Key contentions on WACC components of ACCC MSP decision

A report to East Australian Pipeline Limited from the Network Economics Consulting Group

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1 Introduction

East Australian Pipeline Limited (EAPL) has sought NECG's views on issues emerging from the Final Decision of the Australian Competition and Consumer Commission in respect of the access arrangements for the Moomba to Sydney pipeline. This paper sets out our concerns with the allowances for the cost of capital contained in the ACCC's Final Decision in respect the East Australian Pipeline Limited (EAPL) Access Arrangement for the Moomba to Sydney Pipeline System.

Based on the positions set out in this document, we believe the ACCC's decision on MSP is deficient in the following areas:

- risk free rate – the ACCC should base the risk free rate on the yield to maturity of the 10-year Commonwealth bond (that is 5.52%);
- cost of debt – the debt margin for MSP should be determined on the basis of a credit rating of BBB. In addition, the costs of debt issuance should be reflected in the WACC or regulated cash flows. Our estimate is that an appropriate allowance is up to 50 basis points on the cost of debt. We believe that it is therefore appropriate that:
  - the cost of debt be increased by 25 basis points;
  - the debt issuance costs be increased by 50 basis points being reflected in an additional expenditure of $2.27 per annum;
- cost of equity issuance – the decision should reflect the cost of equity issuance. Our estimate is that an appropriate allowance is at least 39.7 basis points on the cost of equity. This translates into an increase in expenditure of $1.20 million per annum; and
- asymmetric risk – the decision should reflect various asymmetric risks faced by MSP. We estimate that allowance for asymmetric risk equates with a cash flow allowance of $1.5 million per annum.

The following sections address these concerns in turn.

2 Risk free rate – bond maturity

The ACCC has based the bond maturity for the risk free rate on the length of the regulatory period. It has done this for the estimation of the cost of debt and the cost of equity. In our view this is wrong. For reasons we will explain below, we believe the risk free rate for both estimations should be based on the yield to maturity of the longest traded bond, namely the 10-year Commonwealth bond.

With the exception of the ACCC, there has been universal adoption of the 10-year bond by regulators in pricing decisions in Australia. This practice is seen as uncontentious by these other regulators.

In reaching its position, the key argument relied upon by the ACCC is that under the Code, the total revenue and tariffs for a pipeline are reviewed every access arrangement period, and hence an investor does not need to be compensated for risk longer than that period. In making this point, the ACCC notes a paper it commissioned by Associate Professor Martin Lally [footnote 221, p117].[1]

In the following section, we will first review this paper, and other arguments put forward by the ACCC in support of basing the bond maturity on the length of the regulatory period.

Paper by Associate Professor Martin Lally

In his paper for the ACCC, Associate Professor Martin Lally argued that the ACCC's approach to the risk free rate was correct.

Associate Professor Lally reached his conclusions from developing a regulatory model under which "the only source of uncertainty is in future real interest rates."[2] In this model, it is

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1 M. Lally, Determining the risk free rate for regulated companies, prepared for the Australian Competition and Consumer Commission, August 2002.

2 Ibid, p5.

optimal for the business to finance its debt based on maturity equivalent to the duration of the regulatory period, given that by structuring its debt on this basis, the *ex-ante* value of future cash flows to the business matches the initial capital investment.[3]

In his example, because the optimal setting of debt maturity for the regulated company is to align with the regulatory cycle, it is appropriate for the regulator to set the maturity of the risk free rate in the CAPM and WACC to align with the regulatory cycle. It is important to note that it is the interest rate certainty over the regulatory period that drives the optimal decision on maturity of debt for the company, not the amount of the rate or how the rate is set.

However, the regulated environment described by Associate Professor Lally is extreme. Although he makes no attempt to relate his set of assumptions to an actual regulatory environment, at best it would be consistent with very strict rate of return regulation – in that businesses exactly earn the WACC set by the regulator. This is due to his assumptions that:

- output that will be sold is known with certainty;
- there is no uncertainty over operating costs;
- there is no regulatory risk;[4] and
- the only risk facing the business is the impact of interest rate fluctuations on output prices.

However, his assumed regulatory arrangements ensure that the regulated entity is not exposed to interest rate risk given that changes in interest rates are used to adjust final product prices, ensuring that the business earns exactly the WACC.

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[3] For this result to hold there must be minimal transactions costs of refinancing debt at each regulatory period. If these costs are non-trivial his result will not hold.

[4] Associate Professor Lally does not state this assumption, but it is necessary to his analysis. The regulated firm must have certainty that the regulatory regime will be stable for the life of the assets.

It is important to note that Associate Professor Lally's results will generally not hold if his key assumptions are relaxed to be more in accord with the real world.

Where final demand is uncertain or operating costs can vary it can no longer be concluded that the *ex-ante* returns to the business will equal *ex-post* returns with certainty simply by structuring debt to mature at the expiry of the regulatory period. If uncertainty over costs and regulatory risk is introduced his results do not hold. To highlight this issue, consider regulatory risk – it is apparent that no regulatory system in Australia is capable of delivering the regulatory certainty assumed by Associate Professor Lally.

As Associate Professor Lally's results will then not hold by definition, the question becomes one of determining which bond maturity should best be used in setting the appropriate regulatory WACC.

Regulatory decisions should not change commercial decision making which would otherwise be efficient and socially desirable outcomes in an unregulated environment – rather, regulatory decisions should be consistent with those outcomes. Accordingly, regulatory decisions should not distort financing decisions away from those that would otherwise be most efficient. Assuming that a company can have a lower cost of capital by structuring its debt based on a bond maturity approximating the regulatory period implies that there are arbitrage opportunities available with regulated businesses that do not structure debt in such a way.

This seems unlikely and analogous situations can be drawn from other markets. Consider the case of an electricity generator, who is faced with a decision whether or not to use contracts to cover their exposure to the electricity spot market. The generator could either sell at the spot rate or buy some insurance and sell on a long-term basis. In equilibrium, the value of these options should be equal. The company could not 'save' by substituting one of these options relative to the other, assuming the markets in which their relative prices are determined are efficient.

Moreover, for a business such as an electricity generator, price sensitivity or the frequency of re-set bears no necessary correspondence to financing structures for such capital intensive assets, notwithstanding the fact that there is no doubt that interest rates over time will, for example, affect bids into the market.

In this light the view expressed by Associate Professor Lally and the ACCC - that setting the bond rate on the length of the review period can lower the cost of capital to the business - is

unrealistic. If regular (5-yearly) reviews lower the cost of capital relative to, say, 10 yearly reviews, then the logical conclusion has to be that the cost of capital should be set daily based on the overnight rate. Indeed, in our view, more frequent regulatory reviews do not lower the cost of capital – the real impact of more frequent regulatory reviews is to increase the cost of capital on account of increased regulatory risk. In other words, the impact of more frequent reviews on the WACC for a regulated business is in precisely the opposite direction suggested by Associate Professor Lally.

What is ignored by the ACCC's and Lally's view is that the regular reviewing of investment does not alter the fact that the asset in question is long-term in nature. It is the investment in long-term assets that is being remunerated by the regulatory rate of return. As noted by Hathaway:

> Imagine you were running a 10-year bond portfolio and every 30 days you valued that portfolio. You would go to the market and use the prevailing 10-year bond rate. You certainly would not use the prevailing short rate to value that bond portfolio. So the interest rate you use has got nothing to do with the review period; the rate you use is the rate consistent with the life of the asset and particularly the risk in your equity risk premium. Anything else gives you an inconsistency.[5]

Moreover, applying Associate Professor Lally's approach will distort economic and commercial decision-making leading to losses in productive and allocative efficiency. Consider for example the trade-offs between operating and capital expenditure. Suppose that the regulated transmission business is considering undertaking capital expenditure on an asset with a life of 10 years, which is expected to reduce operating costs over that same 10-year period. Assume also that the regulatory period is one year.

If the investment decision is based on the one-year bond, then there will be stronger incentives to invest in the capital asset (and disincentives to undertake operating expenditure) than would be the case if the ten-year bond is adopted as the discount rate.

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[5] N. Hathaway, Transcript of Public Forum held by ACCC and ORG on the Weighted Average Cost of Capital in the Victorian Gas Access Arrangements, 3 July 1998, p80.

This would distort the investment decision compared to the unregulated environment – where the company would base its decision on its (higher) cost of capital. This implies that a regulated business can base its investment decisions on a lower cost of capital than unregulated businesses. However, irrespective of regulatory practice, a firm's cost of capital remains the opportunity cost associated with investments in long term assets and its decision-making will be determined accordingly. In other words, if a regulator adopts a WACC below the regulated businesses' cost of capital, the result will be that the regulated business will simply not undertake socially desirable investments. Short-term gains for consumers from lower prices will be quickly consumed by higher costs from congestion that is suffered through a lack of investment.

Additionally, Associate Professor Lally's model – and the ACCC's own claims - fails to consider the full nature of the CPI adjustment that forms an essential component in any revenue cap arrangement (and indeed in any regulatory arrangement). Not only is there a revisiting of prices annually on account of under- and overs provisions under a revenue cap, but also the CPI adjustment provides an imperfect hedge against a range of movements, including inflation. Even leaving aside time lags in applying inflation to regulated prices, inflationary expectations are not fully reflected in interest rates such that the CPI adjustment does not provide a perfect hedge against the inflationary expectation component in the interest rates.

Regulated businesses face an inflation risk that is not addressed in Associate Professor Lally's model. Assume a regulated business secures debt funding as suggested by Associate Professor Lally – the interest rate at the time of the decision will be based on inflationary expectations. The CPI adjustment compensates the regulated business for actual inflation. Hence there is inflation risk that is not recognised in Associate Professor Lally's model. Moreover, inflation adjustments are undertaken on an annual basis rather than length of the regulatory period highlighting the gap between Associate Professor Lally's model and established regulatory practice.

Given that there may be a large number of regulatory reviews and changes in regulators over the life of an asset, an investor cannot be confident that the regulatory framework will be unchanging. Even if all of Associate Professor Lally's other assumptions are met, as the regulatory uncertainty increases, the business will be less willing to structure its debt based on the regulatory period and will rationally revert to standard commercial practice of matching debt maturity with asset life.

No regulatory environment in Australia corresponds to that described by Associate Professor Lally. Standard commercial practice is to match the term of the risk free rate with the life of the asset – after all this is the most important economic decision being driven by the choice of the risk free rate. Once we enter a world where investment in long-term assets is not a riskless activity it is critical to consider the opportunity cost of the investment and the fact that investors are financing a long-term investment for which the majority of the value is in future regulatory periods. By suggesting that businesses should shift away from standard business practice may have important implications for investment, particularly if it shifts the focus away from long-term investment, a point noted by the Productivity Commission:

> "Given that precision is not possible, access arrangements should encourage regulators to lean more towards facilitating investment than short term consumption of services when setting terms and conditions."[6]

The appropriate estimation of the risk free rate in WACC

In our opinion, regulation should seek to achieve efficient outcomes, including providing incentives for the efficient operations. In estimating WACC, that will generally involve setting parameters that reflect what an efficient company would choose to do.

The estimation of WACC generally requires the estimation of the risk free rate of interest for two purposes. The cost of equity is estimated using the CAPM, and the risk free rate appears in that model in two places. The cost of debt can rarely be estimated directly, so the standard procedure is to estimate it as the sum of the risk free rate, a debt risk premium and the cost of debt issuance. The risk free rate used in the estimation of the cost of equity need not be the same as the risk free rate used in the estimation of the cost of debt.

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6 Productivity Commission (2001), *Review of the National Access Regime*, Position Paper, Canberra, March, page XXII.

In relation to corporate financial management and decision-making, the time frame is virtually always assumed to be long-term. Shapiro and Balbirer make this point[7]:

> *"As a time-honored guide to setting financial policy, the matching strategy is based on the idea that firms should match the maturity of the fund source with the maturity of the asset being financed."*

The basic idea in setting the risk free rate for the cost of equity is that the appropriate horizon for equity is the life cycle of the assets of the business. The value of the company will be determined by the present value of its long-term expected cash flows. Therefore, even investors who plan to have short holding periods for their investment should have a long-term perspective on the company as that will be fundamental to its value in the short-term as well. For MSP, the average remaining life of its property, plant and equipment is approximately 50 years.

The well-established convention in Australia is to base the assumed maturity of the risk free rate in the CAPM on the life of the assets. Therefore, it would be appropriate to measure the risk free rate in estimating the cost of equity capital using 50-year government bonds.

A difficulty is that market yields on 50-year government bonds are not available. Furthermore, even if the 50-year yields were available, it would then be necessary to use a MRP based upon a 50-year risk free rate. As will be discussed below, as long as the maturity of the risk free rate is consistent within the CAPM and the beta is not appreciably different from one, the impact of using 10 years rather than 50 years will be nominal, particularly given that the yield curve is generally fairly flat at those maturities.

Accordingly, in our opinion the risk free rate used in the cost of equity should be based upon a 10-year maturity, and the rate used should be consistent in both places it appears in the CAPM.

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7 A. Shapiro and S. Balbirer, 2000, "Modern Corporate Finance," Prentice-Hall: Upper Saddle River, New Jersey), p 84.

The role of the risk free rate in estimating the cost of debt is fundamentally different to its role in estimating the cost of equity capital. The appropriate maturity for the risk free rate in this context is determined by the appropriate maturity of the company's debt.

Because what we are estimating is the yield on the company's debt, the first step should be to determine how a prudent and efficient company would structure its debt. Each company must determine its appropriate capital structure. When the company's management makes the capital structure decision, it should seek to maximise the value of the firm with its choice. That is, it should seek the best possible (i.e., optimal) capital structure for the company. In addition to the mix of debt and equity, the company will need to decide on the structure of its debt capital. One of the most important decisions in relation to the debt capital is the maturity of the debt, i.e., how long until the debt has to be repaid.

In a competitive environment, a company investing in long-lived assets, such as plant and equipment, will generally finance those assets with debt of maturities similar to the life of the assets. This allows the company to service its debt from the revenue generated by the assets without being exposed to uncertainty about the availability of financing at current credit terms and conditions. If the maturity of the debt was shorter, the company would bear the risk that it would be unable to repay the debt at the end of the loan or that it would be unable to refinance on similar terms due to factors such as changes in its credit rating, changes in the economic climate, changes in expectations on the company's future cash flows and increasing competition.

Brigham and Gapenski discuss the maturity issue and conclude as follows[8]:

> ***"For all these reasons, the best all-around financing strategy is to match debt maturities with asset maturities****. In recognition of this fact, firms generally do place great emphasis on maturity matching, and this factor often dominates the debt portion of the financing decision."* (emphasis is in the original text)

[8] E. Brigham and L. Gapenski, 1996, "Intermediate Financial Management" (5th ed), The Dryden Press: Fort Worth, p 544.

The difficulty with the treatment of the issue by the ACCC is that the perspective they adopt confuses two separate issues that are faced by a company: the maturity of its debt and its resets of the interest rate on that debt.

A company should choose the maturity of debt to manage the re-contracting risk that it faces. If it finances with a short maturity that is favoured by ACCC and Lally, it then faces the re-contracting risk of having to renew its financing at the end of the regulatory period. The company avoids that risk by choosing a long-term maturity. Then the company is secure in knowing that its financing needs are in place. This is consistent with the standard commercial and academic arguments to support long maturities.

The decision on debt maturity addresses the issue of re-contracting risk. The issue of interest rate risk also must be addressed.

Although it is standard commercial practice to have the maturity of debt equal to the average life of a company's assets, it is also not unusual for firms to have some form of variability in the interest rates on its debt. This can take many different forms, but the basic feature is that the interest rate on the debt is reset periodically according to some contractually specified protocol.

Why would a company want to have a variable interest rate on its debt? The obvious answer is to reduce its interest rate risk by having the cost of its debt move when changes in interest rates in the economy feed through to having an impact on the company's net revenues.

In our opinion, a company should have interest rate resets in its debt based upon the impact of changes in the prevailing interest rates on its net revenues.

From the above discussion on optimal structuring of debt, we reach three conclusions on how the risk free rate for the cost of debt should be estimated in a regulatory setting.

- The maturity of the risk free rate should be set to approximate the duration[9] of the average (in this case, remaining) life of the relevant revenue generating assets.

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[9] Duration is a measure developed for bonds that recognises this amortisation of the principal. The same concept can be applied to assets, and the duration of an asset will generally be

- The interest rate on the debt should be set to reflect optimal interest rate resetting for the company, given the sensitivity of its net revenues to changes in interest rates.
- The interest rate should be adjusted to reflect all of the costs that are prudently incurred by the company in adjusting its interest rates.

The average remaining life of MSP's assets is about 50 years. The duration of the assets is then approximately 25 years. This is the appropriate maturity for the risk free rate used in estimating the cost of debt capital.

To illustrate how a company might approach the resetting process, assume a gas transmission company determined that its optimal debt was 50-year maturity with interest rate resets every five years. The suggested financing procedure for the company would then be to borrow for a 50-year maturity at the best available fixed rate. It would then enter into transactions such as swaps to convert that interest rate structure from fixed to floating rate. It would then immediately transact again to achieve a 5-year fixed rate. Furthermore, at the starting point when it sets its interest rate for the first 5 years, it would also have to contract to ensure that at the end of each subsequent five-year period, it would be able to reset its interest rate for the next five year period on the same credit terms and conditions that would apply at the start point. Having done that, it would have to complete the interest rate resetting at the start of each of the remaining 5-year periods.

We have not undertaken a study of the costs of these transactions. However, it is our view that the total cost of these transactions based upon a 50-year maturity, setting aside debt issuance costs as a separate item, would be well in excess of the prevailing yield on 5-year government bonds. What is absolutely clear is that using the yield on 5-year government bonds to estimate the risk free rate at this time will under estimate the appropriate rate.

Therefore, until further study is possible, we recommend that the risk free rate for estimating the cost of debt capital be estimated as the yield on 10-year government bonds. This is

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roughly half its useful life. In a typical case the debt may have the same life as the assets with both being consumed/paid over that life such that their durations are also roughly equal.

standard commercial practice and is also the position taken by all regulators in Australia other than ACCC.

Other arguments put forward by the ACCC

The ACCC has also argued that adopting the length of the regulatory period for the maturity of the risk free rate is appropriate as:

- it minimises expectation errors and is appropriate for the single period nature of the CAPM; and
- there is no need for consistency in the estimation basis of the risk free rate and market risk premium.

NECG does not agree with the ACCC's position on either of these points.

The expected returns of asset owners will only correspond to 'estimated rates' where it is efficient to alter financing to be consistent with the regulatory decision. Given the transaction costs in re-issuing debt and the long-lived nature of infrastructure assets, short-term financing is likely to increase the overall costs to the company.

In addition, although it is correct that the CAPM is a single-period model, the model provides no guidance on the appropriate length of that period. There is nothing in CAPM that supports using the regulatory period. A longer period is supported by the observation that for many regulated businesses, up to three-quarters of the Net Present Value (NPV) is in future regulatory periods, namely the terminal valuation in an NPV calculation of regulated revenue streams.

In adopting the length of the regulatory period as the proxy for the bond maturity, the ACCC is basing the risk free rate on a different time variable than the MRP, for which estimates are based on the 10-year bond. In his paper written for the ACCC, Associate Professor Lally claims that it is perfectly reasonable for the risk free rate to be set on a different basis to other variables in the CAPM, notably the market risk premium. He concludes:

> Thus the claim that the risk free rate used to determine the market risk premium must be consistently applied throughout the CAPM valuation formula is false.[10]

Lally does not actually present the CAPM in his paper, nor does he present his model that has two different risk free rates as an equation. However, it is absolutely clear that whatever model he is proposing, it is not the CAPM. This can be illustrated with a simple example. To allow the possibility of the risk free rates being different, I will denote the first as $R_f(1)$ and the second as $R_f(2)$.

With the modification to allow the possibility of Lally's conjecture, the CAPM for a company that has a beta of one is:

$$E(R_e) = R_f(1) + 1 * [E(R_m) - R_f(2)]$$

$$= E(R_m) + [R_f(1) - R_f(2)] .$$

Since the company has the same beta as the market, it must be that

$$E(R_e) = E(R_m) .$$

But this can only be the case if:

$$R_f(1) - R_f(2) = 0,$$

which of course requires that:

$$R_f(1) = R_f(2) .$$

Therefore, the risk free rate applied to estimating the market risk premium must be the same risk free rate as used in determining the base risk free rate.

If R_f is not the same in both places that it appears in the CAPM, then a firm with a beta of one would not have the same expected return as the market. More pointedly, if R_f is not the same in both instances, the model being used is not the CAPM.

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10 Ibid, p12.

The above analysis, as well as common sense, shows that the measurement of the risk free rate in the CAPM must be consistent.

Therefore, the bond maturity used in estimating the MRP and in the risk free rate term in the CAPM must be the same. This implies that should a different bond maturity be adopted, not only would an adjustment to the MRP be required but also other costs such as debt issuance and hedging costs would need to be adjusted. In addition, there may be additional impacts on the beta that should be considered.

Accordingly, it is contended that the ACCC erred in failing to adopt the yield on the 10 year Commonwealth bond as the appropriate maturity for the risk free rate. The ACCC also erred in using different bond maturities within the CAPM. The average yield on the 10 year bond based on the 40-day average to 17 September 2003 is 5.52%.

3 Cost of debt

3.1 Benchmark credit rating

The benchmark credit rating applied by the ACCC (BBB+) is inconsistent with its own preferred methodology, namely benchmarking credit rating of gas transmission providers (which implies BBB). As a result, the ACCC is likely to systematically bias upwards the credit rating - and systematically bias downwards the debt margin - applied to determine the cost of debt in the decision.

On page 120 the ACCC expresses a preference for determining the credit rating on the basis of the debt margin facing "transmission companies more generally." [emphasis added]. The ACCC then notes a number of reasons why it believes this approach is preferable to considering the actual debt costs of EAPL, including consistency with sections 8.2(d), 8.2(e), 8.30 and 8.31 of the Code.

On page 121, the Commission further notes:

> With regard to the benchmark credit rating of the service provider, the Commission considers that the relevant Code provisions (sections 8.30 and 8.2(e) are best met by reference to Australian gas transmission companies. [emphasis added]

The ACCC then assumes a benchmark credit rating of BBB+ by considering the average credit rating of AGL, AlintaGas, Envestra and GasNet – despite only one of these parties being a gas transmission company. The ACCC provides no explanation as to why AGL, AlintaGas and Envestra are appropriate comparators. Even in the case of GasNet its relatively higher gearing to that proposed for MSP and the lower risk faced suggests it may be more comparable to a distribution network than a gas transmission pipeline.

Given the greater exposure to competitive pressure, including stranding risk on MSP compared to the Victorian network, there would appear to be no clear case for assuming a credit rating above that of GasNet. However, given the paucity of gas transmission comparators we do not believe it is appropriate to rely on one comparator alone.

To complement such analysis, we believe that it is necessary to also estimate an appropriate credit rating by modelling the cash flows and interest-cover ratios under a range of plausible risk scenarios.

GasNet precedent, which is consistent with the ACCC's own stated approach, supports a credit rating of BBB. During the period sampled in the ACCC's final decision, data from CBA Spectrum indicates that the applicable debt margin on BBB rated debt was between 20 and 25 basis points above the margin on BBB+ rated debt. We have adopted an increased cost of debt of 25 basis points above that adopted by the ACCC (in addition to the increase arising from the assumption of the 10-year risk free rate).

3.2 Issuance costs[11]

In order to adhere to the principle of financial capital maintenance, it is necessary that regulated businesses be compensated for:

- all transactions costs associated with the raising of debt and equity; and
- all hedging costs associated with securing a position in the market that removes financial risk associated with the regulatory process.

The ACCC's decision included no allowance for these costs in either the WACC or regulatory cash flows.

In recent decisions, outlined in Table 1, the ACCC and ESC has accepted the validity of including allowance for the transaction costs of raising debt finance. In doing so, it recognised bank fees and dealer swap margins as legitimate debt-raising costs; and costs paid to equity arrangers for services such as structuring the issue, preparing and distributing information and undertaking presentations to prospective investors as legitimate costs of raising equity. In its recent decision on Victorian gas distributors, the ESC also accepted the validity of including an allowance for non-margin establishment costs in the cost of debt.

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11 It is noted that the ACCC has acknowledged that EAPL did not seek explicit inclusion of debt raising costs in its building block claims.

Table 1: Transactions costs of debt issuance included in WACC - regulatory decisions

Date	Regulator	Business	Margin (bp)	Notes (if any)
Dec-02	ACCC	SPI Powernet	10.5	Based on advice of Westpac that appropriate range 10.5 to 12.5. Chose 10.5 due to "A" credit rating adopted.
Dec-02	ACCC	ElectraNet	10.5	As per SPI decision.
Nov-02	ACCC	GasNet	12.5	Based on advice from Westpac.
Oct-02	ESC	Victorian gas distributors	5.0	Estimate of non-margin establishment costs.

In our view, the total cost of issuing debt would exceed the amounts granted by regulators to date.

US data suggest that a premium for debt issuance of up to 50 basis points may be appropriate. Debt can be issued either directly by private placement or through a public issue. The issuance costs of a direct placement are considerably lower than a public issue (as considered by the ACCC). However, the interest rates paid on private placements are usually higher than those on a public issue. So there is a trade-off when issuing debt by private placement – issuance costs are lower but interest rates are higher. Brealey and Myers state:

> "a typical differential [between the interest rate on public and private issues] is on the order of 50 basis points".[12]

Hays, Joehnk and Melicher[13] conducted an empirical study of the difference in rates between public and private debt issues and found that the yield to maturity on private placements was 0.46% higher than on similar public issues.

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12 Ibid, p401.

13 Hays, Joehnk and Melicher, "Determinants of Risk Premiums in the Public and Private Bond Market," Journal of Financial Research, Fall 1979, pp143-152.

Because both these citations are about differences in rates of return rather than the quantum of issuance costs, the differences are quite large. Even if issuance costs of private placements were nil, which of course they are not, it would indicate issuance costs for private debt issues of about 0.50%

If private placements have such a higher interest rate, it raises the question of why anyone would issue debt this way? The major reasons are that private placements of debt have advantages in the debt contracts that can be used, and they can be done much faster. Private placement debt can be very flexible and can be tailored to the specific needs of the issuer and lender. By contrast, the debt contracts for public debt are quite standardised and allow almost no ongoing adjustments to the contract.

In our view, the empirical evidence that is available is consistent with a total debt issuance costs, stated as a rate of return, would be in the order of up to 0.50%. It is considered that the most appropriate approach is to treat these costs as transaction costs associated with raising debt, with recovery in the cash flows rather than the cost of capital. Based on EAPL's proposed asset base of $756.9 million, this translates into an increase in expenditure of $2.27 million per annum.

4 Equity issuance

EAPL faces substantial costs in raising both debt and equity financing for the MSP.

To raise equity financing, a company will incur costs to prepare financial information and documentation required for an equity issue, whether an initial public offering or a subsequent offering. To a substantial extent, the internal costs that a company must bear will be included in its O&M as salaries and related expenses. However, a company will also necessarily incur substantial external costs that would not be included in O&M, These costs include legal and accountancy expenses, and the expenses of engaging an investment bank to organise, manage, underwrite and execute the offering.

In its Final Decision on GasNet , the ACCC decided GasNet's access arrangement should (p151) "include an allowance for equity raising costs of 0.224 per cent of regulated equity, to be recovered as an annual non-capital cost cash flow."

There are two alternatives for an amortization period: life of the assets or in perpetuity. When a company, particularly an infrastructure company, raises finance, both in the form of debt and equity, there is an orientation towards the life of the assets. The alternative is to consider that equity is perpetual, and there is no necessary reason why the corporation cannot and will not continue far beyond the original life of its assets.

In its Draft Decision on GasNet, ACCC decided upon using the life of the assets as the amortisation period. In its Final Decision, ACCC reversed this decision and amortised the equity raising as a cost in perpetuity.

For many infrastructure investments, we believe that orientation is fundamental to the formation of the business and should be the period of amortisation. Pipelines are likely to fall in this category.

In determining the annual allowance for GasNet, the ACCC assumed the costs were to be treated as a perpetuity and then used the real vanilla WACC to estimate the perpetuity. ACCC did not provide any explanation or defence of this treatment.

We do not accept that this is correct. The costs involved are equity costs and they are to be related to the equity value of the business. In our opinion, the appropriate rate to use for the calculation is the cost of equity capital.

We do not yet have data on the equity offerings of APT to use for determining an appropriate allowance amount. We also note that MSP only represents 35% of the pipeline assets of APT, and it should be the costs that would be incurred by a company the size of MSP that is relevant.

Using the appropriate cost of equity in the GasNet calculation, the fee per year as a perpetuity should be at least 0.397% of equity value (and even higher if regard is had to the life of the asset in the calculation of the allowance).

We accept that the value of the regulated assets is somewhat higher for MSP than for GasNet. However, we also believe that the cost estimates used by ACCC in its estimates for GasNet understate the full cost of raising equity. On balance, we believe that the corrected allowance of 0.397 per cent of regulated equity is a minimum bound for an appropriate allowance for the MSP.

It is considered that the most appropriate approach is to treat these costs as transaction costs associated with raising equity, with recovery in the cash flows rather than the cost of capital. Based on EAPL's proposed asset base of $756.9 million, this translates into an increase in expenditure of $1.20 million per annum.

5 Asymmetric risk

The ACCC's decision included no allowance for asymmetric risk, despite established precedent in the GasNet decision.

It is well known that the real world has some unavoidable risks that are not included in the CAPM. If these are risks that investors in a security cannot avoid by diversification, investors can be expected to require a return for bearing that risk.

5.1 Defining Asymmetric Risk

The assumptions of the CAPM imply that the returns are normally distributed. However, there are many risks, and hence returns, that are asymmetric. Risks are asymmetric when the possible outcomes in one direction are different than the possible outcomes in the opposite direction. Asymmetric risks are very common but are not necessarily a problem when using the CAPM to estimate the cost of equity capital if the risks can be insured against or diversified.

Regulated infrastructure firms such as EAPL face a range of risks that are asymmetric. These include:

- assets becoming stranded as customers change consumption patterns and competitors change strategies;
- regulatory bodies adjusting policies or regulatory frameworks;
- the occurrence of extreme events, with the regulated firm in all likelihood bearing the costs when they are negative but not commensurately benefiting when the gains are positive; and
- the occurrence of other events with similar impacts. For example in the presence of a competing non-regulated pipeline and a price cap, the returns to the firm are likely to be inversely related to volatility.

These risks can have a number of characteristics that differentiate them from other risks faced by the company and from most asymmetric risks that are confronted by other types of

businesses. First, the risks are unavoidable and asymmetrical (i.e., the possible negative outcomes are significantly larger than the possible positive outcomes). Therefore they are risks that cannot be diversified away by the company. Secondly, insurance against these risks is not commercially available. Thirdly, these are risks that cannot be diversified away by investors in the company. This is a critical point. The reason that they cannot be effectively diversified away is that the counter-parties to the risks are not public companies in which investors can invest. The principal economic counter-parties in each of the cases are consumers. That is, consumers will benefit from lower charges for the service. Finally, these risks are not accommodated in the CAPM.

Because these risks are assumed not to exist in the CAPM, estimations of the cost of equity capital using the CAPM will not include any reward for facing these risks. Yet it is clear that investors will require such recognition if they are to invest in infrastructure companies. The question becomes how recognition of the risks should be achieved in the regulatory process. Clearly when such risks do exist, the CAPM is inadequate and some form of modification or supplementation is required. In general, the CAPM is not amenable to modifications for these risks, so regulatory returns must be supplemented.

5.2 Incorporating a Return for Asymmetric Risk

Since it has no alternative but to bear the risk of losses, the regulated firm should be permitted a return that explicitly includes the actuarially-fair premium for insuring against this risk. The second point is premised on insurance not being available to cover these risks. It also provides an intuitive explanation of why this risk needs to be recognised and how regulators should handle it. If insurance was available, the providers of the good or service could take out insurance coverage. Of course, if it did so, the expense of the insurance should be fully acceptable to a regulator and recognised in the cost base. On this basis the company could cover the risk with no adverse impact on its profit.

Since insurance coverage is not available, the company is forced to self-insure. Companies could still deal with the issue if they were allowed to use accrual accounting for the self-insurance in determining their costs. They would record an expense for the actuarially-fair self-insurance premium. Again, if this accounting were permitted by accounting rules, it would be an expense that regulators should accept as a legitimate part of doing business and as being recoverable through revenue. Unfortunately, accounting practice in Australia does

not allow the accrual of costs related to self-insurance. Accounting practice requires that self-insurance is accounted on a cash basis as the adverse events occur.

There are two questions that need to be answered. It is clear that these asymmetric risks exist in at least some circumstances. Therefore, the first question is — does the business face asymmetric risks such as described above? It is just as clear that when it does, those risks should be recognised in the regulatory process. Therefore, the second question is — how should the risk be reflected in the regulatory process?

As to the first question, we believe that EAPL faces asymmetric risks that meet all of the tests set out above. The largest extreme risks for EAPL that are not covered by insurance or are covered but still leave significant exposure include property related risks, deductibles in current insurance, credit risk, risk from terrorism, and asset stranding risk.

The second question is — how should the risk be reflected in the regulatory process? There are three approaches to consider.

1. The risk can be reflected as an actuarially-fair insurance premium and that amount imputed to the costs of the company. This amount would then be included in the determination of an appropriate price for the company's services.

2. The risk can be reflected in the WACC so that the result is equivalent to recovering the actuarially-fair insurance premium. Again, this would be reflected in the determination of an appropriate price for the company's services.

3. The risk can be handled by an agreement that there will be scope for full pass through in prices or compensation that has an equivalent effect on the balance sheet of the entity after the adverse event occurs.

Recognition for Asymmetric Risk in Costs

The first approach is to estimate an actuarially-fair self-insurance premium for each asymmetric risk faced by the company. This approach is consistent with Officer[14] who states,

> "…what the regulator must do is to apply the WACC to the value to set a price such that the price allows the recovery of all costs including the implicit costs of insurance associated with diversifiable risk."

The ACCC has stated[15] that to recognise such a premium, it would require that the amount be estimated by an "appropriately qualified insurance consultant …". Once the estimation has been made, the amount would be imputed to the costs of the company.

In its GasNet Decision[16], the ACCC allowed a nominal amount of $22,000 (compared with its regulatory asset base of approximately half a billion dollars) to be added to costs for two specific items of asymmetric risk.

Although the GasNet Decision is a breakthrough in the recognition of the need for an explicit reward for the unavoidable asymmetric risk that is faced by a prudent business, its significance is only in principle. The specific treatment given the issue by the ACCC was very narrow, and the amount allowed was trivial.

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14 R. Officer, "A Note on the ACCC's and the Office of the Regulator-General's Cost of Capital for the Gas Industry," 1 July 1998, p 3.

15 ibid., p16.

16 "Final Decision, GasNet Australia access arrangement revisions for the Principal Transmission System," dated 13 November 2002, section 6.2.

Recognition for Asymmetric Risk by Expansion of the WACC Model

This approach has been suggested by Swan[17]:

> "…(to) avoid that regulatory impact on investment, one needs to set a margin above the conventional WACC which reflects the option value of actually committing yourself to one of these long-lived projects."

To properly recognise the asymmetric risk and allow an appropriate return, an alternative is to modify the WACC. This is most easily done by simply adding a factor to the WACC model for asymmetric risk (R_{AR}). The expanded "vanilla" WACC is then as follows:

$$WACC = [R_e * (E/V) + R_d * (D/V)] + R_{AR}$$

The asymmetric risk factor R_{AR} is expressed as an increment to be added to the WACC. The estimation of an appropriate R_{AR} increment would begin with the estimated actuarially-fair self-insurance premium. Then, in the context of the specifics of the application, the asymmetric risk factor is determined that will yield the equivalent result to the actuarially-fair self-insurance premium when applied to the company's asset base.

The first option properly reflects the issue as an insurance problem. Treating the issue in the WACC is a practical solution, but the proper adjustment to WACC for a given imputed self-insurance premium will be context specific. There will not be a general adjustment that will apply in all cases.

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17 Quoted in "Further Submission by Energy Projects Division (EPD) to the Australian Competition and Consumer Commission (ACCC) and to the Office of the Regulator-General (ORG) on Weighted Average Cost of Capital (WACC)," 17 July 1998, p 5.

Handling the matter as an increment to be added to WACC for asymmetric risk is consistent with the Victoria Gas Decision[18]:

> "However, the Office acknowledges that in practice, it is difficult to obtain a reliable actuarial valuation of all diversifiable risks. It is evident from the public submissions that where uncertainty exists in relation to the explicit valuation of such risks, it is common practice to apply a loading to the cost of capital (within the plausible range for the beta estimate) to reflect such risks." (para C9.3(a))
>
> "The beta value selected by the Office therefore consciously overcompensates investors for systematic risk, to recognise the existence of such diversifiable (or insurable) risks. In particular, the Office has been deliberate in selecting a beta estimate near the upper bound of the plausible range…." (para 4.3.4(b))

The Victoria Gas Decision recognised that asymmetric risks are a valid issue that must be incorporated into the regulatory process. However, the procedure used to reflect the economic impact of asymmetric risk was *ad hoc*.

In its recent greenfields guidelines the ACCC has also acknowledged that the asymmetric risk issue is valid and has set out the documentation and support that it would expect before agreeing to imputing a self-insurance premium to costs.[19]

Allowing for the effects of adverse events to be recovered through prices or other compensation after the event

This approach has various advantages and drawbacks. A key advantage over providing an actuarially fair insurance premium is that the firm is not required to act as a quasi-insurance company. It will not need to provide for reserves in the case of an extreme event occurring,

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18 Office of the Regulator-General, Victoria, "Access Arrangements for Multinet, Westar and Stratus: Final Decision," dated October 1998.

19 ACCC, "Draft greenfields guideline for natural gas transmission pipelines," dated June 2002, p16.

and therefore does not have to take on tasks outside its core competency. In addition, it abstracts from the need to compute premiums for events that are uncertain.

However, the approach has a major drawback. The firm is exposed to the risk that the regulator might not allow full recovery when the adverse event actually does occur. This is referred to in the economics literature as moral hazard. If the regulator is not bound by a contract, there is a chance that it will act opportunistically in what it sees as its best interests at the time. The solution to this moral hazard problem is to have a contract that ensures the agreed performance by the regulator.

5.3 Conclusion

In our view, each of these arguments have merit and there is a strong case for using more than one mechanism. For example, for asymmetric risks that are routine in nature – for example, deductibility on insurance policy, the impact can be readily estimated and included in the cash flows. However, for activities such as terrorism a pass through provision may be most appropriate.

Based on the asymmetric risk of the following occurrences being addressed in the cash flows:

- competition will result in an inability for EAPL to recover the full cost of providing the Reference Services;
- reserve risk;
- credit risk;
- deductibles in current insurance; and
- regulatory risk,

on the basis of the extent of analysis that time permits, a cash flow allowance of $1.5 million per annum is appropriate. A more accurate estimate can be developed with the benefit of more detailed modelling of these impacts.

6 Conclusions

Based on the positions set out in this document, we believe the ACCC's decision on MSP is deficient in the following areas:

- risk free rate – the ACCC should base the risk free rate on the yield to maturity of the 10-year Commonwealth bond, which is 22 basis points higher than that allowed by the ACCC;
- cost of debt – the debt margin for MSP should be determined on the basis of a credit rating of BBB which translates in to an increase in the cost of debt of 25 basis points (in addition to the increase arising from the assumption of the 10-year risk free rate). In addition, the costs of debt issuance should be reflected in the WACC or regulated cash flows. Our estimate is that an appropriate allowance is up to 50 basis points on the cost of debt which translates into a cash flow of $2.27 million per annum;
- cost of equity issuance – the decision should reflect the cost of equity issuance. Our estimate is that an appropriate allowance is at least 39.7 basis points on the cost of equity which translates into a cash flow of $1.20 million per annum; and
- asymmetric risk – the decision should reflect various asymmetric risks faced by MSP which equates with a cash flow allowance of $1.5 million per annum.