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Our Ref:

Wednesday, 10 December 2008

Mr Jeremy Threlfall
Assistant Director-Rail
Economic Regulation Authority
PO Box 8469
Perth BC WA 6849

Dear Mr Threlfall

The Pilbara Infrastructure Proposed Segregation Arrangements

The ERA released its draft determination in relation to the above on 3 December 2008 and invited comment by 30 January 2009. HPPL has reviewed the draft determination with the assistance of Acil Tasman.

HPPL is pleased to see that the staged approach proposed by TPI to the implementation of its segregation arrangements has not been accepted by the ERA and changes are being required to be made to the segregation arrangements proposed by TPI. HPPL was concerned at the staged approach and welcomes the position taken by the ERA.

HPPL also supports the other changes that the ERA is requiring to be made to the segregation arrangements proposed by TPI.

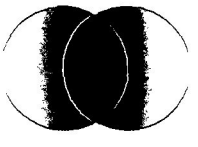
HPPL also notes that TPI has provided a paper by Synergies in support of the TPI position on WACC issues in response to the ERA issues paper and that this paper has been placed on the ERA website, with other comment on the ERA paper. Although the ERA has not requested comment on the Synergies paper, HPPL asked Acil Tasman to review the paper. The Acil Tasman report provides views on the Strategies paper that may be of interest and value to the ERA as it considers the responses to its issues paper on the WACC. To this end HPPL has attached a copy of the Acil Tasman paper.

Peter Murphy
General Manager, External Affairs and Government Relations
Hancock prospecting Pty Ltd

Comment on Synergies Paper on a Cost of Capital for TPI

A submission to ERA on behalf of Hancock Prospecting

4 December 2008



ACIL Tasman

Economics Policy Strategy

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Contents

1 Introduction

The purpose of this paper is to respond to the Synergies paper prepared for TPI on the weighted average cost of capital relevant for TPI's rail infrastructure. Synergies' paper raises several issues over and above those addressed in our previous submission of Economic Regulation Authority, which commented on the Authority's Issues Paper on the WACC and TPI's submission on asymmetric risk.

2 Methodological considerations

Synergies address a number of issues in the section entitled Methodological Considerations. These concern the business environment and appropriate comparators for deriving an equity beta for TPI's railway, issues in the application of CAPM including the use of asset, equity and debt betas, and issues in the estimation of equity betas.

2.1 Business environment

2.1.1 Synergies contention

TPI's railway was built to service FMG mines at Cloud Break and Christmas Creek developments. Syngeries contends that the fact TPI's rail network is dedicated to a single development means that its risk profile is that of a mining venture rather than a railway. Third party users are likely to haul only small incremental tonnages, and take-or-pay contracts with FMG cannot reduce risk relative to the counter-party to that contract. Synergies also suggests that the existence of regulation does not provide additional revenue certainty to TPI.

Syngeries goes on to argue that TPI's systematic risk would not differ from that of FMG's iron ore business. Synergies then proposes that the beta factor and the capital structure be assessed using comparators based on the mining industry rather than other established below rail operations.

2.1.2 Response

It is not appropriate to conflate the railway infrastructure activities of TPI with FMG's mining activities as done by Synergies. The two are separate activities, undertaken by separate entities, and subject to different risk profiles.

Moreover, FMG has been vocal in its support of third party access arrangements for Pilbara rail lines, and made clear from the start that open access would be offered by the TPI railway. This is reflected in the State Agreement, whereby the railway is brought within the ambit of the WA Rail

Access Regime (for all apart from the initial 45 mtpa of capacity). Accordingly, it is appropriate for the railway to be regarded as a rail business and not a mining business.

In the context of the 2008 determination of a WACC for WestNet Rail, Synergies argued that the systematic risk of the freight network must be similar to the systematic risk of the major customers of the network. However, ERA rejected this argument, saying:

> *It is not clear that the systematic risk of an infrastructure provider should resemble the systematic risk of its customers. There is no necessary connection between the profit risk of the customer firms and the volume of use of the infrastructure service or the payments for the infrastructure service under usage contracts*[1].

A similar argument had previously been rejected by the Authority in the context of the Goldfields Gas Pipelines access decision, on the basis of a lack of evidence for any relationship[2].

> *The approach proposed by GGT of basing its equity beta on those of its customers assumes that those companies have risk profiles comparable or at least relevant to those of GGT. The Regulator is mindful of the concerns raised in submissions that the risk profiles of the customers that use the Goldfields Gas Pipeline selected for estimating a proxy beta for GGT are not consistent with those of a pipeline service provider. In these circumstances the risk profiles of GGT's customers would not provide a sufficiently sound basis for deriving a proxy beta for GGT.*
>
> *The Regulator therefore considers that an assessment of asset betas for companies within the gas pipeline industry remains appropriate. GGP has commented that it considers itself to bear substantially more risk than other Australian pipelines. In assessing this claim, the distinction between non-diversifiable and diversifiable risk needs to borne in mind. In particular, the Regulator notes that many of the risks that GGP has raised as particularly important to it could be characterised as largely diversifiable risks*[3].

Likewise, QCA did not agree that QR's level of systematic risk would be at least equal to that of the coal mining companies. The Authority determined

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1 ERA, June 2008, Final Determination: 2008 Weighted Average Cost of Capital for the Freight (WestNet Rail) and Urban (Public Transport Authority) Railway, p25

2 ERA, July 2004, Amended draft decision on the proposed access arrangement for the Goldfields Gas Pipelines, p60.

3 OffGAR, April 2001, Draft Decision Access Arrangement Goldfields Gas PipelinePart B p135.

that coal mining companies have a risk profile quite dissimilar to that of QR[4]. In support of this decision, QCA cited the findings of its advisors (ACG) of a relatively weak correlation covariance between the volume of Queensland coal exports and returns on the Australian stock market. QCA considered it unlikely that the access charges could be so pro-cyclical as to establish a strong correlation between access revenues and the Australian market.

Synergies cite the fact that the railway was built to service a single development as supporting the argument that TPI's systematic risk will reflect that of the mining development. However, we do not see that as negating the arguments above, that the volume risk of the railway is not the same as the risk facing a mining company. Rather it suggests that the specific risk facing TPI's railway is greater, as it is less diversified in its customer base than other railways. However, higher specific risk can be diversified away by investors and so does not warrant remuneration under CAPM.

3 WACC Parameters

3.1 WACC formulation

3.1.1 Synergies contention

Synergies comments on the choice between a pre-tax or post-tax approach to the WACC, noting that most regulators now apply a nominal post-tax (vanilla) methodology. Should a pre-tax approach be adopted, Synergies argues that the tax rate over the longer term would be expected to be the statutory tax rate. Referring to the greater social costs that arise from under-estimating the cost of capital, Synergies suggests that the prudent approach would be the continued application of the statutory tax rate.

3.1.2 Response

As indicated in our earlier submission, we support the use of a post-tax approach to the WACC. However, we would advocate greater transparency with respect to the treatment of tax within the calculations. Such transparency would be achieved by releasing a public version of the modelling used to derive the tax cash flows and level of ceiling costs.

Should ERA wish to continue with a pre-tax approach, we remain of the opinion that the statutory taxation rate would significantly over-state the tax liability faced by TPI in the medium term. The newly built railway will benefit

[4] QCA, Dec 2005, QR's 2005 Draft Access Undertaking, p27

from accelerated tax depreciation allowances, and we would not be surprised if TPI were to face no tax liability for several years.

3.2 Cost of equity

3.2.1 Synergies contention

Synergies comments on the restrictive assumptions embodied in the Sharpe CAPM used by ERA (in concert with other regulators). Alternative specifications of CPM have relaxed the restrictive assumptions required by the Sharpe CAPM, however the complexity of these models and their lack of unambiguous predictions mean that the Sharpe CAPM remains the most widely used approach in regulatory determinations. Syngeries suggests that the limitations of the Sharpe CAPM creates uncertainty over beta estimates and that caution is required in interpreting them.

Monkhouse formula

Synergies recommends the use of the Monkhouse formula for de-levering and re-levering asset and equity betas, on the basis that the Monkhouse formula is used by a number of Australian regulators including the ACCC.

Debt beta

Synergies suggests that estimates of the debt beta are unreliable, since the debt risk premium identified using the CAPM structure will include non-systematic default risk. Lally recommends the application of a debt beta of zero in a regulatory context, and Synergies notes that many regulators, including ERA, have applied a debt beta of zero in recent decisions. Synergies suggest that a beta of zero should be applied because there is no robust way of estimating a value for beta that measures systematic risk only.

3.2.2 Response

Monkhouse formula

The Monkhouse formula is the most complex of the approaches used to de-levering and re-levering equity betas. Synergies is correct in its suggested specification of the Monkhouse formula.

However the Monkhouse formula is not the only approach used by regulators. For example, both ERA and the ESC use the Brealey and Meyers formulation, which is even simpler than that quoted by CRA in ERA's Issues Paper:

$$\beta_a = \beta_e \times E/V + \beta_d \times D/E$$

In practice the Monkhouse and Brealey and Meyers formulations produce very similar answers for the equity beta. The CRA formulation produces a slightly lower equity beta for the same input assumptions.

Debt beta

Regarding the debt beta, we accept that it is difficult to isolate the systematic component of the debt margin. However, the use of zero (or very low debt

betas) combined with high debt costs serves to reverse the conventional wisdom that debt carries any advantage in the calculation of a (pre-tax) weighted average cost of capital by virtue of its tax shield. Using a zero or low debt beta means that the degree of leveraging of the equity beta that follows from an increase in gearing will almost always outweigh the tax advantage of debt. Whether this is appropriate warrants further consideration.

Both Synergies and CRA have stressed the importance of being consistent in the assumption regarding debt betas, and of using the same debt beta to re-levering an asset beta that was derived using an assumption of a positive debt beta. This suggests that a debt beta of 0.12 should be used if the asset beta for QR's coal network is used as a comparator.

3.3 Approaches to estimating beta

3.3.1 Synergies contention

Synergies discusses a number of techniques and adjustments that can be used to estimate equity beta factors. Syngeries indicates that in estimating a beta for TPI's railway, it constructed a sample considered to be relevant to TPI, eliminated firms that did not have 5 months of data, and eliminated estimates with a t-statistic less than 2.

Synergies cites the Productivity Commission in suggesting that the consequences of setting a beta that is too high or too low are asymmetric. In particular, the consequences of setting WACC too low, and discouraging efficient investment in essential infrastructure, are considered worse than setting it too high. Synergies maintains that in consequence, it is important to lower the risk that the true value is higher than the estimated value.

3.3.2 Response

As discussed below (in the section on equity beta), we believe that the appropriate comparator group for TPI's railway should comprise similar below rail businesses, such as Queensland Rail's coal network and the Hunter Valley coal network.

The statement by the Productivity Commission regarding the consequences of setting a cost of capital which is too low has been widely quoted by incumbent infrastructure providers. However, it is the case that over-investment is costly also. In a report to the ESC, NERA suggested that[5]:

[5] NERA, March 2004, Alternative Approaches to "light-handed regulation,

...both under-investment and over-investment are costly, and it is not at all clear which is preferable. If over-investment gives rise to capacity that will not be utilised by reasonably anticipated future demand, the resources dedicated to overbuilding that asset could presumably have been better utilised elsewhere, eg, in the provision of alternative infrastructure services for which the consumer welfare associated with their provision may be equal or greater.

3.4 Capital structure

3.4.1 Synergies contention

Synergies limits its compator sample to iron ore producers. The five firms in the sample comprise FMG, BHP Billiton, Rio Tinto, Gindalbie Metals and Aquila Resources. Average debt to value (measured as enterprise value[6]) has been collected for each firm over the last five years, where available.

Synergies finds that the average gearing level varies between 3% in 2004 and 21% in 2005. The average gearing ratio of the five firms over the five year period was 10%. FMG's gearing is the highest in the sample (at 30.5% over the five year period). Synergies suggests that this reflects its current situation as a newly-established operation with high capital needs. Synergies considers that an appropriate benchmark gearing for TPI is the average gearing of the comparison group.

3.4.2 Response

We consider that the comparator group for TPI should comprise railway infrastructure providers, particularly those servicing coal or mineral freights.

The comparators used by Synergies includes BHP and Rio Tinto, both of which are very large and widely diversified in terms of activities and location of mining activities. Their scale and nature of operation would seem to make them poor comparators for TPI.

As discussed in the previous submission, recent regulatory determinations for rail have set gearing in the range 50 to 60%. In its proposed 2009 access undertaking QR has proposed a debt to equity ratio of 55:45[7]. ARTC has proposed a gearing ratio of 50:50 for new investment and 52:48 for existing assets in the Hunter Valley Coal Network (HVCN)[8].

[6] Enterprise value assumes that surplus cash is used to repay debt.

[7] QR, Sept 2008, QR Network's Access Undertaking (2009), Volume 2, p73.

[8] ARTC, July 2008, 2008 ARTC Hunter Valley Access Undertaking Explanatory Guide, p48.

3.5 Debt margin

3.5.1 Synergies contention

Synergies rejects CRA's proposal that the debt margin should be adjusted to reflect bond holders' expected returns after allowing for the risk of default. Synergies suggests that it is ex ante returns that are of interest, and it is inconsistent to adjust ex ante returns with an ex post study of actual returns.

Synergies have based TPI's credit rating on the basis of its single customer, FMG, rather than using below rail businesses as comparators. Synergies maintains that lenders would price the risk of a loan to the railway as no better than the credit risk of the major customer. FMG has a credit rating of B^{--}, so that Synergies propose to base TPI's debt cost margin on the cost of businesses with a B^{--} rating.

There are no published yields for sub-investment (or speculative) grade debt in Australia, so Synergies proposes estimating the spread between a BBB bond and the risk free rate in Australia, plus the spread between 10 year US BBB and B rated bonds. Synergies estimates a total debt margin of 653 basis points.

3.5.2 Response

As emphasised by Synergies, TPI built its railway to service its mining developments. Thus in deciding to undertake the investment, TPI assessed the total costs and benefits for its mining interests as a whole. For this purpose, the debt costs as identified by Synergies are appropriate, and likely to reflect the actual debt costs incurred to finance the railway.

However, regulators use a benchmark cost of debt which reflects the cost of borrowing for an efficiently managed and financed business. Regulatory precedent suggests that the benchmark cost of debt for an efficiently managed and financed rail infrastructure provider is based on a BBB to A rating and is significantly lower than the margins proposed by Synergies. The higher cost actually incurred by TPI is not relevant: it is a cost incurred by them in order to pursue an investment which benefits the group as a whole, but which would not have been undertaken by a prudently managed and financed rail infrastructure business.

In its proposed access arrangement, Goldfields Gas Transmission (GGT) put forward a similar argument, namely that the debt margin should reflect the risks of the GGT pipeline, which is unique in exclusively serving mining interests in a specific geographical area[9]. In its Final Decision, OffGar rejected

[9] GGT, Dec 1999, Goldfields Gas Pipeline Access Arrangement Information, p53

the high debt margin proposed by GGT, and instead applied a margin consistent with the margins determined for gas transmission pipelines[10].

In June 2008 ERA determined a debt margin of 302 basis points for WestNet Rail, based on the yields of BBB+ and A rated corporate bonds averaged over 20 trading days to 30 May 2008[11]. In July 2008, the ARTC accepted the ARTC's proposal for a debt margin of 2.85%, based on a BBB credit rating[12]. The ARTC has proposed the same debt margin, of 2.85% for use in its Hunter Valley Rail Access Undertaking[13].

Synergies is not correct to reject the adjustment of the debt margin proposed by CRA on the basis that it is inconsistent to combine ex post information and ex ante expectations. As discussed by CRA[14] it is the expected return, allowing for the likelihood that interest and principal may not be repaid, that is relevant. This is an ex ante measure, but difficult to estimate. Therefore ex post data is being proposed to approximate expectations.

3.6 Equity beta

3.6.1 Synergies contention

Synergies uses its comparator group of mining companies to estimate an appropriate beta. The equity beta factors of the group were diverse, ranging from 1.16 to 3.23. De-levering using the Monkhouse formula produced a range of asset betas of 1.04 to 3.23.

Synergies proposes using the average asset beta of the sample, namely 1.85. This results in an equity beta of 2.05 given their assumptions on gearing, gamma and debt beta.

3.6.2 Response

As indicated above, a number of regulators have considered and rejected the argument that the risk characteristics of a railway necessarily reflect that of its customer base.

[10] OffGar, April 2001, Draft Decision Access Arrangement goldfields Gas Pipeline, Part B p 127.

[11] ERA, June 2008, Op cit, p17

[12] ACCC, July 2008, final Decision ARTC Access Undertaking Interstate Rail Network, p52

[13] ARTC, July 2008, Op cit, p49.

[14] ERA, Sept 2008, Determination of the weighted average cost of capital for the Pilbara Infrastructure's Railway, p16

ERA

In its recent determination of the cost of capital for freight and urban railways, ERA rejected Synergies contention that the systematic risk of the freight network "must" be similar to the systematic risk of the major customers of the network[15]. Thus ERA stated:

> *..the Authority does not accept that high beta values for customers of the freight network do not necessarily result in high beta values for the freight-network business itself. This is because revenues to the freight network are dependent on volumes of freight that, for the bulk commodity part of the business are determined by a much wider range of factors than the variability of returns to the customer businesses, and are also dependent on the nature of the contracts between the freight network business and the customers*[16].

QCA

Similarly, QCA concluded that coal mining companies have a risk profile quite dissimilar to that of QR. In particular, QCA argued that QR's coal network is not subject to coal export price and exchange rate risks[17].

For the 2006 determination of its access undertaking for the coal lines, QR proposed an asset beta of 0.60 using a portfolio of Australian coal firms to proxy QRs below rail operations.

However, QCA argued that Australian coal companies are not appropriate comparators for benchmarking beta, as their explanatory factors for systematic risk are fundamentally different. QCA argued that operating leverage, form of regulation and contractual arrangements were the most relevant factors in assessing QR's beta factor[18].

QCA determined a range for the asset beta of 0.35 to 0.50. The lower bound was based on empirical evidence from the Port of Tauranga. The upper bound was the beta estimate for the average regulated energy business in Australia.

In its draft determination, QCA determined an asset beta of 0.45 for QR. However, in the final determination QCA increased its assessment of beta to 0.50. In doing so, QCA accepted the argument raised by a number of submissions that QR should have the same asset beta as that adopted for DBCT (of 0.5) as both operate in the same coal chain.

[15] ERA, June 2008, Op cit, p23.

[16] ERA, Ibid p30

[17] QCA, Dec 2005, Op cit, p20

[18] QCA, Dec 2005, Op cit, p16

In determining an asset beta for DBCT, QCA was conscious of the need to "err on the high side of compensation"[19] given statements by the Productivity Commission and others that the impact on the economy of under-investment exceeds the impact on the economy of higher than warranted prices being paid by customers. Importantly, the Authority accepted that the proposed expansion of the terminal involved an increase in overall risk, and that there was a need to ensure there was no regulatory impediment to the expansion of the port.

In its determination of an asset beta for QR's coal lines, QCA was similarly concerned to ensure that the WACC was sufficient to encourage investment. Both Commonwealth and State governments had urged the Authority to adopt a cost of capital at the upper end of the range.

IPART

In the 2005 determination of a cost of capital for the Hunter Valley Coal Network, IPART adopted an equity beta in the range 0.70 to 1.0. This was equivalent to an asset beta in the range 0.32 to 0.46[20], with the final WACC being based on an asset beta of 0.44 and a debt beta of 0.

The beta factors in the 2005 decision were based on the range for equity beta determined by IPART in its 1999 determination of a WACC for the RAC network in the Hunter Valley[21]. For this purpose, IPART examined comparable overseas companies, comprising:

- Railtrack in the UK, for which the UK regulator proposed an equity beta in the range 0.75 to 0.85.
- Three US companies, for whom asset beta values ranged from 0.2 to 0.48. IPART was conscious of the difficulties of comparing overseas results, but considered that these values provided some guidance on a reasonable range and confirmed rail track ownership is generally less risky than average market risk.

Recent regulatory precedent

Table 1 summarises recent regulatory decisions on beta factors. Of these, the most comparable railways are the Hunter Valley Coal Network and QR's coal network. General freight networks, such as the VRAR, WetNet Rail and ARTC are generally acknowledged to be subject to higher systematic risk given the nature of the freight and greater fluctuation in freight volumes.

This regulatory precedent suggests an asset beta in the range 0.45 to 0.50. Moreover, unlike QR, TPI does not face a large forward capital program, so the same considerations of encouraging future investment do not arise.

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[19] QCA, April 2005, Dalrymple Bay coal Terminal Draft Access Undertaking, p149.

[20] IPART, May 2005, Op cit, p20.

[21] IPART, April 1999, Aspects of the NSW Rail Access Regime, Final Report, p60

Table 1 **Recent rail regulatory decisions on beta factors**

Regulator	Decision	Date	Asset beta
IPART	Hunter Valley Coal Network	May 2005	0.32 to 0.46 Final WACC based on 0.44
QCA	Queensland Rail Coal reference tariffs	Dec 2005	0.5
ESC	Victorian Rail Access Regime	May 2006 (Draft April 2006)	0.50 for PN
ERA	Freight and urban networks	June 2008	0.65 for freight
ACCC	ARTC Interstate Access Undertaking	July 2008	0.65

As discussed above, when re-levering the asset betas to derive an appropriate equity beta it is important to be consistent in the choice of a debt beta. IPART assumed a debt beta of zero and an asset beta of 0.44. Using the Monkhouse formula, our proposed gearing of 50:50 debt to equity, gamma of 50% and an effective tax rate of 0% gives an equity beta of 0.88. QCA assumed a debt beta of 0.12 and an asset beta of 0.50. Again using the Monhkouse formula and re-levering using the debt beta of 0.12 gives the same equity beta of 0.88.

3.7 Market risk premium

3.7.1 Synergies contention

Synergies suggests that the key difficulty in estimating the market risk premium (MRP) arises from it being an expectation and therefore not directly observable. Synergies cites a number of studies that have sought to estimate the historical MRP, and suggests that results for Australia have tended to fall within a range 6 to 8%.

Synergies addresses a number of estimation issues, including the time horizon over which estimates are made and the importance of utilising a longer time period, and the extent to which deviations from the mean are persistent. Synergies concludes that deviations have not been persistent and that a longer term average of 6.2% to 6.4% is a valid estimate of the future MRP.

Synergies also examines whether the MRP has changed over time, and concludes that there has been virtually no variation in the expected value of the MRP and that the long term average MRP is 6.76%.

3.7.2 Response

From Synergies discussion, it is not clear why the average of 6.76% is favoured over the long term average of 6.2% to 6.4% referred to above.

Importantly, a number of recent regulatory decisions reinforce the weight of regulatory precedent in favour of a 6% MRP.

ACCC

The ARTC's June 2008 proposed Interstate Access Undertaking proposed a market risk premium of 6.5%, based on historical studies and expert opinion from Synergies. In its determination, the ACCC cited a number of considerations in retaining its assumption of a 6% premium[22]:

- While historical return studies do suggest higher returns, a 2008 Australian study suggested previous studies were biased upwards due to errors in the dividend data used
- UK authors Dimson, Marsh and Staunton suggest that past market risk premia need to be adjusted downwards for unanticipated cash flow growth and unanticipated declines in business and investment risk
- Studies of Australian financial market practitioners involved in capital budgeting show they commonly use 6% per annum as a market risk premium for investment valuations.

ERA

In its 2008 determination of a WACC for the rail freight and passenger networks, ERA noted that there is a long-standing difference of opinion between regulators and regulated businesses[23]:

- Regulators have previously determined the market risk premium on the basis of both observed historical equity premia achieved in the market and a range of information on current and future expectations of equity premia. Typically regulators have adopted a premium of 6%.
- Regulated business have tended to argue that the premium should be assessed solely on the basis of observed historical equity premia, recommending values of between 5 and 8 per cent but favouring values greater than 6%.

ERA considered that there has been no marked change in the historical evidence since the late 1990s, validating the continued use of a 6% market risk premium.

QCA

In its initial access proposal, QR proposed a market risk premium of 7%. However, QCA argued that the 7% premium was based on a single estimate, and that the weight of empirical evidence suggested a 6% estimate at most[24].

[22] ACCC, July 2008, Op cit, p157

[23] ERA, June 2008, 2008 Weighted average cost of capital for the freight (WestNet Rail) and Urban (Public Transport Authority Railway Networks, Final Determination, p21.

[24] QCA, Dec 2005, Op cit, p13

ESC

The ESC likewise noted that additional evidence presented to a previous electricity distribution price review had been mixed, but the totality of information supported the continued use of 6% for the market risk premium[25].

IPART

In its 2005 report, IPART acknowledged the uncertainty associated with historical studies of the market risk premium. The Tribunal determined a range of 5.5 to 6.5 per cent having regard to evidence from long term historical market risk premium studies[26].

The ACCC's rejection of Synergies argument for a higher risk premium in the context of ARTC's 2008 Access Undertaking is very relevant and supports the continued use of a 6% premium.

3.8 Gamma

3.8.1 Synergies contention

Synergies contends there is strong evidence that the value of gamma has fallen significantly, with zero being the best estimate available. The major issues identified by Synergies are as follows:

The identity of the marginal investor. Synergies argues that the introduction of the 45-day rule prevents foreign investors from benefiting from franking credits and that therefore foreign investors demand a lower price than domestic investors. In the presence of insufficient domestic capital, foreign investors are the marginal investors and therefore franking credits will not be accorded a value in the pricing of shares. Synergies cites two studies as providing empirical support for this proposition.

Synergies also rejects several arguments put forward by regulators. Synergies suggests that it is not appropriate to argue that regulated firms have a "unique" domestic shareholder base as WACC parameters are determined with reference to an efficient benchmark firm. In addition, Synergies argues that an assumption that some firms have foreign marginal investors and some have domestic marginal investors requires segmentation of the Australian sharemarket which is not feasible.

International versus domestic versions of CAPM. Synergies disputes the requirement to use an international CAPM if foreign investors are regarded as the marginal investor, because of home country bias. If markets are not *fully* integrated, it is not appropriate to apply an international CAPM. Synergies also rejects the suggestion that if an international CAPM is not adopted then all

[25] ESC, April 2006, Op cit, p154

[26] IPART, May 2005, Op cit, p16

CAPM parameters need to be specified as if foreign investors had no influence on the Australian market. Synergies therefore applies the domestic CAPM using data that may be influenced by the presence of foreign investors.

Empirical estimates. Synergies reviews a number of empirical "dividend drop-off" studies. The results of these studies varied, with some studies finding that franking credits had some value, but others concluding the value was zero. Synergies identified a number of methodological issues with the studies – one of the most significant being multi-collinearity between the value of cash dividends and franking credits.

To circumvent these problems, Synergies undertakes a simple non parametric paired test on a sample of stocks offering franked and unfranked dividends. The rationale is that if shares paying franked dividends behave in the same way as those shares offering unfranked dividends, then that suggests that franking credits are valued at zero. Synergies concludes that there is insufficient evidence to reject the hypothesis that franking credits are worthless, so that gamma should be set to zero.

3.8.2 Response

ACCC determination for ARTC

In the ARTC's Explanatory Guide to the 2007 Interstate Undertaking, the ARTC presented similar arguments to the ACCC, based on advice from Synergies. Namely:

> *a value for gamma of zero, recognising that since the introduction of the 45-day rule, franking credits are now worthless to the marginal foreign investor (noting that under the vanilla WACC formulation, this will be reflected in the cash flows rather than the WACC);*

In response the ACCC looked at evidence on the payout ratio and the utilisation rate[27]. The payout ratio for the eight largest listed firms in Australia (including Rio Tinto and BHP Billiton) was 1, while a previous Australian study found an average payout ratio of 0.7. On the utilisation rate the ACCC argued that the CAPM used by Australian regulators is a domestic CAPM model, with all investors being resident domestic investors. Therefore the utilisation rate was assumed to be 1, with gamma in the range 0.7 to 1. The ACCC concluded that a value of 0.5 conservatively favours regulated firms and should ensure future investment is adequately remunerated.

Dividend drop-off studies

In commenting on the results of the dividend drop-off studies, Synergies quite rightly point out that any attempts to estimate gamma are compromised by the presence of multi-collinearity. Any regression analysis that includes both the

[27] ACCC, July 2008, Op cit, p161

cash dividend and the franking credits attached to that dividend as explanatory variables will face the problem of not being able to disentangle the effects of each of these explanatory variables. A symptom of collinearity is that it results in higher standard errors and lower test statistics, with any hypothesis tests failing to reject the null hypothesis that the estimated coefficients are significantly different from zero. Therefore it is not surprising that several of the studies cited in the paper fail to find any significance for the value of franking credits. These results cannot reliably be taken as evidence that the value of franking credits is now zero, as the estimated coefficients from dividend drop off studies will be biased downwards.

Simple diagnostic test

However the simple non parametric paired test undertaken by Synergies also has problems. The approach assumes that the characteristics of the two groups of shares are identical (and there is only a limited an attempt to homogenise the two groups, by removing trusts). However failing to adequately control for other factors that can influence the behaviour of share prices means it is possible to draw false conclusions, as these factors may have different impacts on different segments of the sample.

Moreover, the failure to detect any significant differences in the behaviour of the fully franked shares compared to those paying unfranked dividends may be due to the inadequacy of the statistical testing procedure itself. It would have been an interesting exercise to apply the same approach to franked and unfranked stocks before the introduction of the 45 day rule. If the test failed to detect any difference in the behaviour of stocks that pay franked dividends, compared to those paying unfranked dividends, when the theory suggests that this must be the case, this would suggest that the test procedure was flawed and bring into question the conclusion of a zero value of franking credits post the 45 day rule data.

3.9 Equity raising costs

3.9.1 Synergies contention

Equity raising costs

Synergies used a sample of 75 capital intensive firms to estimate the cost of raising equity. Based on the average of the sample, and allowing for accounting and legal costs, Synergies estimate equity raising costs to be 5.7%.

Synergies also suggests that the equity raising costs should be applied not only to the initial equity capital used to build TPI's railway, but also to any major new capital expenditure (as retained earnings are generally insufficient to fund such expenditures).

3.9.2 Response

Equity raising costs

Synergies does not indicate how to what extent the cost of the equity raising varied by size of firm or by date of the raising. It is also notable that the cost for engineering and construction is very much less than that for mining. This raises the possibility that the quantum of equity raising costs are related to the risk profile of the industry. We would again argue that the appropriate comparator sample for TPI would constitute below rail infrastructure providers rather than mining, oil and gas firms which are by nature much more speculative.

In our view it is unlikely that TPI will need to raise additional equity to finance an expansion of the railway. Capacity can be added incrementally, by the adding of passing loops as required. Moreover, where a spur line is required to connect the mining site of an access seeker, TPI is able to require the payment of a capital contribution to cover the capital expenditure involved.

4 Summary

The following table summarises our response to Synergies' proposals.

Table 2 **Summary of response to Synergies proposals**

	Synergies Proposal	ACIL Tasman response	ACIL Tasman Recommendation
Risk profile	Based on mining businesses	Systematic risk should be based on that of rail infrastructure providers.	
WACC formulation	Post tax nominal framework	Agreed	
Nominal Risk Free Rate	5.63%	Methodology agreed	Parameter to be updated
Debt to capital	10%	Should be based on the gearing appropriate to a rail business. QR's coal network suggests 50% as an appropriate benchmark.	50%
Equity to capital	90%	As above	50%
Debt margin	6.53%	Should be based on comparable rail businesses. Should take account of default risk.	Parameter to be updated
Debt raising costs	0.125%	Agree	
Equity raising costs	5.7%	Should reflect equity raising costs for railway businesses not mining. New equity finance unlikely to be needed for expansions to the railway.	
Market Risk Premium	6.8%	Other studies suggest potential upward bias in estimates of the market risk premium. Regulatory precedent suggests 6% remains appropriate.	6.00%
Gamma	0	Results of dividend drop-off studies mixed and not robust. Synergies' diagnostic test is not robust.	Regulatory precedent suggests 0.5
Tax rate	30%	Statutory tax rate overstates likely tax liability due to accelerated tax writing down allowances	Should be taken into account in cash flow modelling. Effective tax rate likely to be close to zero.
Asset Beta	1.85	Should be based on railway comparator. Hunter Valley and QR coal networks are suitable comparators	0.44 to 0.50
Debt Beta	0	Should be consistent with assumptions used to derive the de-levered asset beta	0 to 0.12
Equity Beta	2.05	Monkhouse and ERA's simplified formula produce similar estimates	Based on above assumptions, 0.88