QCA Rate of Return Review

Submission on behalf of Dalrymple Bay Coal Terminal User Group

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Executive summary

The Queensland Competition Authority (QCA) published a request for comments paper in November 2020 relating to its review of the future approach to setting the rate of return or Weighted Average Cost of Capital (WACC) for regulated businesses. The request for comments paper sought feedback from stakeholders on various WACC issues, with a particular focus on the following three main categories of issues:

- The approach to assessing the reasonableness of the overall rate of return
- The cost of debt, and, in particular, implementing a trailing average cost of debt approach
- Beta, including how comparators should be selected.

Castalia has been asked by the Dalrymple Bay Coal Terminal User Group (the DBCT User Group) to consider the main issues raised by the QCA. The DBCT User Group represents companies who are current, and likely near future, users of the Dalrymple Bay Coal Terminal (DBCT). Castalia is an independent expert provider of economic and financial advice.

DBCT's services are subject to economic regulation by the QCA, hence the QCA's approach to setting a WACC has a critical economic impact on the terms of access to DBCT. This is true regardless of whether the undertaking to apply from 1 July 2021 utilises reference tariffs or a negotiate-arbitrate approach to pricing—as is currently being considered in the context of the DBCT draft access undertaking.

We strongly support the QCA having established and clear principles for estimating the rate of return for monopoly infrastructure.

WACC is one of the most frequently reviewed and closely studied topics in regulatory theory and practice. Since the QCA last reviewed its WACC in 2014-15, we do not believe there have been any fundamental breakthroughs in theoretical understanding of the cost of capital or significant improvements in the availability of information since then. As has been the case in regulatory practice, estimation of the cost of capital will continue to require practical short-cuts and judgements about trade-offs between theoretical consistency and the available data proxies. For example, while the Capital Asset Pricing Model is conceptually based on forward-looking assessment of risk by investors, in practice, all regulatory approaches rely on various historical averages of risk premia to approximate future risk.

To achieve the key regulatory principles of consistency and predictability, any change in the practical approaches and approximations involved in estimating WACC from the approach decided in the 2014-2015 review needs to be carefully justified. In essence, good regulatory practice tends to be relatively conservative. This means the current review primarily needs to consider whether:

- There is evidence that the practical approaches in use as a result of the judgements made during the 2014-15 review have led to demonstrably perverse or problematic outcomes
- There have been significant changes in market conditions (such as the effects of COVID-19), which may have materially affected the data proxies or approximations used, and, hence, require a different practical approach.

At the last review, QCA concluded that the approach adopted since 2015 most likely supports QCA achieving the pricing principles detailed in section 168A of the *Queensland Competition Authority Act 1997* (Qld)—which are relevant both when assessing the appropriateness of undertakings (s 138(2)) and in arbitrating access determinations (s 120). Hence, in this review, the question remains whether any changes would likely improve the likelihood of achieving the pricing principles.

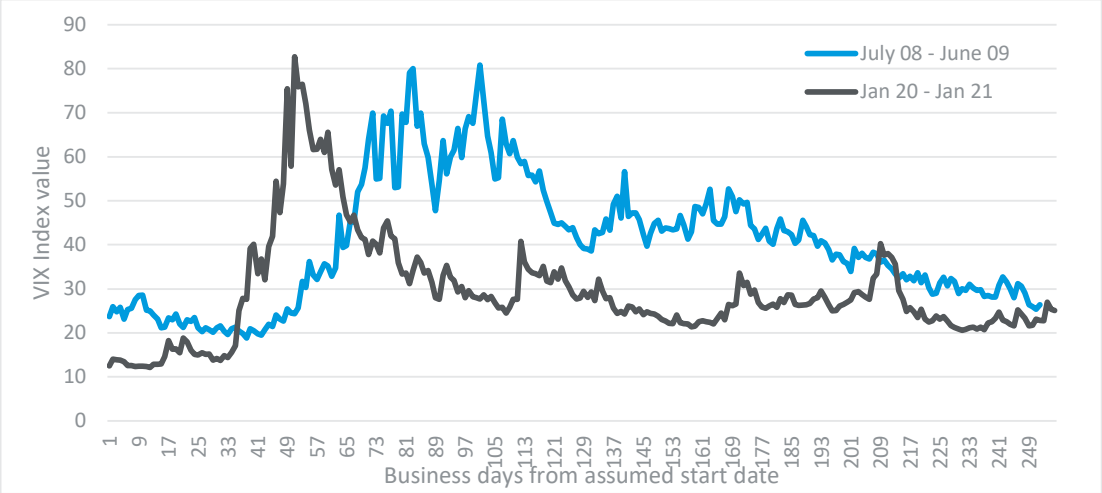
In this report, we focus on the most material issues. These are discussed in turn.

The impact of COVID-19 on risk in Australia was only short term, and does not justify a departure in WACC approach.

During the Global Financial Crises (GFC), Australian Economic Regulators faced an economic environment where sustained heightened risk levels indicated there may have been a structural shift in Australia's financial markets. This is why, for example, the Australian Energy Regulator departed from their usual Market Risk Premium assumption from 6.0 percent to 6.5 percent. In the end, even the GFC did not deliver a sustained change in the underlying risk relationships.

By contrast, COVID-19-related impacts on the financial markets were clearly even more short-lived. As shown below in Figure 0.1, the VIX index, a measure of financial market risk levels in Australia, only spiked briefly when COVID-19 spread, largely returning to pre-COVID-19 levels within a year. This is compared with the GFC, where high financial market risk was experienced for the majority of the year following the on-set of the GFC.

Figure 0.1: VIX index level comparison between the first year of the GFC and COVID-19 periods



Source: Yahoo Finance, Castalia's analysis

Combined with the fact that no Australian economic regulator adjusted their WACC approach following COVID-19, and that Australia is expected to experience a steady economic recovery in 2021, we do not believe there is sufficient evidence to suggest a departure in WACC approach.

We support the QCA to continue setting WACC on a 'bottom-up' basis, where 'Top-down' WACC values only serve as a point of reference.

An extensive review undertaken by the Australian Energy Regulator (AER) in 2018 found that 'top-down' WACC adjustments were not needed because 'bottom-up' estimates did not

exhibit a systematic bias upwards or down. Furthermore, the AER notes that any 'top-down' WACC adjustment would be considered arbitrary.

We understand that a core reason for a 'top-down' WACC adjustment is that infrastructure providers have argued that 'bottom-up' WACC estimates do not provide sufficient returns to incentivise investment. However, in our analysis we have not observed investment avoided or delayed where WACC was set on a 'bottom-up' basis. Indeed, we believe that 'top-down' WACC adjustments actually raise the regulatory risk faced by regulated businesses.

Applying 'top-down' WACC increases where there is no systematic downwards bias to 'bottom-up' estimates can result in over-investment, reductions in consumer welfare, and disincentives to make efficient investments in dependent markets. Combined with the apparent rapid return of the markets to pre-COVID risk levels, we are unable to find any justification for changing the current "bottom-up" approach to setting WACC using the CAPM formula.

We support an unweighted 'hybrid' trailing average cost of debt approach, implemented gradually, and 'trued-up' at the end of each regulatory period.

In theory, neither a trailing average nor a contemporaneous measure of the cost of debt is a reliable predictor of the future cost of debt. The main argument for moving from a contemporaneous measure (that is, the cost of debt at the time of the regulatory decision) to a trailing average is to avoid random effects of market volatility coinciding with the regulatory timetable. A trailing average smooths volatility effects over a number of regulatory periods.

However, if the principle argument for using a trailing average is to minimise price shocks, then similarly any process for the introduction of an averaging approach needs to minimise transitional price shocks.

For this reason, we support a 'hybrid' trailing average cost of debt approach, instead of a 'full' trailing average cost of debt. We support the 'hybrid' approach because it balances the conceptual merit of a trailing average cost of debt approach, with a risk free rate that is internally consistent with the cost of equity and regulatory stability in WACC methodology. In implementing a 'hybrid' trailing average cost of debt approach, we support the following:

- Term to maturity of each debt tranche that matches the regulatory period. This will preserve the QCA's NPV = 0 principle and minimise the likelihood of overestimating the cost of debt from a higher term to maturity
- Unweighted trailing average instead of estimating the weights of each debt tranche by the amount of debt financing. This will minimise administrative complexity and regulatory burden; and
- Progressive transition, rather than immediate application, with 'true-ups' occurring at the end of regulatory periods, in order to minimise regulatory risk and improve price stability.

We propose a four-factor framework to choose comparators. This is because they provide a stronger indication of risk. Further, we believe that international comparators should only be used in very limited circumstances.

We believe the QCA should consider the following four factors when choosing comparators:

- Extent of market power,
- Ability to exercise market power to set prices,
- Amount of volume risk faced, and

- Extent of capital intensity.

This framework is similar to that identified by the QCA in its request for comments paper.

In applying this framework, emphasis should be placed on Australian comparators because the risk relative to the market portfolio faced by firms of similar industries are different in international markets. This is because the composition of those markets and earnings volatility of apparently similar businesses can be very different to Australia. International comparators should only be used where there is a paucity of data, or to cross-check Australian comparators.

The Market Risk Premium should be estimated by reference to historical data.

The Market Risk Premium (MRP) is unobservable, and prone to estimation error. We believe using a historical estimate of the MRP—calculated using either the Ibbotson or Siegel method—is the best approach to minimize error, and achieve results that are robust, objective, and verifiable.

Forward-looking approaches are highly subjective and sensitive to its assumptions and should be used with care even as simple cross-checks to historical estimates. Finally, we do not believe there is compelling evidence that shows the Wright method estimates a representative historical MRP. Therefore, we don't believe the QCA should place any weight on that method.

1 Introduction and assessment framework

In November 2020 the Queensland Competition Authority (QCA) commenced its review on its future approach to set the rate of return—generally estimated as the Weighted Average Cost of Capital (WACC). Subsequently, the QCA published a request for comments paper (QCA Comments Paper) seeking feedback from stakeholders on various WACC issues, focussing on the following three main issues[1]:

- The approach to assessing the reasonableness of the overall rate or return
- The cost of debt, and in particular, implementing a trailing average cost of debt approach.
- Beta, including how comparators should be selected.

Castalia has been asked to prepare this submission by the The Dalrymple Bay Coal Terminal User Group (the DBCT User Group). The DBCT User Group represents companies who are current, and likely near future, users of the Dalrymple Bay Coal Terminal (DBCT).

DBCT's services are declared and are subject to economic regulation by the QCA. As a result, QCA's approach to setting a WACC has a critical impact on how DBCT's services are regulated—particularly on regulated pricing—and, therefore, the commercial position of the DBCT User Group.

We thank the QCA for the opportunity to comment on the QCA's future approach to WACC for the DBCT and other regulated entities.

Current context in setting a WACC, and key matters to be addressed

The primary purpose of estimating a WACC for the QCA is for its pricing assessments. The QCA's pricing assessments can take the form of price monitoring reviews, investigations into pricing practices, assessment of access undertakings, and arbitrations of pricing in access determinations. In the context of DBCT, the WACC is a critical input in assessing the reasonableness of DBCT's access prices, regardless of whether the undertaking to apply from 1 July 2021 utilises reference tariffs or a negotiate-arbitrate approach to pricing—as is currently being considered in the context of the DBCT draft access undertaking.

The QCA provides clear guidance on its principles for pricing assessments. QCA's pricing principles is set out in its 2013 Statement on Regulatory Pricing Principles (QCA PP paper)[2], which provides three high level pricing principles:

- Economic efficiency—whether a price is likely to maximise net economic benefits to the entire Queensland economy
- Fairness—whether a price addresses concerns about equity and particular government social policy goals

[1] Rate of return review – Request for comments, November 2020, QCA

[2] Statement of Regulatory Pricing Principles, August 2013, QCA

- Regulatory governance and practice—whether a pricing outcome is based on a transparent and predictable regulatory process.

The QCA's approach to estimating a WACC has well-established regulatory precedent. However, the last major review of its WACC approach was in 2014-15. Given over five years has passed since the QCA's last major WACC review, and that the onset of COVID-19 in Australia has introduced a significant amount of risk to Australian financial markets, we believe the QCA's current WACC review is about answering the following two key questions:

- Has COVID-19 led to structural shift in the Australian economy, and thus justifies a departure from QCA's current regulatory approach to WACC
- What approach to WACC would most likely achieve QCA's pricing principles.

The QCA Comments Paper sets out a series of questions on a broad number of WACC issues. Instead of commenting on each of them, we have focussed this submission on those that we believe are most material and subject to debate. These are identified immediately below.

Submission structure

We have structured this submission as follows:

- Section 2 explains why the on-set of COVID-19 does not justify a departure in WACC approach
- Section 3 discusses why 'top-down' WACC estimates should only serve as a reference point for a 'bottom-up' WACC
- Section 4 discusses why we support a gradually-implemented, unweighted 'hybrid' trailing average cost of debt approach
- Section 5 discusses a framework for the QCA to select comparators
- Section 6 discusses why the Market Risk Premium should primarily be based on historical estimates.

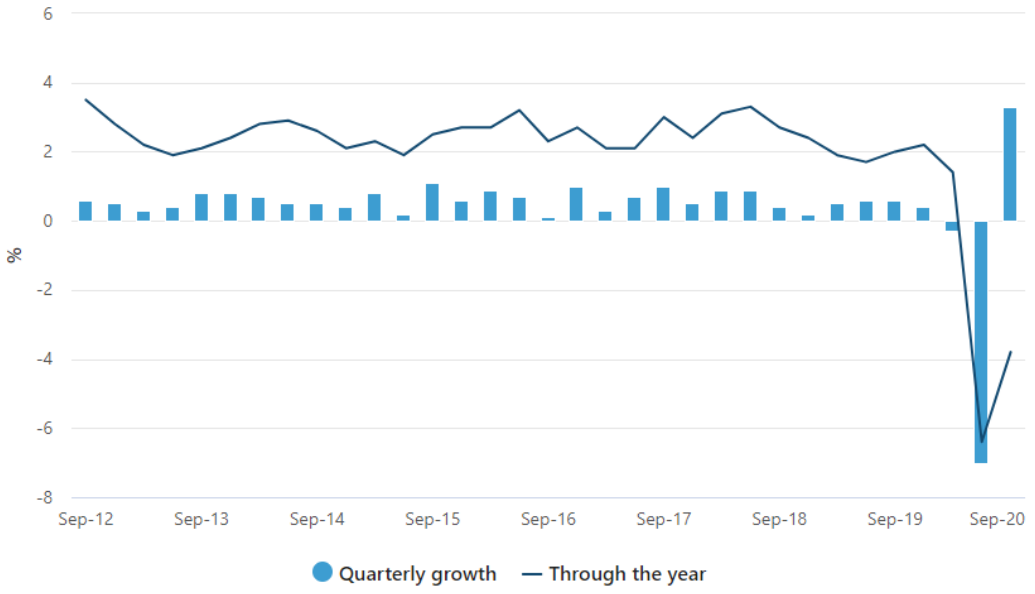
2 We don't believe the on-set of COVID-19 justifies a departure in WACC approach

In this section, we explain that while COVID-19 has had an impact on the Australian Economy, there is no compelling evidence to justify a departure in WACC approach, particularly given that other economic regulators have not done so either.

COVID-19 had a significant negative impact on Australia's economy.

COVID-19 in Australia had a strong negative impact on the economy in the first half of 2020. Over the past 10 years, Australia has generally experienced steady annualised GDP growth rates of between 2-3 percent per year. However, and as seen below in Figure 2.1, the on-set of COVID-19 had caused Australia's economy to shrink in 2020, with GDP at negative growth rates of -0.3 percent for Q1 2020, and -7.0 percent for Q2 2020. In line with the reduced economic activity, Australia also experienced both negative inflation and wage deflation in Q2 2020.

Figure 2.1: Australia Quarterly GDP growth rates



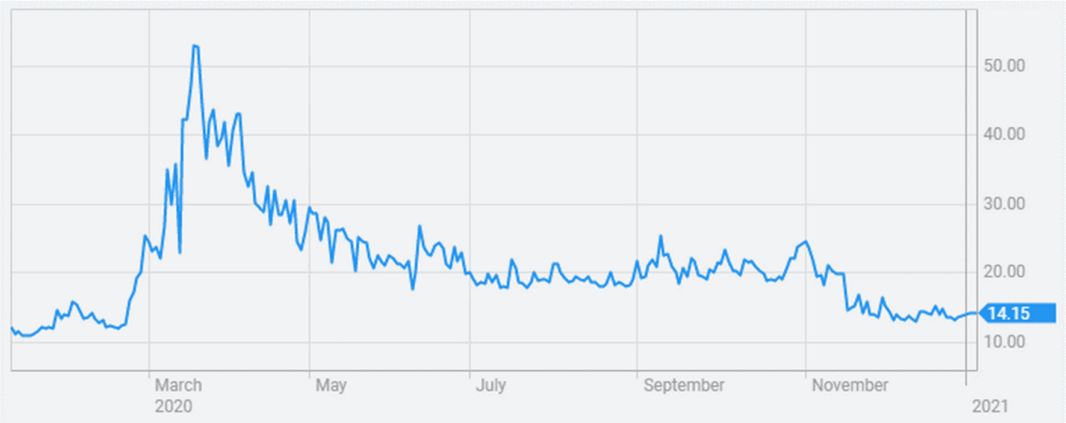
Source: ABS

The negative economic impact of COVID-19 also raised risks levels in 2020, where financial volatility rose and business confidence dropped. The Reserve Bank of Australia reported that business confidence dropped by over 50% in the first half of 2020[3]. The S&P ASX200 VIX index, which measures volatility in Australia's equity markets, rose significantly in the first half of

[3] Statement on Monetary Policy, November 2020, Reserve Bank of Australia, p.38

2020. The impact on the VIX index is shown below in Figure 2.2, where a high number means greater volatility.

Figure 2.2: S&P ASX200 VIX index value (January 2020 to January 2021)



Source: Australian Stock Exchange

Although COVID-19 did raise risk levels in the first half of 2020, economic regulators did not depart from their approach to estimating WACC in response.

We understand that the last time risk levels spiked this much in Australia was during the Global Financial Crisis (GFC), and in response economic regulators increased the WACC. A key example is the Australian Energy Regulator's (AER) response to the GFC. In the 2008-09 period—the same period when the GFC occurred—the AER conducted a comprehensive review into WACC parameters (AER WACC Review)[4]. The AER WACC Review found that stable market conditions did not exist in 2008-09 due to the GFC. To address the sustained, heightened risk at that time, the AER increased the MRP from 6.0% to 6.5%.[5] The AER WACC Review also noted that under stable market conditions, retaining an MRP of 6.0% continues to be appropriate.[6]

Indeed, due to the initial spike in market volatility in the first half of 2020, investment practitioners believed an additional equity risk premium was needed on top of the standard Capital Asset Pricing Model (CAPM) approach. At the time, investment practitioners believed that the standard CAPM approach of using an on-the-day risk free rate and historical MRP may underestimate the cost of equity. Instead, investment practitioners believed an additional equity risk premium, colloquially named the "COVID-19 Risk Premium" should be included on top of the standard CAPM approach to better reflect the actual cost of equity. PwC in their March 2020 COVID-19 valuation paper suggested adding an additional 25 to 200 basis point to the CAPM cost of equity due to COVID-19.[7]

[4] Electricity transmission and distribution network service providers - Review of the weighted average cost of capital (WACC) parameters, May 2009, Australian Energy Regulator

[5] Electricity transmission and distribution network service providers - Review of the weighted average cost of capital (WACC) parameters, May 2009, Australian Energy Regulator, p.xv

[6] Electricity transmission and distribution network service providers - Review of the weighted average cost of capital (WACC) parameters, May 2009, Australian Energy Regulator, p.xiv

[7] https://www.pwc.com.au/deals/assets/adjusting-for-covid-19-in-valuations-190320.pdf

However, Australian economics regulators did not depart from their WACC approach due to the high market volatility in the first half of 2020. While Australian economic regulators acknowledged that the impact of COVID-19 presented difficult business conditions, they either implicitly did not believe the impact of COVID-19 was relevant in estimating a WACC, or that it justified a departure in WACC approach. For example:

- The Economic Regulatory Authority of WA (ERA) in its August 2020 decision on the Dampier to Bunbury Natural Gas Pipeline only considered the impact of COVID-19 in the context of future expenditure levels, and not the WACC[8]
- The Independent Pricing and Regulatory Tribunal (IPART) in its July 2020 decision on Sydney Water did not believe COVID-19 justified a change to its cost of equity methodology.[9]
- In contrast to its response to the GFC, the AER, in their June 2020 decision on Jemena Gas Networks only made a slight technical adjustment to how it forecasts inflation[10], and overall did not change their WACC approach.[11]

There isn't compelling evidence that COVID-19 has led to a structural shift in Australia's financial markets that would justify a departure in WACC approach.

We believe the QCA should only consider a departure in WACC approach if there is evidence of persistent market instability. Compared to the GFC, change in the risk structure caused by COVID-19 appears to be even more short-term and transitory in its impact. There are two main pieces of evidence that support this.

First, the heightened risk levels in 2020 financial markets were relatively short-term when compared with the GFC. As shown below in Figure 2.3, if we compare the VIX levels of the first year of the GFC compared with COVID-19, we can see that while the onset COVID-19 and the GFC both led to a spike to the VIX by a similar degree, the GFC had a much more enduring impact on risk levels compared with COVID-19.

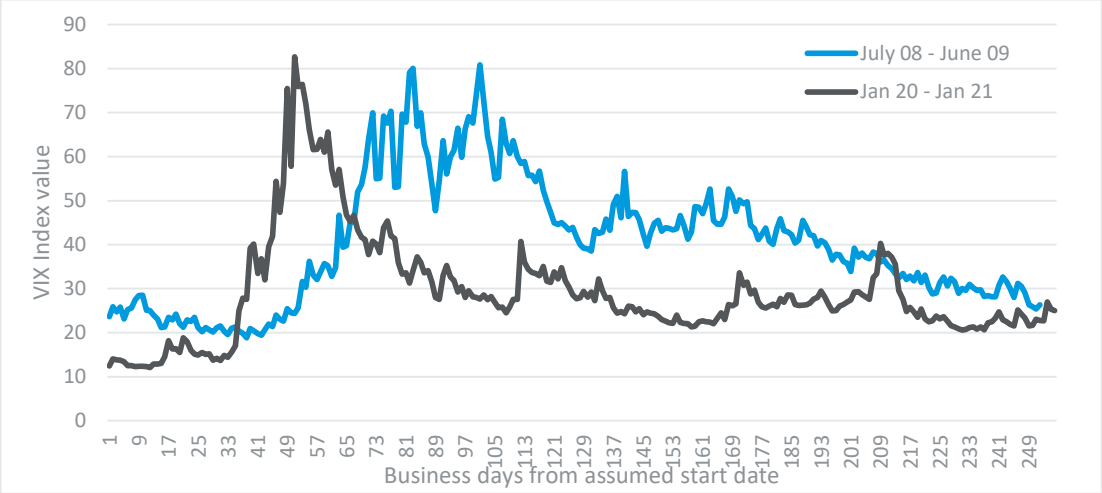
[8] https://www.erawa.com.au/cproot/21401/2/DBNGP---DBP---AA5-Draft-Decision---Public-Version.PDF

[9] https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/pricing-reviews-water-services-metro-water-prices-for-sydney-water-corporation-from-1-july-2020/legislative-requirements-prices-for-sydney-water-corporation-from-1-july-2020/final-report-review-of-prices-for-sydney-water-june-2020.pdf

[10] The AER decided to use the 'trimmed mean inflation' measure in lieu of the CPI to forecast inflation. This is alternative way to measure inflation that removes outliers in the underlying data.

[11] https://www.aer.gov.au/system/files/AER%20-%20Final%20decision%20-%20JGN%20access%20arrangement%202020-25%20-%20Attachment%203%20-%20Rate%20of%20return%20-%20June%202020_0.pdf

Figure 2.3: VIX index level comparison between the first year of the GFC and COVID-19 periods



Source: Yahoo Finance, Castalia's analysis

Second, the Australian economy is likely to return to stable conditions in 2021. The RBA forecasts a return to stable levels of economic growth and inflation from 2021 onwards. The RBA forecasts GDP to grow by three and four percent for 2021 and 2022 respectively. Further, the RBA forecasts inflation to be between 1.0 to 1.5 percent over the same period[12].

[12] Statement on Monetary Policy, November 2020, Reserve Bank of Australia, p.81

3 ‘Top-down’ WACC values should only serve as a point of reference for a ‘bottom-up’ WACC

In this section, we show that, while there is merit for ‘top-down’ WACC values as a cross-check, there are several reasons why the QCA should not use ‘top down’ WACC values to adjust ‘bottom-up’ WACC estimates. Furthermore, we explain that using ‘top down’ WACC values to adjust ‘bottom-up’ WACC estimates would not align with QCA’s regulatory pricing principles.

We support using ‘top-down’ WACC values as a cross-check.

We understand that estimating a WACC in economic regulation is an imprecise science. Although regulators typically estimate WACC on a ‘bottom-up’ basis using theoretically proven economic and financial models, there is still a degree of imprecision. This is because we are attempting to estimate the future required rate of return, based on financial models and current market expectations.

Given the potential room for error, we support using ‘top-down’[13] estimates of WACC to serve as a cross-check for ‘bottom-up’ WACC estimates. We appreciate that ‘top-down’ WACC estimates provide additional information that can increase the confidence that a ‘bottom-up’ WACC estimate is reasonable. A ‘top-down’ WACC cross-check is also common practice applied by other Australian economic regulators such as the AER.

However, we don’t believe adjusting a ‘bottom-up’ WACC from ‘top-down’ analysis is necessary, and believe it can be arbitrary.

Recent regulatory WACC reviews have shown that a WACC estimated on a ‘bottom-up’ basis provides an unbiased view of the required cost of capital by investors.

The most extensive of such reviews were undertaken by the AER in its 2018 Rate of Return review. In the AER’s 2018 Rate of Return review, the AER considered the following two questions in the context of ‘top-down’ WACC adjustments:

- Whether there is evidence that a ‘bottom-up’ WACC under or over-estimates a WACC value
- Whether the risk or cost from under or over-estimating WACC justifies a conscious bias, such as an additional WACC allowance.

The AER found that ‘top-down’ WACC adjustments were not necessary because its analysis showed that ‘bottom-up’ WACC estimates did not systematically under or over-estimate WACC values.[14] The AER also found that if there was an under or over-estimate of WACC, this had an equal likelihood. As such, any such regulatory imprecision would be anticipated to equalise over the long-term economic life of a regulated infrastructure asset.

[13] Top-down WACC is defined as a WACC estimated by focussing analysis on the overall WACC value, such as through benchmarking returns of businesses similar to the regulated entity

[14] 2018 Rate of return instrument – explanatory statement, Australian Energy Regulator, p.406

Even if 'top-down' WACC adjustments are necessary, recent analysis have not shown a robust way to make those adjustments. In the same 2018 Rate of Return review in relation to a 'top-down' WACC adjustment, the AER found that:

> '…
>
> - Any [WACC] adjustment would be arbitrary. There is no objective analysis that can point to a particular magnitude of adjustment that might be made
> - If our rate of return is incorrect, then adding an arbitrary adjustment may move our rate of return even further from the efficient outcome
> - We have the sense that the costs arising from a rate of return that is too high or too low accelerate the further we are from the efficient level. Adding an arbitrary adjustment may therefore introduce larger costs.
>
> …'[15]

For the same reasons, we are strongly opposed to a 'top-down' analysis being relied on for an overall WACC value without undertaking an assessment of the individual WACC parameters. Such an approach would further reduce regulatory certainty and place extreme pressure on the QCA to estimate an appropriate WACC with precision without the foundation of a 'bottom-up' analysis.

Relying on 'top-down' analysis for an overall WACC value It would be particularly unsuited to a negotiate-arbitrate model. In order for a negotiate-arbitrate model to create incentives to negotiate, the QCA's likely approach to arbitration needs to be clearly appreciated by the negotiating parties in advance of any arbitration.

We have not seen regulated businesses avoid or delay investment when a 'bottom-up' WACC has been applied.

We understand that the major risk that 'top-down' WACC adjustments are attempting to mitigate, is that a 'bottom-up' WACC is insufficient and may disincentivise investment that otherwise should occur. However, we have generally not observed that behaviour with regulated businesses in Australia. Using 'Bottom-up' WACC estimates is common practise among Australian economic regulators, and of those companies being regulated we have seen a steady build-up in their regulatory asset base (RAB).

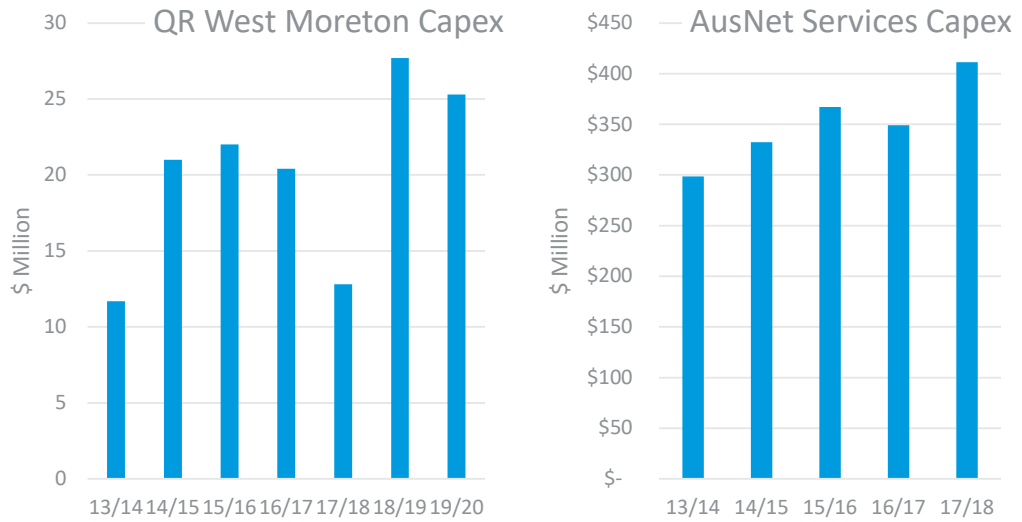
In respect of DBCT, the terminal has undergone a major expansion during the period in which the QCA has determined reference tariffs on a bottom-up basis.

To demonstrate our point, we have identified two other examples outside of the DBCT experience where there has been no 'pullback' in Capital Expenditure (CAPEX) where a 'bottom-up' WACC was applied. Figure 3.1 below shows the level of CAPEX for Queensland Rail's West Moreton network and Ausnet Services (Victoria's electricity distribution network).

These businesses are regulated by the QCA and the AER respectively, and their WACCs were both determined on a 'bottom-up' basis. Other than a drop in 2017/18 for Queensland Rail's West Moreton network and 2016/17 drop for AusNet Services, both businesses have steadily increased their level of CAPEX.

[15] 2018 Rate of return instrument – explanatory statement, Australian Energy Regulator, p.407

Figure 3.1: Past closing Regulatory Asset Base for Queensland Rail's West Moreton network, and Ausnet Services ($ million)



Source: QCA, Castalia's analysis

'Top-down' WACC adjustments raises the risk profile of regulated entities.

'Top-down' WACC adjustments are an exercise of judgement by economic regulators. In deciding the extent of any 'top-down' WACC adjustment, we consider that economic regulators would need to make three decisions:

- what evidence it should use
- what weight it should apply to each piece of evidence, and
- how each piece of evidence influences the extent of any WACC adjustment.

Given the extent of judgement required in these three decisions, regulated businesses and their customers face greater regulatory risk.

An example of such regulatory risk from a 'top-down' WACC adjustment is the WACC decision on Aurizon's 2017 draft access undertaking (Aurizon DAU). During the draft decision on the Aurizon DAU, QCA applied a 'bottom-up' WACC. However, in the final decision on the Aurizon DAU, the QCA applied a 25 basis point increase to a 'bottom-up' WACC. The basis for this decision is that the QCA believed that the 'bottom-up' WACC was too low, and that a 25 basis point increase—estimated as the difference between a 10 year and 4 year risk free rate—was needed. It was arguably difficult to anticipate that the QCA would do this, and that it would seek to apply 25 basis points out of all other possible adjustments.

While 'top-down' WACC values as a cross-check would most likely advance QCA's regulatory pricing principles, 'top-down' WACC adjustments would not.

Using 'top-down' WACC values as a cross-check of 'bottom-up' WACC estimates is likely to increase overall economic efficiency. This approach provides further information that would allow the QCA to check reasonableness of the WACC value.

Current evidence shows that adjusting 'bottom-up' WACC estimates from 'top-down' WACC values is unlikely to increase overall economic efficiency. Instead, it is likely to lead to poorer regulatory governance and practice because regulatory WACC decisions will become less

based on a predictable regulatory process. This is particularly important in a negotiate-arbitrate model of the type that the QCA is currently considering in relation to the DBCT draft access undertaking. In negotiate-arbitrate models, predictability of QCA arbitration outcomes is critical to enhancing the prospects of incentivising negotiated outcomes.

4 We support a gradually implemented, unweighted, 'hybrid' trailing average cost of debt approach

In this section, we discuss that a trailing average cost of debt has merit, and that we believe an approach that is:

- unweighted
- 'hybrid' trailing average cost of debt
- 'trued-up' at the end of regulatory periods
- implemented gradually, and
- with a term to maturity that matches the regulatory period.

is the implementation approach that best meets the QCA's regulatory pricing principles.

We understand that the QCA had already extensively reviewed the trailing average cost of debt approach.

The QCA undertook an extensive review to move away from an on-the-day cost of debt approach to a trailing average cost of debt approach in 2015 (QCA Trailing Average Review). At the time, the QCA believed there wasn't compelling evidence to move to a trailing average cost of debt approach for two reasons[16]:

- Immediately applying a trailing average cost of debt approach means that the cost of debt allowance is not based on the prevailing cost of debt financing
- Assuming a 10-year term of debt is likely to overcompensate the cost of debt, particularly given that regulatory periods for QCA's regulated businesses are shorter than that.

However, we do note that the QCA said that if a trailing average cost of debt is applied, it prefers a 'hybrid' approach. A hybrid approach retains the on-the-day risk free rate, but also uses a trailing average debt risk premium to estimate the cost of debt.

We agree with the QCA, and support a 'Hybrid' trailing average cost of debt approach.

In principle, we support a trailing average cost of debt approach. We agree with the Queensland Treasury Corporation, which concluded in its 2014 paper that a trailing average approach better reflects benchmark debt management practices, and more likely reflects the actual cost of debt for a benchmark regulated business.[17] Further, we believe that the trailing average cost of debt approach is likely to lead to more stable prices between regulatory periods, hence reducing the risk of price shocks.

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[16] Trailing average cost of debt– Final Decision, April 2015, QCA

[17] Trailing average cost of debt Draft Decision - updated submission to the Queensland Competition Authority, October 2014, Queensland Treasury Corporation

We also agree with the QCA that a 'hybrid' trailing average cost of debt approach is preferred to a 'full' trailing average cost of debt approach. A trailing average cost of debt approach is a significantly different methodology to the QCA's current on-the-day approach. To implement a trailing average cost of debt approach, we believe the challenge for a regulator such as the QCA is that it needs to balance conceptual purity, regulatory stability, and internal consistency with the cost of equity. We believe the 'hybrid' trailing average cost of debt approach represents the appropriate balance because:

- The risk-free rate would be internally consistent with the cost of equity
- The commercial impact is only restricted to a change in the way the debt risk premium is estimated, and
- It provides a cost of debt allowance that more closely aligns with benchmark debt management practices.

To implement a 'hybrid' trailing average cost of debt approach, there are a four implementation issues.

First, the term to maturity of each debt tranche should match the regulatory period.

When the trailing average cost of debt approach was first considered by the QCA in 2015, it was assumed each debt tranche had a term to maturity of 10 years. This effectively implies that the cost of debt is estimated by reference to a debt portfolio with an average term to maturity of 10 years.

We agree with the QCA that taking this assumption is likely to overstate the cost of debt and violate the QCA's NPV = 0 pricing principle. This is because the theoretically consistent approach is to apply a term to maturity that matches the regulatory period, given that at the beginning of each regulatory period, the cost of capital is reset.

We believe the QCA should continue to assume a debt term to maturity matching the regulatory period (which for DBCT has typically been five years). This approach would minimise the likelihood of the cost of debt being overstated and is consistent with the QCA's NPV = 0 pricing principle.

Second, a simple unweighted trailing average provides the right balance between simplicity and conceptual purity.

We understand that the conceptually consistent way of estimating the weights of each debt tranche in the trailing average cost of debt approach is by reference to the forecast amount of debt finance being raised. Businesses customise each time it raises debt based on considerations such as the amount of CAPEX it needs to finance, how much debt is being retired, or any debt restructuring needs. Therefore, by assigning the weights of each debt tranche in accordance to how much debt is raised, the QCA would arrive at a more accurate estimate of the total cost of debt.

However, such a weighted trailing average cost of debt approach has two significant drawbacks. These are:

- Administrative complexity—debt tranche weights will need to be individually determined based on various inputs, such as capital expenditure needs. To the extent actuals are different to forecast, the QCA will need to carefully review a regulated business' debt management activities to estimate a 'true-up', adding to the administrative complexity

- Greater regulatory cost—the QCA will need to spend more resources and time on interrogating the efficiency of a regulated business' debt management practices, and, vice-versa, the regulated business will spend more resources and time justifying itself.

We believe that a simple 'hybrid' trailing average, where equal weights are applied to each debt tranche, is better because it is administratively simpler and less costly, without too much of a departure from conceptual purity. Indeed, this approach has been adopted by regulators such as the AER.

Third and fourth, the trailing average cost of debt approach should be progressively transitioned where 'True-ups' are applied at the end of regulatory periods.

We support a 'true-up' mechanism to the trailing average cost of debt approach; however, we believe annual 'true-ups' create unnecessary regulatory risk. A 'true-up' mechanism would address a key issue identified in the QCA Trailing Average Review: that a trailing average cost of debt approach is not representative of the prevailing cost of debt. However, annual 'true-ups' can cause fluctuations to prices faced by customers of regulated businesses. This leads to greater regulatory risk, which is ultimately borne by such customers.

Similarly, an immediate application of the trailing average cost of debt approach would also increase regulatory risk. The QCA has long applied an on-the-day approach to estimate a cost of debt, hence regulated businesses are likely to have optimised their debt management strategies to that regulatory approach (as the DBCT User Group has understood has been the case in respect of DBCTM).

Moving towards a trailing average cost of debt approach is likely to require regulated businesses to re-optimise their debt management strategy to align with the trailing average approach. The move has the potential to cause significant and unexpected changes to a company's debt financing cost, because they may need to re-adjust their hedging contracts, financing strategy, and debt raising volumes in response to the trailing average approach. This raises regulatory risk, which are ultimately borne by the customers of regulated businesses.

To minimise regulatory risk, we support a trailing average cost of debt approach that is 'trued-up' at the end of regulatory periods, and transitioned progressively. A 'true-up' at the end of regulatory periods means there is less WACC and price volatility during regulatory periods, and hence regulatory risk. Furthermore, this approach will maintain the ability for regulated businesses to overall earn a cost of debt based on prevailing yields.

We understand that a 'true-up' mechanism somewhat adds to administrative complexity. However, we believe this is outweighed by the benefits of a cost of debt that more closely aligns with prevailing debt yields. Further, our proposed approach of a 'true-up' at the end of regulatory periods minimises such administrative complexity.

A progressive transition to a trailing average cost of debt approach provides more time for a regulated business to re-adjust their debt management strategies to suit, and hence reduce regulatory risk. Indeed, the cost impact and practical difficulties from moving immediately to a trailing average cost of debt approach is why the AER in their 2013 Rate of Return guideline review decided on a progressive transition[18].

[18] 2013 Rate of return instrument – explanatory statement, Australian Energy Regulator, p.121

For completeness, we recognise that it will be difficult to implement any universal true-up mechanism in a negotiate-arbitrate setting like that currently being considered in respect of DBCT's draft access undertaking.

An unweighted 'hybrid' trailing average cost of debt approach, progressively transitioned and 'trued-up' at the end of regulatory periods, has better alignment to QCA's regulatory pricing principles.

A trailing average cost of debt approach is more likely to increase economic efficiency because it better aligns with current evidence on efficient benchmark debt management practices, hence is more likely to improve overall economic efficiency.

To implement the trailing average cost of debt approach, we believe the QCA should apply an unweighted 'hybrid' approach, progressively transitioned and 'trued-up' at the end of regulatory periods, and with a term to maturity matching the regulatory period.

A trailing average cost of debt approach represents a significant departure from an on-the-day approach. Our proposed implementation approach balances the improvements to economic efficiency from applying a trailing average approach, minimising the regulatory risk and burden in moving to a trailing average approach, and addresses the QCA's prior issues in implementing a trailing average cost of debt approach.

5 Framework to choose the most representative comparators

In this section, we propose a simple four-factor framework to choose appropriate comparators. Next, we discuss why toll roads and class 1 railroads should not be considered by the QCA, and that the QCA should focus on Australian comparators.

Choosing the most representative comparators is critical

Comparators are companies that closely match the characteristics of the benchmark regulated firm, and have a significant bearing on the WACC. Comparators are used to estimate three major components of the WACC: the equity beta, the credit rating, and the extent of gearing. This means that the sample of comparators has a direct bearing on both the cost of equity and cost of debt, and the weighting applied to each. Typically, it will be appropriate to select the same comparators for each of those purposes.

Identifying comparators in regulation is about identifying companies that present a similar risk profile, and exhibit the same commercial responses, as the benchmark regulated firm. This means that one needs a thorough understanding of the characteristics that drive profitability and risk of the benchmark regulated firm. This also means that the assessment framework to select comparators should also be based on that understanding.

As the QCA has recognises in its paper, similarity of a firm's physical or operational characteristics will not necessarily indicate similar system risks. There can be other factors that more heavily influence the way in which a firm's returns moves with the market. For these reasons, the DBCT User Group has always supported the QCA's assessment that regulated energy and water firms are the more appropriate comparators for DBCT.

We believe market power, ability to exercise that power, volume risk, and capital intensity should be the main factors to consider in choosing comparator firms

We believe there are four main characteristics that drive profitability and risk for companies regulated by the QCA. Indeed, these largely align with the characteristics identified by the QCA in its QCA Comments Paper. The four characteristics we have identified, and how they align with what was identified by the QCA, is shown below in Table 5.1

Table 5.1: Characteristics of comparators – our framework and alignment with QCA's

Castalia	QCA
▪ **Extent of market power**	▪ Market power
▪ **Ability to exercise market power and set prices**	▪ Nature of customer base ▪ Elasticity of demand for the product/service
▪ **Amount of volume risk faced**	▪ Nature of customer base ▪ Regulation ▪ Contracting arrangements ▪ Elasticity of demand
▪ **Extent of capital intensity**	▪ Operating leverage

Source: Castalia's analysis

What our framework implies is that comparators with high market power and with the ability to set prices, face low volume risk, and relatively low operating leverage should be low risk businesses. Meanwhile comparators with low market power and are price takers, face significant volume risk, and with significant operating leverage are high risk businesses. For example, based on this framework we observe that DBCT has a lower beta than Port of Melbourne because DBCT has greater market power and faces lower volume risk.

We note that out of the four parameters we have proposed, market power is the most critical characteristic.

Toll roads and class 1 railroads are not appropriate industries to obtain comparators.

The companies the QCA regulates typically have and can exercise significant market power, face low volume risk and have high capital intensity. Comparators should be chosen based on those characteristics.

The QCA notes in the QCA Comments Paper that in the QCA's recent reviews, it has included regulated energy and water, toll roads, pipelines, and Class 1 railroads industries as beta reference points. We don't believe that including toll roads or class 1 railroads is appropriate.

Toll roads and class 1 railroads face much more competitive pressure than the companies the QCA regulates. This is because:

- Class 1 railroads provide short, medium, and long-haul freight services. Although these railroads have significant market power for long-haul freight, short to medium haul freight is highly competitive with trucks.
- Many toll roads are not essential services[19], and hence do not have market power. These toll roads tend to face competitive pressure with non-tolled roads, hence toll roads face material price and volume risk.

Emphasis should be placed on the data from Australian comparators, compared with international comparators.

In choosing comparators, which market that comparator operates in is also critically important. International markets have different governance structures, institutional frameworks, and market characteristics than Australia. Australian comparators with the same characteristics as international comparators may lead to different estimates of parameters such as beta, gearing, and credit rating owing to differences in market and regulatory structure.

Further, the structure and operating environment of comparators in international markets can be quite different to that of a similar Australian counterparts. Differences can lie in the regulatory environment, extent of market power, and lines of business. These differences can result in vastly different risk profiles. For example, Edison International, a major US electricity utility is vertically integrated where 20% of its revenues are from electricity generation. Its risk profile is vastly different to an Australian electricity distribution utility such as Jemena or Ausgrid, where they are mainly providers of electricity network lines infrastructure.

[19] Essential services mean an essential infrastructure service, similar to electricity or water.

While we do support using international comparators in appropriate circumstances, they should only be used when there is a paucity of data, and to cross-check data from Australian comparators.

Our four-factor comparator framework is likely to align best with QCA's regulatory pricing principles.

We largely agree with the assessment framework presented by the QCA to identify comparators; however, we have simplified it to four main criteria. We believe the four criteria we have proposed provide a more direct indicator on the similarity of a comparator's risk profile with that of the business being regulated, and, hence, is more likely to advance economic efficiency.

We believe that not considering class 1 railroads and toll roads, and focussing on domestic comparators, is more likely to lead to WACC parameters more representative of the risk profile of businesses regulated by the QCA. Doing so is most likely to result in prices that advance economic efficiency. International comparators should only be used where there is a paucity of data, or to cross-check Australian comparators.

6 Market risk premium

In this section, we show that the QCA should primarily consider the historical approach to estimating a Market Risk Premium (MRP), and use forward-looking MRP as a cross-check. We also show that the Wright approach to historical MRP is currently not reliable.

There are two well-established approaches to estimate a MRP.

The MRP is the difference between the expected return on a market portfolio and the risk-free rate. The MRP is not observable, and is therefore prone to estimation error.

In economic regulation, we understand that there are two approaches to estimate an MRP. The well-accepted approach used by economic regulators and investment practitioners alike is by reference to long-term historical studies of market returns above the risk-free rate. For the QCA, it has typically used the Ibbotson and Siegel approach to estimate a historical MRP.[20]

An alternative approach is by reference to forward-looking approaches to estimate an MRP. There are two typical ways to estimate a forward-looking MRP applied by the QCA. The first is by conducting a survey of investment practitioners to understand their expectations for an MRP. The second is to use some form of dividend growth model, where the QCA has used the Cornell version[21] in past regulatory decisions.

We prefer the historical approach to estimate an MRP because it is objective, transparent, independently verifiable, and robust.

Given the likelihood of error in estimating an MRP, we believe the QCA should focus on a estimation approach that minimises such error. Historical approaches to estimating an MRP minimises estimation error, because they use very long-term observations of actual market returns to estimate an MRP. Taking this approach is transparent, robust, can be independently verified, and is objective.

We support only giving limited weight to forward-looking approaches because they are subjective and highly sensitive to assumptions. MRP estimates from surveys are subjective because it depends on the participants who respond, and that they may give information that is strategically the most beneficial to them. We note that the results from surveys typically follow a historical MRP because investment practitioners usually use a historical MRP. While dividend growth models have a good theoretical basis, applying it requires assumptions on future dividend yields and growth, making the approach highly subjective and prone to estimation error.

We believe limited weight should be applied to the Wright method to estimate a historical MRP.

We understand the Wright method has been used by the QCA in the past to estimate a historical MRP. The Wright method is a specific form of historical MRP estimation approach, where the total cost of equity is assumed to be constant over time. This implies two things: first that the MRP is perfectly negatively correlated with the risk-free rate, and that the total cost of equity does not change over time.

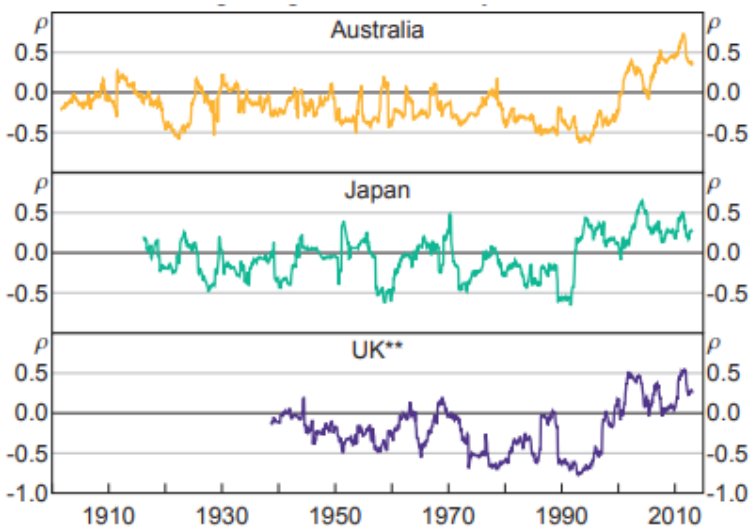
We don't believe there is compelling evidence on the reliability of the Wright method. Our research shows that the assumptions for the Wright method do not necessarily hold. The

[20] Queensland Rail's 2020 Draft Access Undertaking, April 2019, QCA, p.38

[21] The Cornell dividend growth model assumes the return on equity is from dividend yields and expected dividend growth rates

Reserve Bank of Australia (RBA) in 2014 published a long-term historical study that investigated the correlation of Australian Government bond yields, and the Australian stock market yield[22]. The study showed, demonstrated below in Figure 6.1, that the correlation between Australian Government bond and stock market yields hovered between -0.5 and +0.25 for the majority of the 20th century, and more recently showed a correlation of 0.5.

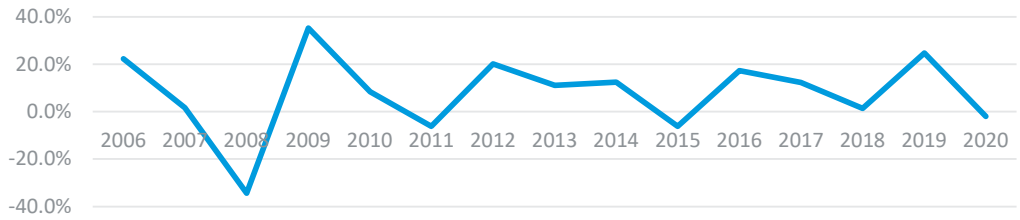
Figure 6.1: Correlation of Australian Government bond yields with Australian stock market yields



Source: RBA

We have also found that total return on equity is not necessarily constant. As shown below in Figure 6.2, the annual return to ASX200, a well-accepted proxy for the Australian stock market, has varied dramatically over the last 15 years.

Figure 6.2: ASX200 accumulation index annual return (2006 to 2020)



Source: S&P Global, Castalia's analysis

Estimating the MRP by reference to well-accepted historical studies are most likely to advance QCA's regulatory pricing principles.

We believe an MRP estimation approach that focusses on historical MRP studies, but is cross-referenced to forward-looking studies, is likely to lead to an MRP that best advances economic

[22] A Century of Stock-Bond Correlations, September 2014, E. Rankin and M S Idil, RBA

efficiency. This approach uses all available information, and places the majority of weight towards those that are based on actual market observations, and transparent, robust and verifiable methodologies. Given the lack of reliability of the Wright method, we believe its use is unlikely to advance economic efficiency.

7 Rate of return in a negotiate-arbitrate model

Given the QCA is currently considering a negotiate-arbitrate model under DBCT's draft access undertaking, we have provided some additional comments on how such a model would impact on WACC issues.

We appreciate that the QCA Comments Paper relates to its approach to determining reasonable rates of return for businesses that are regulated (broadly defined), rather than in the context of a particular regulated service or form of regulation.

We consider that is the appropriate approach because, as the QCA Comments Paper correctly identifies, what constitutes a reasonable rate of return should reflect the risk involved in provision of the regulated service. While the nature of regulation will potentially be a factor in determining appropriate comparators for a particular service (through influencing matters like volume risk), the QCA's approach to assess what constitutes a reasonable return should not materially differ when determining a reference tariff, arbitrating an access determination, or reporting on indicative pricing in a prices oversight regime.

By its nature, a negotiate-arbitrate model will mean that the QCA is not determining an efficient price or reference tariff applicable to all users, and may be determining pricing for different users at different times (even if the services provided to those users are the same). This may impose practical limits on the approaches that can be applied to determine a consistent WACC. For example, a universal true-up mechanism may not be achievable.

However, for a negotiate-arbitrate model to have the principal advantage asserted by DBCT of incentivising efficient commercial negotiations, all negotiating parties need to be able to predict the QCA's likely approach in an arbitration with a reasonable degree of precision. In the absence of understanding the likely outcomes that would apply if the QCA was called to arbitrate, the parties are unlikely to find common ground on what an appropriate negotiated outcome should be.

Similarly, all parties need to have confidence that a QCA arbitration will produce pricing at an efficient and reasonable level. If a party feels that arbitration will overstate or understate the appropriate rate of return, it will disincentivize reaching a negotiated agreement.

It follows that to achieve a pricing outcome that is efficient and reasonable under a negotiate-arbitrate model, there is an even greater need for an objective and predictable approach to estimating an appropriate rate of return. Accordingly, we believe that a bottom-up estimate of WACC should be strongly influential in QCA arbitrations which occur under this form of regulation.

In reaching that conclusion, we are also conscious of the statutory overlay which applies to access determinations, where the QCA is required to have regard to the factors in section 120 *Queensland Competition Authority Act 1997* (Qld). Those factors are consistent with the QCA's previously published regulatory pricing principles and the approaches discussed in this submission. In particular, the section 120 factors:

- expressly requires consideration of the interests of all access holders and access seekers (s 120(1)(c))—not just those which are party to the immediate arbitration. This

strongly suggests that the QCA is intended to consider consistency and certainty of approach across users

- more expressly (relative to some of the other statutory provisions relevant to the QCA's regulation) suggests a cost-based approach is appropriate (s 120(1)(f))
- more expressly requires economic efficiency to be taken into account as a relevant factor in itself (s 120(1)(j) in addition to forming a critical part of the object (s 120(1)(a); s 69E); and
- expressly permits the QCA to take into account other matters the QCA considers relevant (s 120(2))—,such that broader regulatory objectives referenced in the QCA's regulatory objectives and pricing principles, (such as fairness), can remain part of the QCA's considerations. We note that public interest considerations would also be relevant (s 120(1)(d)).

In relation to the requirement to have regard to the value of the service (s 120(1)(e)), we consider that, given the context of setting a regulated price for a monopoly service in a regime with the object of promoting the economically efficient operation of, use of, and investment in significant infrastructure (s 69E); 'value' is intended to require consideration of the market value of the service in an efficient and competitive market (i.e. the costs of providing the service plus an efficient rate of return on and of capital). That is, again, consistent with the QCA's approach (both previous and as summarised in the request for comments paper).

We believe it is critical not to misinterpret this 'value' consideration as requiring departure from the QCA's normal approach by instead setting a rate of return with an upward bias caused by interpreting 'value' as the maximum price that the monopolist could extract from an access seeker in the absence of regulation. Such an approach would clearly be inconsistent with the very object of Part 5 of the *Queensland Competition Authority Act 1997* (Qld), effectively disregard the other section 120 factors noted above, and result in an inappropriately high rate of return.

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