

## Memorandum

To: Australian Rail Track Corporation  
From: Synergies Economic Consulting  
**Subject: Calculation of WACC inputs**  
Date: 21 December 2015

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### Scope

Australian Rail Track Corporation (ARTC) has requested Synergies Economic Consulting<sup>1</sup> to provide some updated inputs for the purpose of its Weighted Average Cost of Capital (WACC) calculation. The estimates we have been requested to provide are:

- a current estimate of the risk free rate;
- an estimate of the debt risk premium using data from the Reserve Bank of Australia (RBA), as at the end of October 2015;
- a current estimate of the Sydney CPI, adjusted for the impact of the Housing component.

### Risk free rate

We have estimated the risk free rate as an average of the ten year Commonwealth Government bond yield for the twenty days ending the 18<sup>th</sup> of December 2015. That estimate is 2.89% (annual effective).

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## Debt risk premium

We have been requested to provide an estimate of the ten year BBB debt risk premium (DRP) using the RBA's data as at October 2015.

There are two main issues to address in applying the RBA's data. The first is that the RBA currently only publishes data as at each month end. Most Australian regulators<sup>2</sup> estimate the DRP over a short averaging period (say, twenty days) to manage the risk of short term perturbations in the market. We note that the Australian Energy Regulator (AER) addresses this problem by interpolating daily estimates from the RBA's data. We consider that a reasonable approach is to take an average of the last two month ends (which in this case, will be September and October) given there are approximately twenty business days in a month.

The other issue is that the average tenor of the bonds in the RBA's ten year sample has been less than ten years. We have therefore extrapolated the ten year estimate to arrive at a 'true' ten year estimate, based on the slope of the RBA's yield curve (which is calculated using its three, five, seven and ten year yields). We note that the AER has recognised the appropriateness of this approach and also extrapolates the RBA's ten year estimates, although does so in a different way.

The resulting DRP estimate is 2.86% (annual effective).

## Inflation

We have been asked to provide an estimate of the Sydney (All Groups) CPI, excluding the Housing component. The rationale for excluding the Housing component is the ongoing speculation about the Sydney housing market. For example, in the UBS Global Real Estate Bubble Index, Sydney was given the highest value of the cities selected by UBS (1.39), meaning that it is considered 'overvalued'. The report states:<sup>3</sup>

Gradually deteriorating economic conditions, a slowdown in China and tighter regulations increase the risk of a significant correction in the medium term.

Comprising a 22.3% weight in the Sydney CPI<sup>4</sup>, there is a risk that the movement in the Housing component is distorting movements in the CPI for Sydney and consequently

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<sup>2</sup> We note the different approach now allowed by the Australian Energy Regulator as part of its annual updates of the DRP under the trailing average approach. This allows the businesses to nominate an averaging period between ten business days and twelve months.

<sup>3</sup> UBS (2015). UBS Global Real Estate Bubble Index, p.11. [https://www.ubs.com/global/en/wealth\\_management/wealth\\_management\\_research/global-bubble-index.html](https://www.ubs.com/global/en/wealth_management/wealth_management_research/global-bubble-index.html)

<sup>4</sup> Australia Bureau of Statistics (2011). Catalogue 6471.0 Consumer Price Index 16<sup>th</sup> Series Weighting Pattern, 2011.

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overstating the increase in general prices over the relevant period. For example, for the year ending September 2015, the Sydney CPI increased by 1.9%, while the Housing component increased by just over 3%.

We have therefore taken the ABS data for Sydney and estimated what the annual increase in the CPI would have been to September 2015, excluding the Housing Component<sup>5</sup>. We have done this by reweighting the remaining components based on their current proportionate share of the index. The resulting CPI estimate is 1.5%.

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<sup>5</sup> Australian Bureau of Statistics (2015). Catalogue 6401.0 Consumer Price Index, Australia, September 2015.