



## **The Pilbara Infrastructure Ltd**

WACC Draft Determination Response

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## Executive Summary

Synergies Economic Consulting (Synergies) has been engaged by The Pilbara Infrastructure Pty Ltd (TPI) to respond to the ERA WACC Draft Determination<sup>1</sup>.

The Determination was based upon submissions made prior to October 2008. Since this time effects of the global financial crisis have worsened. Alternate values have been suggested due to the ramifications of the global financial crisis and the risk borne by TPI. The global financial crisis has impacted significantly upon many of the parameter values used in the determination of the cost of capital of all businesses including TPI.

The most obvious and measureable impact has been on the risk free rate. The yield on nominal 10-year government bonds has decreased by over 2.3% from December 2007 to December 2008. Real rates<sup>2</sup> calculated using the Fischer equation applied to the yield on 10 year Government Bonds and Indexed Bonds have fallen dramatically over the last 6 months. Figure 1 illustrates the fall.

**Figure 1 Real rates of return**



Data source: Reserve Bank of Australia

<sup>1</sup> Draft Determination, Weighted Average Cost of Capital for The Pilbara Infrastructure’s Railway from the Cloud Break Iron Ore Mine in the Pilbara to Port Headland. 9<sup>th</sup> January 2009. Economic Regulation Authority, Western Australia.

<sup>2</sup> We do not endorse this approach in calculating real rates.

In addition to the risk free rate, the crisis has impacted the debt risk premium. As the risk free rate drops, the debt risk premium rises due to the lack of liquidity in debt markets. This general relationship is consistent with the changing premium on TPI's debt funding. When construction commenced for TPI, the debt margin was 438 basis points. The actual debt margin increased to 1,981 basis points in December 2008.

Additionally, TPI's situation is unique, particularly relative to other regulated below-rail infrastructure providers in Australia (and to our knowledge elsewhere in the world). TPI's network is currently dedicated to a single new development, with any third party users only likely to haul relatively small incremental tonnages. The risk profile of the rail network is inextricably linked with the risk profile of the Cloud Break and Christmas Creek developments, which have an estimated mine life of 20 years. It is expected that TPI has greater risk than a diversified rail network operator offering a variety of services to a diverse customer base. The credit rating and hence debt margin for TPI needs to reflect the relatively higher risk profile that TPI faces.

The overall effect on all WACC parameters due to the global financial crisis is not clear. The impact on the risk free rate is clear, as is the opposing impact on debt risk premiums. If no adjustment is made to the other parameters including capital structure, market risk premium etc., some adjustment must be made to the risk free rate and the debt premium.

Additionally the asset beta for TPI must reflect the unique nature of the operations of TPI. The asset beta needs to be appropriate for a single commodity, single line rail businesses operating in a remote location servicing an iron ore mining company producing for the export market. Synergies believes that the appropriate asset beta would fall between the asset beta of the business that it services as it is an extension of the operations and that of the rail firm that most closely approximates the nature of the operations of TPI (given that no railway properly reflects TPI's risk profile).

We conclude:

- the risk free rate should be estimated over a twelve month period and the estimated value is 5.73%;
- the appropriate credit rating for TPI is B rating resulting in a spread of 634 basis points; and
- the asset beta applicable for TPI is 1.85

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## 1 Introduction

Synergies Economic Consulting (Synergies) has been engaged by The Pilbara Infrastructure Pty Ltd (TPI) to provide a response to the WACC Draft Determination by the ERA released 9 January 2009. The WACC is to apply to TPI's railway from the Cloud Break iron ore mine to Port Headland (the railway).

The 260 kilometre railway was commissioned in April 2008. The railway will have an initial capacity of 70 million tonnes per annum (mtpa), with provision for expansion. The railway currently has a single customer Fortescue Metals Group (FMG). Future access may also be sought from a number of junior miners, although it is understood that these volumes will be relatively small compared to the volumes that will be railed by FMG.

The purpose of this report is to suggest alternate values for some of the parameters required for the WACC Draft Determination. Alternate values have been suggested due to the ramifications of the global financial crisis and the risk borne by TPI. Since mid 2008, there has been plummeting share markets, an increase in the number of bankruptcies, a global disappearance of liquidity resulting in increases in debt margins and also declining interest rates as governments become more involved in an attempt to avoid a melt down of the financial systems.

This has impacted significantly upon many of the parameter values used in the determination of the cost of capital of all businesses including TPI. The most obvious and measureable impact has been on the risk free rate. The crisis has also impacted the debt risk premium and systematic risk. These three parameters are discussed in greater detail in the following sections.

As the parameter estimates are estimates from a range of possible outcomes, consideration must be given to the asymmetric consequences of regulatory error.

## 2 The global financial crisis

### 2.1 Impact of the global financial crisis

A Global Financial Crisis has developed since mid-2008 resulting in plummeting share markets, numerous bankruptcies, a global disappearance of the liquidity in the debt market, declining interest rates and significant involvement of governments in an attempt to avoid a melt down of the financial systems.

The effects of the crisis have impacted significantly upon Australia and it has many implications for the determination of the WACC for all businesses. Most of the parameters that are inputs to the calculation of WACC have been affected. The most obvious and measurable impact has been on the risk free rate. The yield on 10-year government bonds has decreased by over 2.3% over the last twelve months to 31 December 2008.

In addition to the risk free rate, the crisis will have impacted the debt margins, the debt and equity raising costs, the level of gearing, the market risk premium and systematic risk.

It has been observed that as the government has moved to reduce interest rates, the lack of liquidity in the market has seen debt margins move in the opposite direction. The risk free rate has reduced but debt margins have increased dramatically.

The lack of liquidity in the market has a twofold effect. Firstly debt margins have increased dramatically and secondly, debt and equity raising costs have also increased. Raising capital, both debt and equity, is considerably more difficult. There are much fewer financial intermediaries to facilitate capital raising as a result of bankruptcies and financial distress among investment banks. As a result, the cost of issuing debt or equity has increased considerably.

With the increase in financial distress as a result of increasing debt margins, levels of gearing are reducing. The majority of companies are/will be seeking to reduce their debt levels from what they were in the past. The market risk premium (MRP) calculated using historic data has declined with the decline in equity returns. The MRP is a premium for risk, and it is indisputable that global and Australian risk of equity has increased. Therefore, it logically follows that the current forward looking MRP is higher than it was before the crisis unfolded. Bloomberg report an expected MRP in excess of 7%.

It is possible that asset betas have been affected. At present there is little data available to be able to estimate the effect.

The net effect of all the dimensions of the financial crisis is not clear. For some parameters including the risk free rate and debt margins, the effect is obvious while for others including asset betas, the effect is less obvious. The directional impact on variables is clear, for example the forward looking MRP is increasing, and gearing is reducing. Logic suggests that the overall impact suggests that the WACC for businesses including TPI should increase.

It would be manifestly unfair to not adjust the risk free rate of return and the debt margin for known effects of the global financial crisis. No adjustment understates the WACC and inappropriately compensates TPI for the risk that it bears given the current economic conditions. Additionally, when measuring the cost of capital in such an environment, it is appropriate to have regard to the asymmetric consequences of error.

## **2.2 The asymmetric consequences of error**

Given the uncertain conditions that have emerged from the global financial crisis and the breaking down of historical relationships, it is important that due regard be given to the asymmetric consequences of error in assessing the WACC.

It is generally recognised that regulatory error has asymmetric consequences. The Productivity Commission stated:<sup>3</sup>

- Over-compensation may sometimes result in inefficiencies in timing of new investment in essential infrastructure (with flow-ons to investment in related markets), and occasionally lead to inefficient investment to by-pass parts of the network. However, it will never preclude socially worthwhile investments from proceeding.
- On the other hand, if the truncation of balancing upside profits is expected to be substantial, major investments of considerable benefit to the community could be forgone, again with flow-on effects for investment in related markets.

In the Commission's view, the latter is likely to be a worse outcome.

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<sup>3</sup> Productivity Commission (2001), Review of the National Access Regime, Report no. 17, AusInfo, Canberra, p.83.

In other words, the consequences of setting parameter estimates too low, and discouraging efficient investment in essential infrastructure, are considered worse than setting it too high.

Typically, based on our best estimate for parameter values we would expect the balance of consequences to be approximately equal (that is, if the consequences of too high a set of parameter values are the same as the consequences of too low a set of parameter values, and the probability of either consequence is the same, the expected value will be zero). However, if the consequences are asymmetric (in this case, the consequence of an under-estimate is worse than the consequences of an over-estimate), then if the probability of either outcome was equal, the expected value will be negative. We therefore need to adjust the probabilities in order to achieve an expected value of zero, which necessitates ensuring that the probability of the worse outcome is lower.

Given the asymmetric consequences of regulatory error, it is therefore important to lower the risk that the true value is higher than the estimated value as this is considered to have more severe social and economic implications. Moreover, given the uncertain conditions that have emerged from the global financial crisis, it is important that due regard be had to the asymmetric consequences of error. This is particularly important as there has also been a breaking down of historical parameter relationships. This breaking down of historical and well understood financial relationships significantly increases the risk of error.

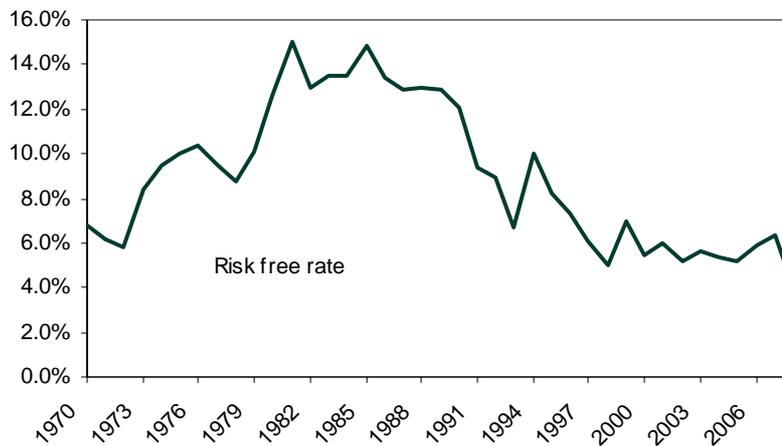
### 3 Risk-free Rate

The risk-free rate of return measures the return an investor would expect from an asset with zero volatility and zero default risk. The ‘true’ risk-free rate of return is non observable and therefore needs to be estimated using a market proxy. Under normal economic conditions, the yield on long-term Australian Commonwealth Government bonds is considered as the best proxy for a risk-free return as the government can honour all interest and debt repayments. In the ERA Draft Determination, the risk free rate was calculated as the 20 day average of the yield on the 10 year Commonwealth Government Bonds.

#### 3.1 Impact of global financial crisis

The global financial crisis has seen the proxy for the nominal risk free rate of return drop to a level not experienced for more than 50 years (refer Figure 1).<sup>4</sup>

**Figure 1 Risk free rate (10 Year Government bond rate)**



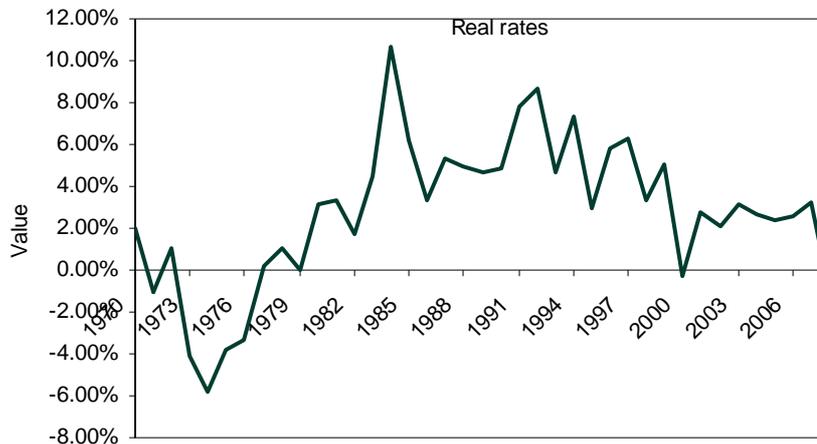
Data source: Reserve Bank of Australia

The market rate of return is the lowest it has been for more than 100 years and debt margins have increased from 150 basis points to 350 basis points for BBB rated bonds.

<sup>4</sup> Rates have been observed at the end of December each year. The Reserve Bank of Australia reported lower rates for December 1951.

These factors have resulted in negative real<sup>5</sup> rates of return (see figure 2) and a negative market risk premium<sup>6</sup>.

**Figure 2 Real rate of return**



Data source: Reserve Bank of Australia

Using the current risk free rate of return in the WACC calculation reduces the WACC to below where it was before the global financial crisis affected markets. Thus we are faced with the seemingly illogical situation that the world is entering a new uncertain and risky period while rates of return are falling. Normally rates of return and risk have a positive linear relationship. This fundamental financial relationship is distorted due to the global financial crisis.

The distortion is due to the Federal Government and Reserve Bank responses while using long term parameter estimates in the WACC calculation. For example the market risk premium is normally calculated over (at least) 10 years and beta is calculated over a 5 year period. The risk free rate is averaged over 20 days. The consequences of the global financial crisis have a negligible impact upon the historic beta and market risk premium parameter estimates but the risk free rate proxy incorporates the effect.

Businesses such as TPI that are determining their WACC at the current time are 'locking in' the risk-free rate at historically low levels. Apart from being extremely low, it is also questionable as to whether long-term bond rates can be considered a reasonable proxy for a forward-looking risk-free rate at the current time given the

<sup>5</sup> Negative real rates were last experienced in the 70s in Australia. Using the Fischer equation, a real rate has been calculated by deducting the inflation rate from the quoted nominal rate. The measure of inflation used is actual CPI. We do not endorse the Fisher equation as a means of deriving the real risk free rate.

<sup>6</sup> The market risk premium is the difference between the market return and the risk free rate of return.

extent of the volatility in the market, as well as the impact of the 'flight to quality' on yields (refer below).

## 3.2 Possible adjustments to remove current distortions

There are two possible alternatives to adjust for the current distortion being:

- to take a longer term historical average and use this as a proxy for the forward-looking risk-free rate. For consistency purposes, whatever averaging is used for the risk free rate should also be applicable for the debt margin; or
- to incorporate the change in increase in the 'bias' in yields for Australian Commonwealth Government bonds.

Each of these will be addressed in turn.

### 3.2.1 Length of the averaging period

Given the CAPM is intended to reflect expectations as of the day of analysis, it is theoretically correct to base the risk-free rate on the prevailing yield on the date of the determination. However, problems may occur if there is a spike in yields on the day that the rate is applied. It is therefore now common regulatory practice to average the rate over a short horizon, which typically ranges from between ten and forty days. Averaging removes these spikes where the spikes are seen to be a short term one-off daily event.

The same logic can be applied given the current economic crisis which sees 10 year yields being the lowest they have been in over 50 years (see figure 2).

With the current crisis, rates are extremely low reflecting the Reserve Bank's attempt to stimulate the economy. When the stimulation takes affect and the economy recovers, rates should again increase. The rates cannot remain at a low level resulting in negative real rates of return. For example, Bloomberg News has stated:<sup>7</sup>

So-called negative real interest rates represent an emergency strategy by Chairman Ben S. Bernanke and are fraught with risks. The central bank would be skewing incentives toward spending, away from saving, typically leading to asset booms and busts that have to be dealt with later.

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<sup>7</sup> Referenced from Bloomberg.com dated January 29 2009.

Negative real rates are "a substantial danger zone to be in," said Marvin Goodfriend, a former senior policy adviser at the Richmond Fed bank. "The Fed's mistakes have been erring too much on the side of ease, creating circumstances where you had either excessive inflation, or a situation where there is an excessive boom that goes on too long."

We may experience deflation in the short term but it is highly unlikely that it will remain for any lengthy period. What the rate will increase to or when the rate will increase are unknown factors. As the best estimate of tomorrow's yield is today's yield, the best estimate of the average medium term yield in the future may well be the historic average over a medium term, say five years. Using an averaging period that incorporates some of the current financial crisis and normal times may be a better estimate of an average risk free rate that will prevail in the medium term. An average rate calculated over 12 months is 5.74% compared with 4.37% in the Draft determination.

### 3.2.2 Bias Adjustment

It has been observed that with the current financial crisis there has been an increase in the 'bias' in yields for Australian Commonwealth Government bonds. This is referred to as a 'bias' because it means that yields reflect factors other than risk. More specifically, the bias is caused by a desire by fixed interest investors to hold Government bonds. This demand results in an upward bias in price (downward bias in yield) which is commonly called the 'uniqueness' premium (it has also been termed 'the convenience yield'). Ignoring the recognised uniqueness bias jeopardises the appropriateness of using unadjusted yields on Government bonds as a proxy for the risk free rate of return. In our view, it is therefore correct to adjust or remove the bias<sup>8</sup>.

The Reserve Bank of Australia has previously recognised the impact of the desire to hold Commonwealth Government bond due to non-risk factors, although it has not been willing to acknowledge that this is a source of bias<sup>9</sup>:

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<sup>8</sup> The reason that the yield on Government bonds is lower than the CAPM risk free rate is that the bonds are affected by a uniqueness bias which arises from the unique characteristics of these bonds given:

- the source of liquidity that government debt provides;
- that some investors have a desire for sovereign debt;
- Government bonds are the required collateral for futures trading, and
- Government bonds are simple to understand without any complicating attached covenants or features.

<sup>9</sup> March 2004 RBA Financial Stability Review Report p15

Premia for credit default swaps (CDS), which measure the cost of insurance against a specific company defaulting, have fallen sharply in the past year and spreads between corporate bond and swap rates have also fallen (Graph 21). In contrast, interest rate spreads between corporate bonds and Commonwealth Government securities (CGS) have risen over the past six months, although this appears to reflect strong demand for CGS, particularly from overseas investors, rather than a judgment about credit quality in the Australian corporate sector.

This bias is to some extent always present given investors will always pay a premium for the convenience of holding Commonwealth Government bonds (relative to other securities). However, the key issue is that in recent times, the quantum of the bias has blown out considerably (as outlined below). It is only compensation for that difference – not the entire amount of the bias – that we would recommend seeking.

Historically, it has been difficult to estimate the uniqueness bias in Government bonds. However, the growth in the market for credit default swaps (CDS) has made it possible to quantify the bias. A CDS is effectively an insurance premium that insures against default risk. If for example the yield on AA corporate bonds was 7% and the cost of the CDS was 50 points then a 'zero risk' yield would be 6.5%. This yield can then be compared with the Government bond yield and the difference is the bias.

NERA<sup>10</sup> undertook a study and estimated that for January 2007, the 10 year Australian Commonwealth Government bond yield understated the risk free rate of return by 42 to 44 basis points. Synergies replicated the study<sup>11</sup> for October 2007 and found that the average bias using AA and A non-government was 55 basis points.

At the end of December 2008, the bias is 118 points as detailed in Table 1. This shows that the bias has increased by approximately 60 basis points.

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<sup>10</sup> NERA Economic Consulting, 'Bias in Indexed CGS Yields as a Proxy for the CAPM Risk Free Rate' March 2007.

<sup>11</sup> The data was sourced from the RBA using F3 Capital Market Yields and Spreads – Non-government Instruments and F2 Capital Market Yields – Government Bonds.

**Table 1 Risk free rate bias**

	AA-Spread	AA-CDS	Implied Bias
Jul-07	211	80	131
Aug-07	207	98	109
Sep-07	249	103	146
Oct-07	221	117	104
Nov-08	240	138	102
Dec-08	279	161	118
<b>Average</b>			<b>118</b>

Source: Reserve Bank, Capital Markets Yields and Spreads – Non-government Instruments F3

If the averaging period is not extended to estimate the risk free rate over a 12 month period then the 20 day average should be adjusted by 60 basis points for the increase in the bias occurring with the global financial crisis. In other words, even if the ERA does not recognise the full amount of the bias which is currently approximately 120 basis points, it should recognise the increase in the bias over the last six months, reflecting the impact of the global financial crisis, being 60 basis points.

### 3.3 Conclusion

Some adjustment is warranted to reflect the effect of the global financial crisis. In our view, it is important to recognise the impact of the crisis, particularly given the rate may well be fixed for a period. Adjustment should be by way of:

- using a twelve month average increasing the risk free rate from 4.37% to 5.73% (this is the preferred adjustment); or
- a bias adjustment of 60 basis points representing the change in the bias over the last six months. This increases the risk free rate from 4.37% to 4.97%.

## 4 Debt margin

### 4.1 Regulatory approach

The cost of debt capital is normally calculated as the risk-free rate plus a margin for credit or default risk. The typical approach to determining the debt margin involves:

- if the firm is unrated, assuming an appropriate 'notional' credit rating, which reflects the risk of default; and
- estimating an appropriate margin based on the difference between the current cost of debt for a firm of that credit rating, and the risk-free rate. This should be estimated over the same time period as the risk-free rate.

The ERA in their Draft determination did calculate the debt margin as described above. The margin was determined for a BBB rated business. We believe that the appropriate credit rating for TPI is B. Additionally a B rating is speculative grade and there is no publicly available data available, US evidence is required to calculate the appropriate debt margin.

### 4.2 Application to TPI

Normally to establish the notional credit rating, consideration is given to comparable businesses. Table 2 below summarises the businesses that the ERA's consultant used as comparable firms in order to recommend a credit rating for TPI.

**Table 2 CRA - Comparable firms for credit rating**

Company Name	Industry	Country	S&P Rating
Burlington Northern	Railroad	US	BBB
Canadian National Railway	Railroad	US	A-
CSX Corporation	Railroad	US	BBB-
Norfolk Southern	Railroad	US	BBB+
Union Pacific	Railroad	US	BBB
Orica Ltd	Mining Services	AU	BBB+
BHP Billiton	Diversified Minerals	AU	A+
Rio Tinto Ltd	Diversified Minerals	AU	BBB+
Oxiana Ltd	Diversified Minerals	AU	NR
United States Steel Corp	Iron Ore	US	BB+
Fortescue Metals Group	Iron Ore	AU	B+

It is important to realise that the most appropriate comparable businesses would be single line, single commodity short haul rail services, transporting iron ore for the export market. Comparators not having these characteristics must be interpreted with caution.

Synergies believes that comparable businesses would not be the Class 1 US rail networks which are much larger than TPI, offering a variety of services to a large diversified customer base. The credit risk qualities of the US sample do not compare with a single line, single commodity short haul rail service due to the former's diversified customer base, variety of services, network and size. All of these factors will tend to reduce the credit risk of the entities comprising the sample relative to TPI.<sup>12</sup> A benchmark single line, single customer short haul rail business transporting iron ore would have a credit rating lower than the BBB average of the US rail businesses.

With regard to the sample, very few mining companies have a credit rating. This is to be expected given that most of them carry very low levels of debt (and some may have difficulties raising debt). FMG does have a credit rating, which is currently B+. The only other S&P rated Australian iron ore producers are BHP Billiton (A+) and Rio Tinto Limited (BBB). These higher credit ratings reflect the relative size and diversification of these businesses (and being diversified the industry classification was not iron ore but diversified minerals). Again, a benchmark single line, single customer short haul rail business transporting iron ore would have a credit rating lower than the BBB- average of the iron ore/diversified mineral businesses. As mentioned above, size, diversity of customer base, and diversity of operations all have the effect of reducing credit risk.

The credit rating for TPI must be less than BBB-.

### 4.3 Comparable Firms

As discussed, TPI's situation is a unique one. The appropriate credit rating for TPI is not BBB for reasons discussed above. Synergies believe that railroad and diversified minerals businesses chosen as comparable firms are inappropriate. Consideration should be given to other factors being either:

- more appropriate comparable sample; and
- FMG itself given the unique situation.

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<sup>12</sup> S&P detail what qualitative characteristics affect risk and therefore rating. The above mentioned factors have the effect of reducing risk.

### *Panama Canal Railway*

There are very few firms with the characteristics of TPI. The only short haul single line rated railway that we could find was the Panama Canal Railway. This railway consists of a 47-mile single-line track linking Balboa and Colon with track for two-way traffic at strategic locations. Trains can operate continuously between the Atlantic and Pacific intermodal terminals with capacity for 10 trains in each direction every 24 hours. The business has exclusive right to develop, construct, and operate and manage the railroad and its infrastructure. Panama Canal Railway has a BB rating.

The two owners of Panama Canal Railway are Kansas City Southern and Mi-Jack Products. Kansas City Southern is a Class 1 railroad operator which is B+ rated and Mi-Jack products is not rated. It is surprising that the subsidiary entity (Panama Canal Railway) has a stronger credit rating (BB) than the parent entities (B).

### *FMG*

In our original submission we questioned whether a BBB credit rating was appropriate for the 'efficient benchmark firm', or, a below-rail operator of a single railway servicing a single dominant customer. As noted previously, we are of the view that an investor would price this risk based on the risk of the customer, and a lender will take a similar (and more conservative) view. Unless some form of credit enhancement is provided, from a lender's perspective, the credit risk of a loan to the railway can be no better than the credit risk of the major customer.

We therefore propose that the notional credit rating needs to be based on the risk of the underlying customer. As investment grade credit ratings are only likely to be able to be achieved by very large, diversified mining companies, FMG's B+ rating is considered a reasonable benchmark. As discussed previously, this assessment may change if another significant customer/s wanted to secure below-rail access from TPI.

### *Conclusion*

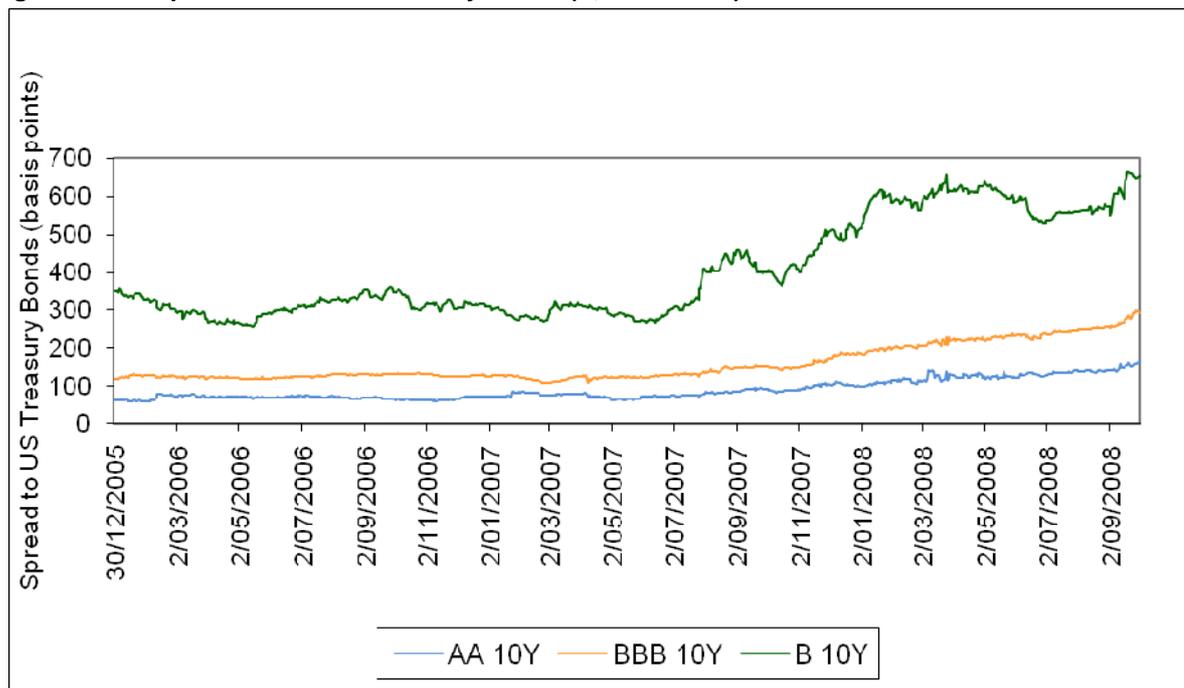
Synergies is of the view that the credit rating for TPI is B+, which is the same as the rating for FMG (noting that there is broad equivalence between the gearing assumed for TPI and FMG's actual gearing). The rating must be less than BBB-, the average rating for Class 1 rail networks and it cannot be any higher than BB, the rating of the most appropriate comparator business.

### 4.4 Quantifying the debt margin

There are no published bond yields for sub-investment (or speculative) grade debt in Australia (particularly for longer terms). This reflects the relative size and liquidity of the Australian market. The most likely scenario is that a speculative grade borrower would have to go offshore (such as to the US) to raise debt funding (as was the case with FMG).

There is a significant difference between spreads on investment grade and speculative grade debt reflecting investor perceptions of underlying differences in risk between the grade categories. This is particularly evident in the current market environment. For example, Standard and Poor’s data (from early September) suggests that the spreads on speculative grade bonds have widened to 796 points in the US, compared to 283 basis points for investment grade.<sup>13</sup> This is highlighted in the following chart, which compares the spreads on US A, BBB and B rated debt to US Treasury Bonds (10 years) since the beginning of 2006.

**Figure 2 US Spreads to 10 Year Treasury Bonds (A, BBB and B)**



Data source: Bloomberg

This is one of the most turbulent times in financial markets in recent history and hence these spreads will have blown out considerably (the difference between investment

<sup>13</sup> L. Peek (2008), “Credit Spreads Widen Despite Signs of Recovery”, The New York Sun, September 4, 2008.

grade and speculative grade was around 200 points one year ago<sup>14</sup>). However, assuming an investment grade credit rating will significantly understate the likely expected cost of debt for TPI because the 'efficient benchmark firm' in this case is not likely to be rated investment grade, and the difference in spreads is material.

The actual spread for FMG debt used to finance TPI was 1,981 basis points as at 31 December 2008. Table 3 illustrates the spread at various times during the tenor of the debt.

**Table 3 FMG's cost of debt**

Date	FMG – Cost of debt	Risk free rate	Spread (FMG - Rf)
11/08/2006	10.22%	5.84%	4.38%
31/12/2008	23.80%	3.99%	19.81%
13/02/2009	17.20%	4.23%	12.97%

Source: FMG

Note Caution is required for interpreting market data during the Christmas period due to the illiquidity in the market at that time.

Importantly it can be seen by examining the spreads that the market's assessment of the credit rating for TPI is not BBB. A BBB rating would result in spreads of around 300 basis points, on average from December 2008 to the present. The spreads incurred by FMG were more than 1,000 basis points greater than this.

## 4.5 Conclusion

Inferring information from US spreads and applying to Australian market data clearly presents challenges yet there is no better alternative given the absence of an Australian data source. In any case, we are of the view that the US market data would almost certainly understate the cost of raising speculative grade debt in Australia, given there is significantly more liquidity and depth in the US market

We have therefore estimated the spread between a BBB bond and the risk-free rate, based on the methodology outlined above. The yearly average to 31 December 2008 was 294 basis points.

We have then estimated the yearly average spread between 10 year US BBB and B rated bonds. This adds another 340 basis points to the cost of debt. The total debt margin is therefore 634 basis points.

<sup>14</sup> *ibid.*

## 5 Asset Beta

Asset betas are non observable and are estimated by de-levering equity betas. Equity betas can be estimated when the business is a listed business and, when this is not the case, the equity beta is estimated from comparable data. TPI is not a listed company and therefore its asset/equity beta needs to be estimated from comparable businesses. The question becomes what at the comparable businesses.

### 5.1 Comparable Businesses

Comparable businesses to TPI would be one that has similar operating characteristics. A comparable business to TPI would be single commodity, single line rail businesses operating in a remote location servicing an iron ore mining company producing for the export market. A search of available data quickly reveals that there are no businesses that are equivalent to TPI. Consideration needs to be given to;

- FMG being the predominant/single customer the rail business services;
- iron ore businesses as this is the product transported by TPI;
- Genessee & Wyoming as a short haul railroad operator; and
- Class 1 rail businesses and past regulatory decisions to reflect railroad operations where appropriate.

#### *FMG*

Synergies believes that single commodity businesses servicing one customer would result in the systematic risk of the business being similar to the business that it is servicing. TPI effectively is an extension of the operations of FMG. The operations of the two businesses are so closely linked in this situation that the systematic risk of TPI is similar to that of FMG. For example if FMG's production is adversely affected by an economic shock, then this would directly affect TPI. At the extreme, the asset beta for TPI would be the same as that of FMG.

FMG has an asset beta of 2.14.

#### *Australian Iron Ore Businesses*

Consideration should be given to other iron ore businesses as iron ore is the product that TPI is transporting. Fundamental to TPI's risk profile is identifying and analysing

the demand for its core services. Particularly where the analysis relates to major infrastructure that is not feasible to economically duplicate, the analysis needs to be extended to the services from which the infrastructure's demand is derived, which in this case, is the demand and supply of iron ore.

The equity and asset betas for Australian mining businesses have been derived using:

- the Monkhouse formula;
- the average gearing levels for each business over the five year period; and
- a debt beta of 0.

The results of the analysis are summarised in the following table.

**Table 4 Results of Beta Analysis**

Firm	Equity Beta	Average Gearing <sup>a</sup>	t-statistic	Standard Error	Asset Beta
Aquila Resources	1.50	0.0%	2.28	0.6586	1.50
BHP Billiton	1.47	7.7%	6.47	0.2276	1.36
Fortescue Metals Group	3.05	30.5%	2.39	1.2747	2.14
Gindalbie Metals Limited	3.23	0.0%	2.78	1.1632	3.23
Rio Tinto Limited	1.16	10.2%	4.07	0.2849	1.04

<sup>a</sup> Average over the past five years, Debt to Enterprise Value

Source: Bloomberg

The sample is small and diverse, reflecting firms of different sizes, maturity and levels of diversification. The asset beta range is from 1 to over 3. There are issues in moving towards either the lower or upper bound. The lower bound represents large diversified firms, which will have a considerably lower risk profile than a single commodity producer with operations in the one region. On the other hand, the upper bound is influenced by two relatively new producers.

The average asset beta of the sample is 1.85.

### *Genessee & Wyoming*

Of the listed US railway businesses, Genessee & Wyoming (GWI) is the most similar to TPI. An analysis of GWI reveals that it owns and operates short line and regional freight railroads in the United States, Canada, Australia and the Netherlands. Its operations currently include 63 railroads in nine regions, with more than 12,000 kilometres of owned, leased and operated on under access arrangements. Its mission is

to pursue organic growth opportunities as well as both domestic and international acquisitions.

While the short line operations are similar to TPI, other aspects are very different. The size of operations, the customer base, and the products transported. These factors would result in GWI having a lower asset beta than TPI. The ERA estimated the asset beta for GWI as 1.07.<sup>15</sup>

#### *US Rail Businesses*

Overseas railway comparators were also considered<sup>16</sup>. The average asset beta of the sample of the overseas rail businesses was 0.69. These estimates are reflective of businesses that are very dissimilar to TPI. These are large rail businesses with networked operations servicing a large variety of customers who operate in both the domestic and export markets. Given the large and diversified nature of the businesses, they must have lower betas than that for a small single commodity, single customer railway.

## **5.2 Conclusion**

The asset beta for TPI must fall somewhere between 2.14 (the asset beta for TPI) and 1.07 (the asset beta for Genessee & Wyoming). The ERA's consultant also considered that the asset beta for TPI be between that for a railway business and FMG.

Our view is that there is likely some sharing of risk between mines and an independent railway that was servicing those mines. As a result the asset beta for such a railroad would lie somewhere along a continuum between the asset beta for a diversified freight railroad and the asset beta for mining. Exactly where the beta might lie is a matter of judgment.<sup>17</sup>

Synergies believes that the appropriate asset beta would fall between the asset beta of the business that it services as it is an extension of the operations and that of the rail firm that most closely approximates the nature of the operations of TPI. The asset beta must fall between 1.07 and 2.14.

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<sup>15</sup> Table 2 Beta Estimates for US and Canadian Freight Railways, Draft Determination 2009.

<sup>16</sup> The overseas railroad firms have previously been considered in other Australian Rail regulatory decisions. Also the ERA did consider Australian regulated freight railways that had asset betas between 0.5 to 0.65. These decisions were distinguished from TPI due to the nature of the operations.

<sup>17</sup> WACC for TPI's Iron Ore Railway, by CRA International, 5 January 2009, p. 2

The question is where between these two estimates. In our earlier submission we argued that the asset beta be 1.85 which was the average of the iron ore sample group.

**Figure 3 Assessed beta estimates**



We see no reason to deviate from this estimate as we believe that the systematic risk of TPI to be most similar to FMG than to GW a large multi product, rail network operator servicing a diversified customer base.

## 6 Conclusion

The effects of the global financial crisis have impacted significantly upon Australian financial markets and it has many implications for the determination of the WACC for all businesses. Most of the parameters that are inputs to the calculation of WACC have been affected. The global financial crisis has seen the proxy for the nominal risk free rate of return drop to a level not experienced for more than 50 years. The market rate of return is the lowest it has been for more than 100 years and debt margins have increased from 150 basis points to 350 basis points for BBB rated bonds. These factors have resulted in negative real rates of return and a negative market risk premium.

Using the current risk free rate of return in the WACC calculation reduces the WACC to what it was before the effects of the global financial crisis. Thus we are faced with the seemingly illogical situation that the world is entering a new uncertain and risky period while rates of return are falling. Normally rates of return and risk have a positive linear relationship. This fundamental financial relationship is distorted due to the global financial crisis.

Some adjustment is warranted to reflect the effect of the global financial crisis. In our view, it is important to recognise the impact of the crisis, particularly given the rate may well be fixed for a period. The preferred adjustment should be by way of using a twelve month average increasing the risk free rate from 4.37% to 5.73%.

Consideration must also be given to the unique nature of the operations of TPI. TPI's situation is unique, particularly relative to other regulated below-rail infrastructure providers in Australia. TPI's network is currently dedicated to a single new development, with any third party users only likely to haul relatively small incremental tonnages. At the current time, the risk profile of the rail network is inextricably linked with the risk profile of the Cloud Break and Christmas Creek developments, which have an estimated mine life of 20 years. This unique situation poses a challenge for the asset beta and credit rating assessment.

Given the extent of TPI's dependence on the risk profile of the mining ventures it has been built to service, we are of the view that it is not appropriate to assess its beta by comparing it to other rail transport businesses. Changes in the demand for FMG's iron ore will be directly translated into changes in demand for rail haulage.

We cannot identify any ways in which (or reasons why), TPI's systematic risk would materially differ from the systematic risk of FMG's iron ore business whilst it remains an emerging producer.

The other consequence of TPI's unique situation is that in determining the notional credit rating of an 'efficient benchmark firm', the investment grade credit rating (usually BBB) that is generally assumed for regulated infrastructure providers is not appropriate here. Few mining companies have credit ratings and most have very low gearing levels.

FMG does have a rating, and is currently rated B+. Its actual gearing level is broadly compatible with the level assumed by the ERA. We are therefore of the view that the efficient benchmark firm with this risk profile is likely to be rated speculative grade. This therefore warrants the inclusion of an additional margin to reflect the difference between the cost of debt for a BBB and B rated issuer.

The asset beta for TPI must reflect the unique nature of the operations of TPI. The asset beta needs to be appropriate for a single commodity, single line rail businesses operating in a remote location servicing an iron ore mining company producing for the export market. A search of available data quickly reveals that there are no businesses that are equivalent to TPI. Consideration needs to be given to;

- FMG being the predominant/single customer the rail business services;
- iron ore businesses as this is the product transported by TPI;
- Genessee & Wyoming as a short haul railroad operator; and
- Class 1 rail businesses and past regulatory decisions to reflect railroad operations where appropriate.

We believe that the appropriate asset beta would fall between the asset beta of the business that it services as it is an extension of the operations and that of the rail firm that most closely approximates the nature of the operations of TPI. We believe that the asset beta be 1.85