at that time.

It should also be noted that the performance of the S&P/ASX 200 index has been flat through 2010, after the recovery in the second half of 2009, and has underperformed many of the major world equity indices (the S&P/ASX 200 finished 2010 2.6% lower, the US S&P500 index finished 2010 up by 12.8%). Thirdly, none of the corporate bond indices have returned to their pre-GFC levels. While the AAA index appears to have done so it hasn't, as is explained below. There has been a general and significant re-pricing of credit risk post the GFC. This follows from the pre-GFC period when, as it is now generally recognised, credit risk was severely underpriced.

The AAA corporate bond sector in fact provides an excellent illustration of the repricing of credit risk that has occurred. The Australian corporate bond market hosts many sovereign, supranational and agency (SSA) issuers. These issuers have become particularly prominent in the market since the GFC but were also active before. One such issuer is the AAA rated premier supranational, the International Bank for Reconstruction and Development, otherwise known as the World Bank. In October 2006, prior to the GFC, the World Bank issued a ten year bond in the domestic market at a spread of 32bps over the matching Commonwealth government bond. In September 2010, the bank issued another ten year bond, this time a spread of 66.75bps over the matching Commonwealth government bond. The difference may not seem like much in an absolute sense, but for a

borrower who by definition must be the epitome of risk free, its credit spread has more than doubled post the GFC.

The reason that the Bloomberg AAA yield indicator appears to be at pre-GFC levels is because the composition of the index has changed. Pre-GFC the index included all the bond issues that had been guaranteed by the then AAA rated monoline bond insurers. The subsequent demise of these insurers has seen their guaranteed bonds leave the AAA sector, as the credit ratings assigned to the bonds fell accordingly. Monoline insurer guaranteed bond issues typically priced at a credit spread of 20bps-30bps over the swap or bank bill rate, in the lead up to the GFC, regardless of the term to maturity. SSA issues during this period typically priced at around the same credit spread below the swap or bank bill rate.

Post the GFC, SSA issues are pricing at the same credit margins as the monoline insurer guaranteed issues did previously. This gives the impression that the Bloomberg AAA yield indicator has returned to pre-GFC levels, when in effect, credit risk in the AAA sector has been re-priced.

BBB sector volatile

Lastly to reiterate from the above section, there has been a significant re-pricing of credit risk post the GFC and this is most evident in the BBB sector of the corporate bond market, which is also a volatile sector. It suffers from a higher degree of illiquidity than other sectors as investor demand is more limited with some investment mandates cutting out at the A level. Other investors will also have investment mandates that cut out at the BBB-level and will try to exit bonds ahead of any deterioration below this rating level.

Moreover, as investor risk tolerances change it will be reflected in this sector first. When investors are looking for higher yields i.e. are risk seeking they will look in the BBB sector, when risk aversion sets in and investors seek higher rated bonds in a flight to quality, it is the BBB rated bonds that will be sold first. These changes in investor risk tolerance will be amplified by the generally smaller issue sizes of BBB rated bonds, which makes the bonds

relatively more illiquid than higher rated bonds – another credit spread component, as noted above.

The impact of this on the BBB corporate bond sector can be best illustrated by empirical research that has been undertaken on the US BBB corporate bond sector. Over the period from 1926 to the end of the last century, average credit spreads on BBB bonds ranged from just 50bps over US Treasury bonds to almost 800bps (Stulz, 2000). While this period does not include the GFC, it includes the Great Depression of the 1930s.

Thus with more limited investor demand, generally smaller issue sizes and fluctuating investor risk appetite, prevailing conditions in the market for funding will be reflected more in the BBB sector of the corporate bond market than elsewhere. Critically, the potential for volatility that exists within the BBB sector makes the use of an index to represent prevailing market conditions, the logical choice.

Using individual bonds to refine an index

2. *Would it be reasonable or appropriate to include bonds outside an index to "refine" the index? Specifically, would it be reasonable to weight an independent index with yield information of a particular bond issue?*

   A: …refinement of an index when even comparable bonds are selected can introduce bias by using those bonds considered to have desirable features and ignoring those that don't. If this is the purpose of the exercise, it must be considered unreasonable. Furthermore, to do so would dilute the benefit of intertemporal smoothing provided by the index in times of market disruption and volatility.

The idiosyncratic risk factors that attach to an individual bond have been discussed above. To recap, it is each of the individual components of the credit spread that will determine the final price of an individual bond in the secondary market. The significant advantage of using a benchmark indicator or index for determining the cost of debt to be applied across an industry sector or sectors is that these idiosyncratic risks are averaged out – a complete view of prevailing market conditions is obtained and not a biased one. Thus by

implication, if an index is "refined" by weighting the index with selected individual bonds that may or may not be incorporated in the index, the idiosyncratic features of those individual bonds are being introduced or reintroduced to effectively distort the index. As such, a biased view of market conditions will result.

Distortion effects

The AER has implicitly recognised this distorting effect in its consideration of various bonds that could be used to refine the Bloomberg BBB fair market indicator. In its consultation paper "AER draft approach for measuring the debt risk premium for the Victorian Electricity Distribution Determinations" 27 September 2010, the AER discusses the attractive and unattractive features of bonds issued by APT Pipelines, BBI(DBCT) Finance, SPI Australia Electricity & Gas, Telstra and Transurban Finance Company. Bonds issued by financial institutions, Bank of Queensland, Suncorp-Metway and Vero Insurance are also discussed.

The potential 'refinement' of the type contemplated here is almost sufficiently complete to render it meaningless: financial institutions being mixed with non-finance corporates, A rated issuers mixed with BBB rated issuers, and subordinated debt mixed with senior debt. Professor Handley in his paper, Comments on the CEG Report: Estimating the 10 year BBB+ cost of debt, 10 February 2011, prepared for the AER emphasises the importance of comparability as one of two key considerations in his opening comments.

To quote Professor Handley, "Whilst the exercise of professional judgement is required, important guidance comes from the principle of comparing "like-with-like". In other words, if other bonds are to be included then they should be included on a comparable basis otherwise the results from any subsequent analysis will not be meaningful."

Nevertheless, refinement of an index when even comparable bonds are selected can introduce bias by using those bonds considered to have desirable features and ignoring those that don't. If this is the purpose of the exercise, it must be considered unreasonable.

To further illustrate this point it is noted that the AER considered the pricing of 'comparable' bonds, with a remaining term to maturity of around ten years, in reaching its draft decision on the DRP for APT Allgas. The AER considered the recently issued APT Pipelines and Stockland Group bonds, rated BBB and A- respectively, and a bond issued by BBI(DBCT) Finance, originally with a guarantee from a then AAA rated monoline insurer but now rated BBB+. The AER opted to use the APT Pipelines bond to refine the index.

Moreover, in its latest draft decision on the DRP for NT Gas, the AER expanded the range of comparable bonds to include those issued by Brisbane Airport (BBB), Sydney Airport (two, also originally guaranteed by a AAA rated monoline insurer, now rated BBB) and SP AusNet (A-). Again, the bonds have remaining terms to maturity of around ten years, credit ratings close to BBB and the AER opted to use only the APT Pipelines bond to refine the index.

With each of these 'comparable' bonds the AER highlighted the yield gap between the bonds and the extrapolated ten year Bloomberg fair value estimate, with the yields on the bonds being lower (except in the case of the BBI(DBCT) Finance bond). This observation brings into question the reliability of the Bloomberg fair value estimate but misses another significant benefit that comes from using an independent index – intertemporal smoothing of market volatility.

Before exploring the concept and benefits of intertemporal smoothing further, a warning needs to be given in relation to the SP AusNet and Brisbane Airport bonds. Both are new to the market, from the end of March. As such, there will be typically be little depth in secondary market pricing with only the arrangers of a new issue making a market in the issue until other market makers pick-it up on their rate sheets.

The time taken for other market makers to be prepared to offer two-way quotes can vary considerably from issue to issue, with determining factors being any market price support being provided by the arrangers, the size of the issue and the number of initial investors (i.e. potential liquidity – neither issue was large at $250 million and $200 million, respectively) and the level of demand from investors that missed the primary issuance.

Moreover, market makers will need to work through their own internal processes to establish dealing limits for the new bonds. New issues will not be included in bond indices until there are a sufficient number of maker makers providing two-way quotes on the bonds.

Intertemporal smoothing of market volatility

Using data from all domestic five year bond issuance by A and BBB rated Australian companies (excluding financial institutions) during and post the GFC and Bloomberg fair value estimates for such issues, Chart 3 illustrates the effect of intertemporal smoothing[9]. Chart 3 presents the data in terms of the credit spread to the five year swap rate in basis points.

Severe price volatility in financial markets was a feature of the GFC, so much so that there was no domestic bond issuance by A and BBB rated Australian companies at all in 2008, as Chart 3 reveals.

Yet the Bloomberg fair value estimates for such issues steadily widened, reflecting changing secondary market values for existing bonds, and thereby providing a continuing measure of the cost of debt in prevailing market conditions.

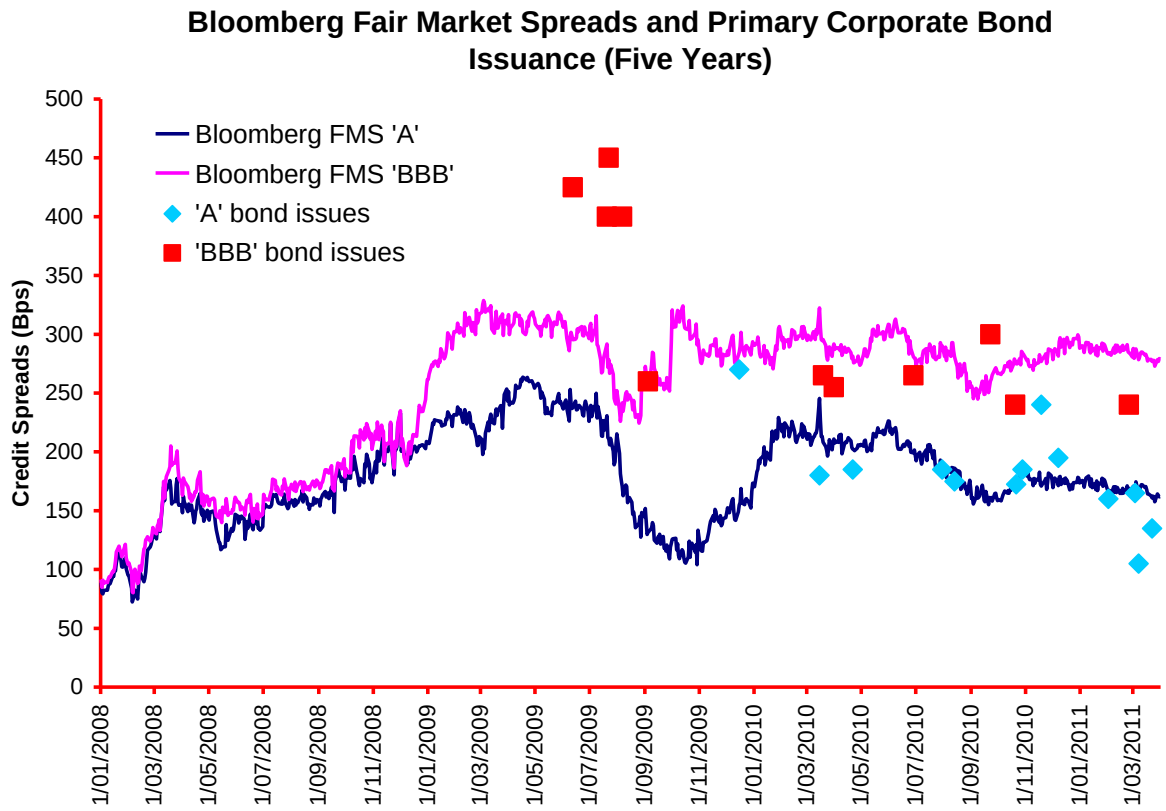
Moreover, when bond issuance resumed in 2009, the pricing of the new bonds was well wide of (i.e well above) the Bloomberg fair value estimates, particularly for BBB rated issues. Thus the Bloomberg fair value estimates provided a moderate estimate of prevailing market conditions at that time.

However, as primary market pricing levels contracted quickly in 2010, most new bond issues were priced at levels below the Bloomberg fair market estimates, as the estimates reflected pricing levels across all bond issues. In this way, the index effects an intertemporal smoothing of any volatility in the market pricing of individual bond issues. Over time, as this volatility dissipates, the Bloomberg fair market estimates can be

[9] Five year data is used because of its ready availability. Otherwise, it is intended to be purely illustrative.

expected to more closely reflect the pricing of individual bonds but as with any index there will be bonds priced above and below.

Chart 3: Volatility of bond pricing and intertemporal smoothing[10]



Source: ADCM Services, Bloomberg

Indicators of credit conditions

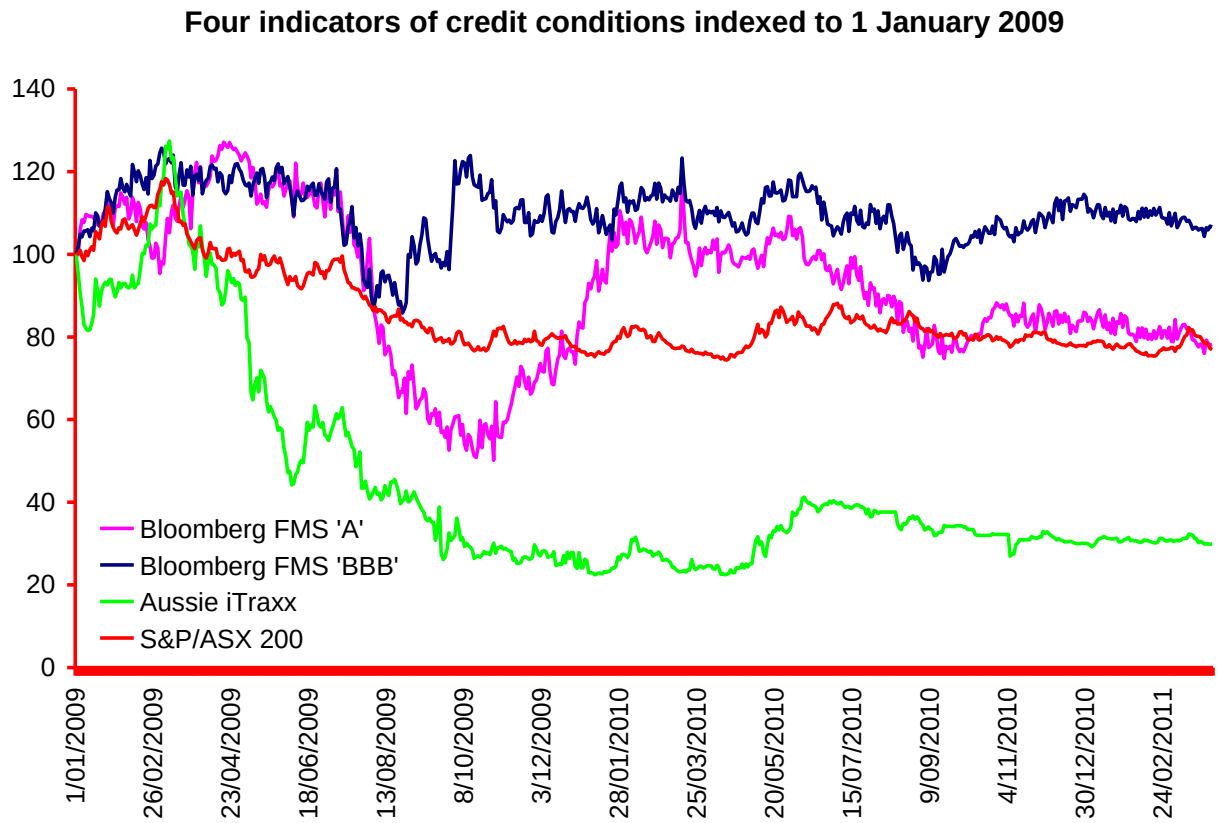
The intertemporal smoothing provided by an index will also affect the performance of the index relative to other measures of credit risk that may exist. The selection of start and end dates for measuring any relative performance is always critical and often subjective. So two examples will be given of the relative performance of the A and BBB Bloomberg fair value estimates compared with the S&P/ASX 200 equity index and the Markit (Aussie) iTraxx index for five year CDS spreads for Australian companies, covering the period from the start of 2009 and 2010 through to the end of March 2011[11].

[10] In chronological order the A rated issuers were: Stockland; Transurban; AMP Shopping Centre Fund; SPI (Australia) Assets; Melbourne Airport; CFS Retail Property Trust; Dexus Wholesale Property Fund; Stockland; Stockland; CFS Retail Property Trust; Commonwealth Property Office Fund; Woolworths and ETSA Utilities. The BBB rated issuers were: Tabcorp; Leighton; Dexus Property Group; Leighton; Wesfarmers; Mirvac; Adelaide Airport; Sydney Airport; DBNGP; Adelaide Airport; and Mirvac.

[11] Five year fair market estimates are used for comparison with five year CDS spreads.
Markit is a global financial information and services business providing a wide range of data, valuation and trade processing products and services across multiple asset classes. The index, in this case, reflects price movements

The change in the indicators is indexed to 100 at the start date of each period and the inverse of movements in the S&P/ASX 200 index is used for ease of comparison. Thus improving conditions as reflected by each of the indicators is measured by the decline in each indicator below 100.

Chart 4: The comparative performance of four indicators of credit conditions indexed to 1 January 2009



Source: ADCM Services, Bloomberg

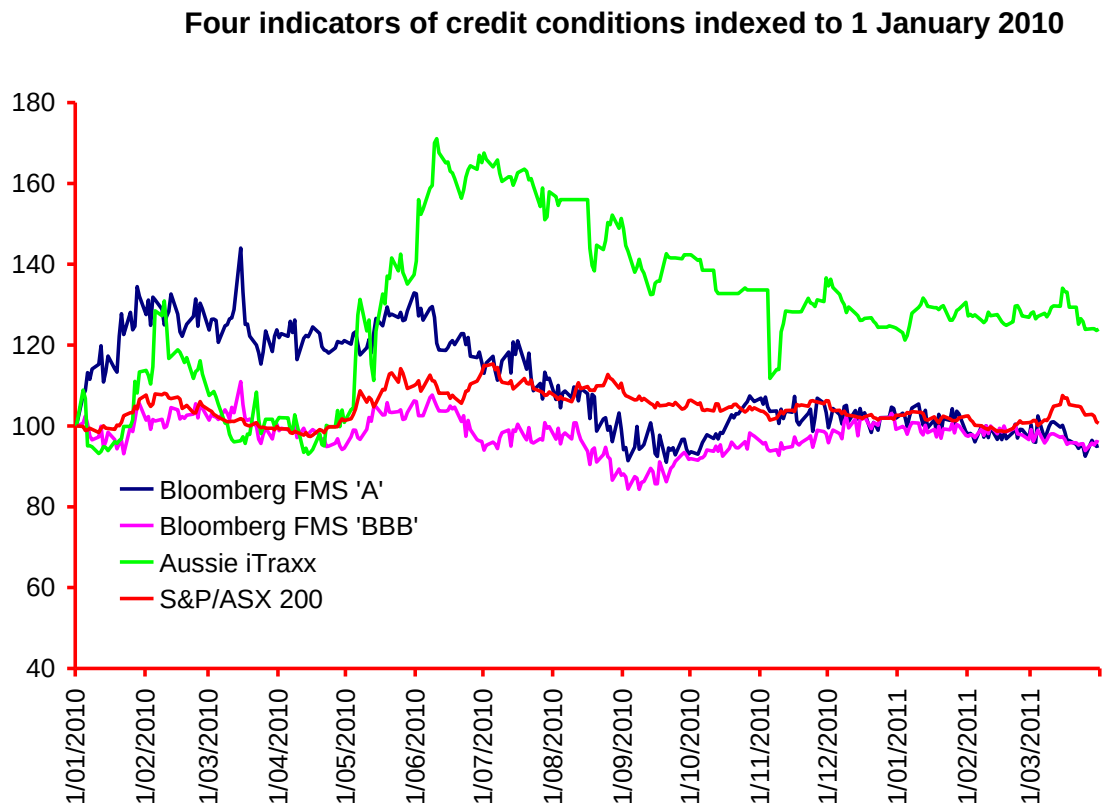
Chart 4 shows that over the period from the start of 2009 to the end of March 2011 the 'Aussie' iTraxx index exhibited the strongest relative performance with a 70% contraction, suggesting a rapid and significant improvement in credit conditions. That said, it started the period at 349 basis points and was yet to reach its peak of 444bps in March 2009. The S&P/ASX 200 equity index and the Bloomberg fair market spread for A rated bonds

in the CDS of the 25 most frequently traded companies. The Bloomberg generic version of the index is used for data continuity.

experienced a 23% and 22% improvement in performance over the period, while Bloomberg fair market spread for BBB rated bonds deteriorated by almost 7%.

Starkly illustrating the critical nature of time period selection, Chart 5 highlights the recent underperformance of the Aussie iTraxx index. Over this more recent period the index has widened by 24%. Similarly the performance of the S&P/ASX 200 equity index has been exactly flat. On the other hand, the Bloomberg fair market spreads for both A and BBB rated bonds have improved (contracted) by 5% and 4%, respectively.

Chart 5: The comparative performance of four indicators of credit conditions indexed to 1 January 2010



Source: ADCM Services, Bloomberg

To round out this discussion of prevailing conditions in credit markets it is noted that over the same period in which the recent deterioration of the Aussie iTraxx index is observed, the credit spreads paid by the four largest Australian banks on their five year domestic bond issuance, widened from 97.5bps to 114bps.[12]

[12] These are interpolated measures calculated from issuance in December 2009 and February 2010 and December 2010 and May 2011, respectively.

Clearly, prevailing market conditions for the largest Australian banks have deteriorated in recent times and are reflective of the observed performance of the Aussie iTraxx index over the same period. Indeed, it cannot be said that there has been a steady and generalised improvement in credit conditions since the end of the GFC – sectoral differences are apparent.

From the foregoing, no evidence has been found that would lead to the conclusion that it would be reasonable to "refine" an index through the inclusion of bonds from outside the index or through giving added weighting to bonds within the index. As has been observed, to do so would introduce bias and would dilute the benefit of intertemporal smoothing provided by the index in times of market disruption and volatility.

Furthermore, consideration of the relative performance of the Bloomberg fair market estimates for five year, A and BBB rated bonds has not revealed any underperformance relative to other indicators of prevailing conditions in credit market. Indeed, comparisons against the more 'immediate' indicators - the S&P/ASX 200 equity index, the Aussie iTraxx index and the credit spreads paid by the four major banks on their more recent five year bond issues – underlines the benefit of the intertemporal smoothing provided by using an "unrefined" index.

The reasonableness of using the APT 2020 bond

3. *In particular, would it be reasonable or appropriate to use the APT 2020 bond to determine the "cost of debt commensurate with the market for funds" in determining a benchmark cost of debt to be applied to NT Gas in the present case, and other APA Group businesses as similar reviews take place on other APA Group assets?*

   A: It would not be reasonable to use the APT 2020 bond. The result will be a biased estimate that is not representative of the market or the individual risk profiles of other APA Group businesses.

For the reasons set out in answer to question 2 above, it is again not reasonable to use the APT 2020 bond to determine the "cost of debt commensurate with the market for funds". The result will be a biased estimate that is not representative of the market overall, reflecting the particular idiosyncratic risks of the APA Group and the current pricing distortion that exists in the primary market for corporate bonds.

Indeed, the APT 2020 bond is an example of a rare bond that broke new ground with investors, when issued in July 2010. The issue was reported at the time in the market newsletter, The DCM Review, as follows[13]:

APA Group opens eyes

*As for events that may be more significant for the longer term development of the market, the bond issue by **APA Group** via its financing subsidiary APT Pipelines Ltd., opened the eyes of many potential corporate issuers. Until now these potential issuers had little confidence in the market as viable source of medium to long term debt and would have gone straight to the US markets.*

Perhaps they will now reconsider.

The deal sets a new record as being the first ten year bond issued by a 'BBB' rated issuer. Snowy Hydro (then BBB+) issued ten year bonds in 2003 and Southcorp (then BBB+) was the first to do so in 2000.

The deal is one of only six bond issues with a term to maturity of ten years or more, made this year, and Telstra is the only other non-financial institution issuer to do so. It is also one of only seven 'BBB' category issuers this year.

An examination of this group of issuers reveals an interesting pricing comparison. Dexus Property Group issued A$180 million of bonds for seven years in April (before the recent troubles in financial markets broke out), priced at 270bps over swap. Against this, the pricing of APA Group's issue at 240bps over, looks sensational, being rated one notch lower and with a term to maturity three years longer.

The unusual and rare nature of the bond was recognised in subsequent industry awards from KangaNews and FinanceAsia at the end of 2010[14].

It is also not reasonable that the bond be used to determine the "cost of debt commensurate with the market for funds" for other APA Group businesses, as similar reviews take place on other APA Group assets. The bond was issued by APT Pipelines

[13] The DCM Review 19 July 2010
[14] KangaNews Volume 5, Issue 46, FinanceAsia.com Achievement Awards 2010

Limited, as the funding vehicle for APA Group and guaranteed by APA Group. The bond therefore reflects the idiosyncratic risks of the group as a whole.

The consolidated group presents a combining and/or averaging of the risks of the individual businesses within the group, factors that would have been taken into account when Standard & Poor's Australia assigned a long term credit rating of BBB to the group. The range of business undertaken within a group or to be more precise, the degree of diversification of business risks that exists within a group (including geographic and capital risks), is a significant consideration when assigning a credit rating.

All other things being equal, the greater the degree of beneficial diversification, the higher the credit rating that will be assigned. Thus the individual businesses within the APA Group will not have the same credit risk profile as the group as a whole. The DRP that applies to the APT 2020 bond would not necessarily apply to the individual APT businesses.

Declaration

I, Philip Bayley, have read and considered the Federal Court Guidelines on Expert Witnesses. I have made all inquiries that I believe are desirable and appropriate to answer the questions put to me. No matters of significance that I regard as relevant have to my knowledge been withheld.

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Resume of Philip Bayley

May 2011

Academic qualifications

PhD student, Monash University, researching "The failure of Australia's debt capital market to fulfil its potential" 2009 -

Master of Business Administration, University of Melbourne 1986 – 1988

- Awarded the HJ Heinz Scholarship, Melbourne Business School 1988

Bachelor of Business (Banking and Finance), Monash University
(formerly Chisholm Institute of Technology) 1979 – 1982

Academic work in progress

Determinants of Demand for Corporate Bonds or Syndicated Loans – An Australian Study

Teaching

Financial markets and long term funding - AFF5230, Master of Applied Finance program, Monash University 2011 -

Professional experience

Director Australia Ratings 2010 –

Principal ADCM Services and publisher of The DCM Review 2008 –

Contributing Editor, Banking Day 2008 – 2010

Director Capital Markets, Standard & Poor's Australia 2005 – 2008

Head of Fixed Interest Credit Research, National Australia Bank 2000 – 2005

Westpac Banking Corporation 1989 – 1999

Last roles included: Head of Research, Senior Manager Credit – London office

Professional qualifications

Fellow, Financial Services Institute of Australia (Finsia)

ASIC Accredited Rating Analyst

AFMA accredited to work in the Australian financial markets

Expert opinions provided

Estimating the debt risk premium – Prepared for APT Allgas Energy Pty Ltd March 2011