HOUSTONKEMP
Economists

# Review of the Essential Services Commission's interim commentary

Report for Herbert Smith Freehills

7 May 2024

## Report authors

Brendan Quach

Johnathan Wongsosaputro

## Contact Us

**Sydney**
Level 40
161 Castlereagh Street
Sydney NSW 2000

Phone: +61 2 8880 4800

## Disclaimer

# Contents

# Figures



# Tables

# Executive summary

This report has been prepared at the request of Herbert Smith Freehills (HSF) for the purpose of HSF providing legal advice to the Port of Melbourne (PoM) on the Essential Services Commission's (ESC's) interim commentary on PoM's 2023/24 tariff compliance statement (TCS).

We have previously provided PoM with our estimate of the weighted average cost of capital (WACC) consistent with:

- clause 4.3 of the Pricing Order made under section 49A of the *Port Management Act 1995* (Vic) (PMA), which requires PoM to determine a rate of return on capital using 'one or a combination of well accepted approaches'; and
- PoM's undertaking to the ESC Minister (the Undertaking).

In that report (our 2023 report), we provided PoM with two pre-tax nominal WACC estimates for 2023/24, namely:

- 9.49 per cent pre-tax nominal WACC that corresponds to 0.71 asset beta and 20 per cent gearing, derived from our preferred comparator sample of 21 firms without applying a country filter; and
- 9.34 per cent pre-tax nominal WACC that corresponds to 0.70 asset beta and 10 per cent gearing, derived from our alternative comparator sample of five firms with a country filter applied.

Consistent with clause 27(ii) of the Undertaking, we adopted a 10-year trailing average cost of debt when calculating both pre-tax nominal WACC estimates. These trailing average cost of debt estimates assumed a transition that began in 2017/18, where the on-the-day cost of debt in that year was calculated using data up to 31 March 2017.

PoM's 2023/24 TCS draws on our 2023 report by adopting:

- our alternative asset beta and gearing estimates for its 2023/24 TCS, resulting in an equity beta of 0.78; and
- our 10-year trailing average cost of debt estimate, which PoM will update annually and apply a true-up in the next regulatory period for annual differences in the cost of debt from the previous period.

The interim commentary sets out the ESC's preliminary views that:

- PoM's approach for estimating the equity beta and its use of a country filter is well accepted;
- the alternative comparator sample of five firms is limited, and can potentially be expanded by reconsidering how the market capitalisation or liquidity filters are used; and
- a gearing of 10 per cent for a benchmark efficient firm appears low, and that it would also be well accepted to:
  - use a different comparator sample to estimate gearing; and
  - adjust the benchmark gearing only if there is sufficient evidence to indicate a change in the gearing of a benchmark efficient port.

The ESC also draws on advice from its consultant, CEPA, to observe that PoM's adopted:

- 0.70 asset beta is within CEPA's estimated 0.59 to 0.75 asset beta range;
- 0.78 equity beta is within CEPA's estimated 0.72 to 0.93 equity beta range; and
- 10 per cent gearing is lower than CEPA's estimated 18 per cent to 19 per cent gearing range.

We continue to consider that the liquidity and market cap filters from our 2023 report, which PoM has adopted for its 2023/24 TCS, are well accepted. Conversely, adjusting the liquidity and market cap filters is not well accepted and will not enable us to identify additional firms that will serve as relevant comparators for PoM.

The ESC further observes regarding the trailing average cost of debt that:

- an annual adjustment during a regulatory period for the cost of debt based on the trailing average approach is likely to be permitted under the Pricing Order, but this can only be determined by a court or alternatively can be incorporated into the Pricing Order through a Government amendment; and
- there is no obvious mechanism in the Pricing Order that permits adjustments resulting from the application of the trailing average cost of debt in a previous regulatory period to be carried over into subsequent regulatory periods, such as PoM's proposed true-up for annual differences in the cost of debt from the previous period.

In this report, we calculate three sets of pre-tax WACC estimates for the 2023-28 regulatory period using four cost of debt approaches that do not apply annual updates or true ups. These estimates have been calculated using methods that we consider to be well accepted, while being consistent with the ESC's preliminary views in the interim commentary and at least arguably consistent with the Undertaking.

In generating these estimates, we have referred to precedent from:

- the Australian Competition and Consumer Commission (ACCC);
- the Australian Energy Regulator (AER);
- the Western Australian Economic Regulation Authority (ERA);
- the New South Wales Independent Pricing and Regulatory Tribunal (IPART);
- the Queensland Competition Authority (QCA);
- the Essential Services Commission of South Australia (ESCOSA);
- the Australian Capital Territory Independent Competition and Regulatory Commission (ICRC);
- the Office of the Tasmanian Economic Regulator (OTTER);
- the New Zealand Commerce Commission (NZCC); and
- the Supreme Court of Western Australia (WASC).

## ESC's interim commentary on the 2023/24 TCS

The interim commentary on the 2023/24 TCS states the ESC's preliminary view that PoM had not provided sufficient reasoning to support its proposed benchmark gearing of 10 per cent.[1] Instead, the ESC states a re-estimated gearing range of between 18 per cent and 19 per cent.

We find the ESC's preliminary view surprising given that the methodology adopted to estimate benchmark gearing is unchanged from the approach applied in PoM's 2022/23 TCS.[2] Specifically, benchmark gearing reflected the average gearing of the comparator sample used to determine the asset beta for PoM . This approach is consistent with clause 23 of the Undertaking, and the ESC considered it to be well-accepted.[3] CEPA also stated that:[4]

[1] ESC, *Interim commentary – Port of Melbourne Tariff Compliance Statement 2023-24*, 20 December 2023, p 17.

[2] HoustonKemp, Estimation of the weighted average cost of capital for the Port of Melbourne, 11 May 2022, pp 23-24.

[3] ESC, *Inquiry into the Port of Melbourne compliance with the pricing order*, Final report, 31 December 2021, pp 72-73.

[4] CEPA, *Port of Melbourne five-year review – WACC*, Final report, 17 December 2021, p 75.

Australian regulatory precedent provides strong support for using the observed gearing of an appropriate comparator sample to set benchmark gearing.

The overwhelming reason that the benchmark gearing falls from 20 per cent in the 2022/23 TCS to 10 per cent in the 2023/24 is due to the introduction of a country filter. We consider that the method for estimating benchmark gearing in our 2023 report remains well accepted.

The difference between the gearing estimate in our 2023 report and that estimated by CEPA, is due to:[5]

- CEPA adding one additional firm, China Container Terminal Corporation, to the sample, with this change raising the sample average gearing to 18 per cent; and
- CEPA further introducing different liquidity and/or market cap filters, with CEPA calculating its 18 per cent to 19 per cent gearing range (which includes China Container Terminal Corporation) as the average across three samples with different liquidity and market cap filters.

Regarding the first dot point above, we previously omitted China Container Terminal Corporation from the samples in our 2023 report because it derives substantial revenues from stevedoring activities, but we accept that reasonable minds may differ on whether this company should be included as a comparator.

Regarding the second dot point above, we consider that the liquidity and market cap filters from our 2023 report remain well accepted. Furthermore:

- we have applied the liquidity and market capitalisation filters consistently when providing PoM with benchmark pre-tax WACC estimates for its 2022/23 TCS and 2023/24 TCS; and
- the thresholds that we have applied for the liquidity and market capitalisation filters are identical to the thresholds that CEPA applied in its advice to the ESC's 2021 inquiry and the ESC's review of PoM's 2023/24 TCS.

Changing either filter at this point would reduce regulatory certainty to the detriment of both PoM and its port users.

We also consider that adjusting the liquidity and market cap filters does not reflect a well accepted approach for estimating the WACC under clause 4.3.1 of the Pricing Order because:

- no regulator or court in Australia and New Zealand adjusts its liquidity filter for the purpose of expanding its comparator sample; and
- loosening the liquidity filter to increase the sample of comparable companies used to calculate both beta and gearing results in inaccurate and imprecise beta estimates.

Finally, we consider that:

- manipulating the bid-ask spread threshold to backsolve for a particular comparator sample with specific asset beta and gearing estimates does not reflect good regulatory practice;
- loosening the liquidity filter does not reflect the general principles adopted by Australian and New Zealand regulators and courts as required under clause 25(a) of the Undertaking; and
- loosening the market capitalisation filter will not enable us to identify additional firms that will serve as relevant comparators for PoM.

We also reiterate our view that omitting the country filter remains a well accepted approach.

[5] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, pp 29-32, 45-47, 55-58.

## Estimating beta and gearing

Most regulators and courts in Australia and New Zealand use a gearing between 40 per cent and 60 per cent, although some decisions use gearing as low as approximately 20 per cent. Some regulators also adopt a benchmark gearing that is unchanged from the current estimate, even if the sample average gearing deviates from it by approximately 0.10.

Having regard to the gearing of our comparator samples, we conclude that it is well accepted and internally consistent for PoM to adopt:

- 0.71 asset beta and 0.20 gearing for our preferred sample, which is unchanged from our 2023 report;
- 0.71 asset beta and 0.10 gearing for our alternative sample, which is unchanged from our 2023 report; or
- 0.70 asset beta and 0.20 gearing for our alternative sample, the latter of which is higher than the 0.10 gearing estimate from our 2023 report.

## Estimating the cost of debt

HSF has asked us to provide advice on:

- the approach to estimating the cost of debt using the trailing average approach under an assumption that the Pricing Order precludes annual updates; and
- an estimate of the cost of debt for the 2023-28 Regulatory Period.

Four regulators and courts in Australia and New Zealand do not apply an annual update or a true up on the cost of debt. These four regulators and courts each apply different approaches, so we consider that all four approaches are well accepted for calculating the benchmark cost of debt for the benchmark efficient port.

Of these four approaches, we consider that the approach adopted by ESCOSA is most consistent with the requirements of clause 27 of the Undertaking. Clauses 27(b)(iii)-(v) of the Undertaking specify that the on-the-day cost of debt that forms part of the trailing average will be calculated using the arithmetic average of the 20 business days ending 31 March of the relevant financial year. It could potentially be argued that the ESCOSA may be interpreted as implicitly estimating a ten year trailing average cost of debt that uses an estimate of the rates that would apply at the start of each year of the pricing period.

We calculate that:

- applying ESCOSA's approach results in 4.88 per cent return on debt for 2023/24, consistent with the estimate in our 2023 report, before increasing in each year to reach 5.32 per cent return on debt for 2027/28;
- applying OTTER's approach results in 5.10 per cent return on debt for each year from 2023-28, which corresponds to the average return on debt that ESCOSA's approach generates for the same period;
- applying the ACCC's approach results in the 6.53 per cent on-the-day cost of debt from 2023/24 being adopted for all subsequent years up to 2027/28; and
- applying the WASC's approach results in 4.69 per cent return on debt being adopted for all years up to 2027/28, which reflects the midpoint of the five-year and 10-year trailing average using data up to the 2023/24 regulatory year, ie, 31 March 2023.

## WACC estimates from well accepted approaches

Based on the discussion in the previous sections, we show in table 1 below three sets of pre-tax WACC estimates that we consider are also well accepted. These correspond to:

- comparator sample that omits a country filter, ie, 0.71 asset beta and 0.20 gearing;
- comparator sample that applies a country filter and adopts the sample average gearing, ie, 0.70 asset beta and 0.10 gearing; and
- comparator sample that applies a country filter and adopts the benchmark gearing from PoM's 2022/23 TCS, ie, 0.70 asset beta and 0.20 gearing.

For each set of estimates, we show the pre-tax WACC for the 2023-28 regulatory period using four well accepted cost of debt approaches that do not apply annual updates or true ups. These correspond to the cost of debt approaches adopted by ESCOSA, OTTER, the ACCC and the WASC.

We note that the 9.49 per cent and 9.34 per cent pre-tax WACC estimates calculated using ESCOSA's approach for 2023/24 match the preferred and alternative pre-tax WACC estimates from our 2023 report. In addition, the 9.42 per cent pre-tax WACC estimate corresponds to the estimate that we calculate in the preceding sections using our alternative comparator sample with gearing set at 0.20.

Table 1: Pre-tax WACC estimates without annual update or true-up

| Cost of debt approach | On-the-day cost of debt, including 0.10 per cent debt raising costs | HoustonKemp 2023-24; 0.71 asset beta, 0.20 gearing) | HoustonKemp 2023-24, country filter applied; 0.70 asset beta, 0.10 gearing | HoustonKemp 2023-24, country filter applied; 0.70 asset beta, 0.20 gearing |
|---|---|---|---|---|
| ESCOSA, 2023-28 | | | | |
| - 2023/24 | 4.88% | 9.49% | 9.34% | 9.42% |
| - 2024/25 | 4.99% | 9.52% | 9.35% | 9.44% |
| - 2025/26 | 5.10% | 9.54% | 9.36% | 9.46% |
| - 2026/27 | 5.21% | 9.56% | 9.37% | 9.49% |
| - 2027/28 | 5.32% | 9.58% | 9.38% | 9.51% |
| | | | | |
| OTTER, 2023-28 | 5.10% | 9.54% | 9.36% | 9.46% |
| ACCC, 2023-28 | 6.53% | 9.82% | 9.50% | 9.75% |
| WASC, 2023-28 | 4.69% | 9.46% | 9.32% | 9.38% |

*Source: HoustonKemp, Estimation of the weighted average cost of capital and forecast inflation for the Port of Melbourne, 15 May 2023, pp vi, 29-30; HoustonKemp analysis.*

## Impact of loosening the liquidity filter

An argument may be made for loosening the liquidity filter when measuring gearing while retaining the filter when measuring betas. This is because the liquidity filter is meant to exclude firms with betas that cannot be measured accurately and precisely, but several regulators assume that the benchmark gearing is stable over time, even if gearing for individual ports may fluctuate due to their large and lumpy expenditure requirements.

Notwithstanding the strength of the above argument, our empirical analysis shows that loosening the liquidity filter will not lead to a materially higher sample average gearing for our alternative sample that applies a country filter. Specifically, loosening the liquidity filter will increase the average gearing from 0.10 to 0.11.

We note that CEPA obtains a gearing range of 0.18 to 0.19 when applying a country filter with a loose liquidity filter. However, the difference between our estimates arises because CEPA includes one additional firm, China Container Terminal Corporation (2613 TT Equity), which has 0.48 to 0.65 gearing. We previously excluded this firm from our preferred and alternative comparator samples because it derived a large proportion of its revenues from stevedoring activities.

## Impact of cost of debt methodology

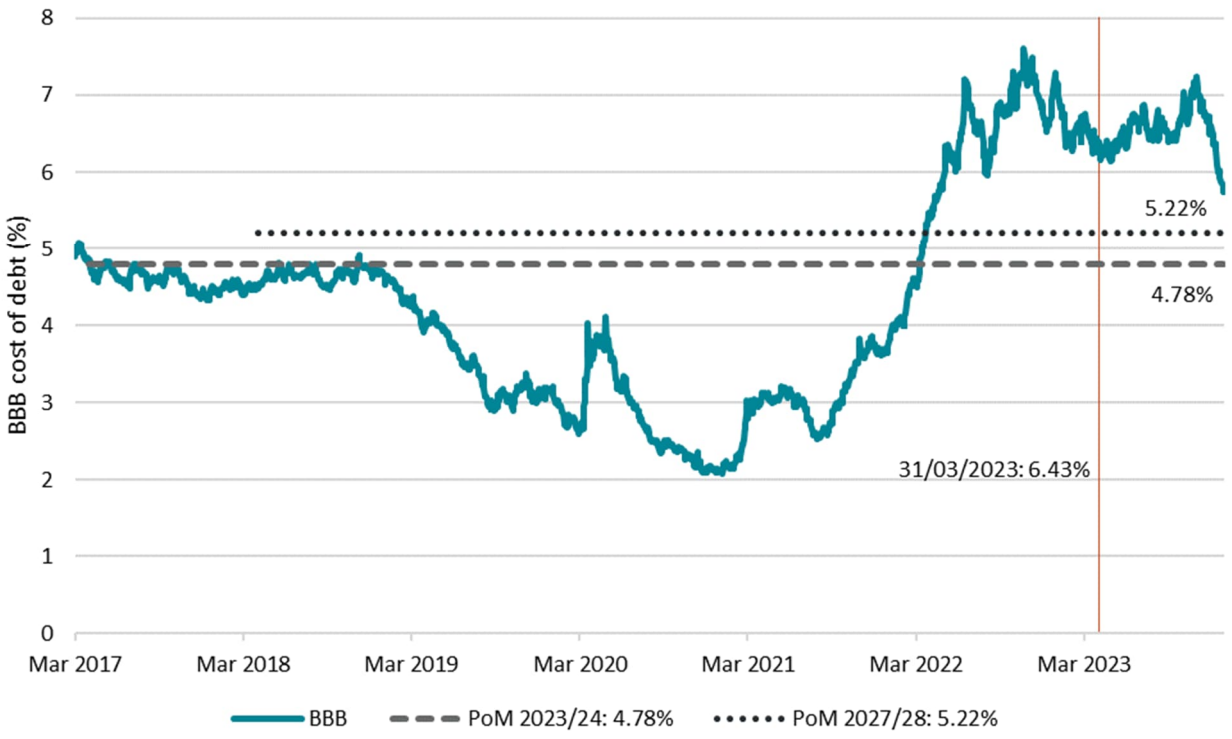
The figure below shows the on-the-day BBB 10-year cost of debt, excluding 0.10 per cent debt raising costs. We include in the figure:

- PoM's 10-year trailing average cost of debt from the 2023/24 TCS, ie, 4.78 per cent excluding debt raising costs; and
- PoM's 10-year trailing average cost of debt in 2027/28 using ESCOSA's approach, ie, 5.22 per cent excluding debt raising costs.

The figure also shows that the on-the-day cost of debt as at 31 March 2023 is 6.43 per cent excluding debt raising costs. The ACCC's prevailing return debt approach assumes that this prevailing cost of debt estimate will apply for all years in the regulatory period.

Figure 1 does not include the WASC's approach, which fixes the return on debt at 4.59 per cent excluding debt raising costs for all years in the regulatory period.

Figure 1: BBB corporate bond yields




If the on-the-day cost of debt in future years remains below that observed as at 31 March 2023, then:

- the ACCC's cost of debt approach, which fixes the return on debt for the regulatory period at the on-the-day estimate derived as at 31 March 2023 will:
  - generate the highest return on debt estimate among the four approaches; and
  - exceed the return on debt under the annually updated 10-year trailing average;
- ESCOSA's and OTTER's cost of debt approaches, which holds the latest available observation constant for the remaining years of the regulatory period will:
  - generate return on debt estimates that are lower than the ACCC's but higher than the WASC's approach; and

  - exceed the return on debt under the annually updated 10-year trailing average; and
- the WASC's cost of debt approach, which fixes the return on debt for the regulatory period at the midpoint of the five-year trailing average and 10-year trailing average as at 31 March 2023:
  - will generate the lowest return on debt estimate among the four approaches; and
  - may exceed or undershoot the return on debt under the annually updated 10-year trailing average, depending on the materiality of any future decline in the on-the-day cost of debt, ie, if there is a very substantial decline in the future on-the-day cost of debt, then the WASC's cost of debt approach will exceed the return on debt under the annually updated 10-year trailing average and vice-versa.

The opposite observations apply if the on-the-day cost of debt in future years exceeds that observed as at 31 March 2023.

# 1. Introduction

This report has been prepared at the request of Herbert Smith Freehills (HSF) for the purpose of HSF providing legal advice to the Port of Melbourne (PoM) on the Essential Services Commission's (ESC's) interim commentary on PoM's 2023/24 tariff compliance statement (TCS).[6]

We have previously provided PoM with our estimate of the weighted average cost of capital (WACC) consistent with:[7]

- clause 4.3 of the Pricing Order made under section 49A of the *Port Management Act 1995* (Vic) (PMA), which requires PoM to determine a rate of return on capital using 'one or a combination of well accepted approaches'; and
- PoM's undertaking to the ESC Minister (the Undertaking).[8]

In that report (our 2023 report), we provided PoM with two pre-tax nominal WACC estimates for 2023/24, namely:[9]

- 9.49 per cent pre-tax nominal WACC that corresponds to 0.71 asset beta and 20 per cent gearing, derived from our preferred comparator sample of 21 firms without applying a country filter; and
- 9.34 per cent pre-tax nominal WACC that corresponds to 0.70 asset beta and 10 per cent gearing, derived from our alternative comparator sample of five firms with a country filter applied.

Consistent with clause 27(ii) of the Undertaking, we adopted a 10-year trailing average cost of debt when calculating both pre-tax nominal WACC estimates. These trailing average cost of debt estimates assumed a transition that began in 2017/18, where the on-the-day cost of debt in that year was calculated using data up to 31 March 2017.[10]

PoM's 2023/24 TCS draws on our 2023 report by adopting:[11]

- our alternative asset beta and gearing estimates for its 2023/24 TCS, resulting in an equity beta of 0.78; and
- our 10-year trailing average cost of debt estimate, which PoM will update annually and apply a true-up in the next regulatory period for annual differences in the cost of debt from the previous period.

The interim commentary sets out the ESC's preliminary views that:[12]

- PoM's approach for estimating the equity beta and its use of a country filter is well accepted;
- the alternative comparator sample of five firms is limited, and can potentially be expanded by reconsidering how the market capitalisation or liquidity filters are used; and
- a gearing of 10 per cent for a benchmark efficient firm appears low, and that it would also be well accepted to:
  - use a different comparator sample to estimate gearing; and

[6] ESC, *Interim commentary – Port of Melbourne Tariff Compliance Statement 2023–24*, 20 December 2023.

[7] HoustonKemp, *Estimation of the weighted average cost of capital and forecast inflation for the Port of Melbourne*, 15 May 2023.

[8] Port of Melbourne, *Undertaking to the Essential Services Commission Minister*, April 2022.

[9] HoustonKemp, *Estimation of the weighted average cost of capital and forecast inflation for the Port of Melbourne*, 15 May 2023, p vi.

[10] HoustonKemp, *Estimation of the weighted average cost of capital and forecast inflation for the Port of Melbourne*, 15 May 2023, p iv.

[11] Port of Melbourne, *2023-24 Tariff Compliance Statement*, General statement, 31 May 2023, pp 90-93.

[12] ESC, *Interim commentary – Port of Melbourne Tariff Compliance Statement 2023–24*, 20 December 2023, pp 15-16.

> adjust the benchmark gearing only if there is sufficient evidence to indicate a change in the gearing of a benchmark efficient port.

The ESC also draws on advice from its consultant, CEPA, to observe that PoM's adopted:[13]

- 0.70 asset beta is within CEPA's estimated 0.59 to 0.75 asset beta range;
- 0.78 equity beta is within CEPA's estimated 0.72 to 0.93 equity beta range; and
- 10 per cent gearing is lower than CEPA's estimated 18 per cent to 19 per cent gearing range.

We continue to consider that the liquidity and market cap filters from our 2023 report, which PoM has adopted for its 2023/24 TCS, are well accepted. Conversely, adjusting the liquidity and market cap filters is not well accepted and will not enable us to identify additional firms that will serve as relevant comparators for PoM.

In this report, we calculate three sets of pre-tax WACC estimates for the 2023-28 regulatory period using four cost of debt approaches that do not apply annual updates or true ups. These estimates have been calculated using methods that we consider to be well accepted, while being consistent with the ESC's preliminary views in the interim commentary and at least arguably consistent with the Undertaking.

In generating these estimates, we have referred to precedent from:

- the Australian Competition and Consumer Commission (ACCC);
- the Australian Energy Regulator (AER);
- the Western Australian Economic Regulation Authority (ERA);
- the New South Wales Independent Pricing and Regulatory Tribunal (IPART);
- the Queensland Competition Authority (QCA);
- the Essential Services Commission of South Australia (ESCOSA);
- the Australian Capital Territory Independent Competition and Regulatory Commission (ICRC);
- the Office of the Tasmanian Economic Regulator (OTTER);
- the New Zealand Commerce Commission (NZCC); and
- the Supreme Court of Western Australia (WASC).

## 1.1 Instructions

This report has been prepared at the request of HSF to assist in its legal advice to the PoM on the ESC's interim commentary on PoM's 2023/24 TCS.[14]

Specifically, HSF has sought advice on:

- potential options for estimating the beta and gearing to address the comments by the ESC in its Interim Commentary; and
- feasible approaches to estimating the cost of debt using the trailing average approach under an assumption that the Pricing Order precludes annual updates, and provide an estimate of the cost of debt and WACC for the 2023-28 Regulatory Period.

[13] ESC, *Interim commentary – Port of Melbourne Tariff Compliance Statement 2023–24*, 20 December 2023, p 17.

[14] ESC, *Interim commentary – Port of Melbourne Tariff Compliance Statement 2023–24*, 20 December 2023.

## 1.2 Experience and qualifications

In this section, we provide a summary of our experience and qualifications.

Brendan Quach

Brendan has worked as a consulting economist, specialising in network economics and finance in Australia, New Zealand and Asia Pacific region. Over a period exceeding 20 years, Brendan has advised clients on the application of regulatory principles to airports, ports, telecommunications electricity transmission and distribution networks, water networks and gas pipelines. He has provided advice on application of the building block approach, incentive mechanisms, operating and capital allowances, financing, pricing and asset valuation to businesses, a regulators and governments.

Brendan is a specialist in the cost of capital for use in regulatory price reviews and contract arbitrations. He has authored reports on all aspects of the cost of capital including equity estimation techniques, the impact of tax imputation credits, and estimating benchmark debt costs.

Brendan holds a Bachelor of Economics and a Bachelor of Laws, both from the Australian National University.

Johnathan Wongsosaputro

Johnathan is an economist with nine years' experience working on a wide range of regulatory projects, with a particular focus on cost of capital issues. Johnathan has advised clients in several jurisdictions, including Australia, New Zealand, Fiji, and Singapore. These clients span a wide range of sectors, including energy, telecommunications, radio broadcasting, and intellectual property.

Prior to joining HoustonKemp, Johnathan was a Senior Economist with the Competition Economists Group. Johnathan graduated from the University of Sydney with first class honours in econometrics and a Bachelor of Laws. He also holds a Graduate Diploma in Legal Practice from the University of Adelaide and a Graduate Certificate in Data Engineering from the Australian National University.

### Acknowledgement

In preparing this report we have been provided with a copy of:

- Form 44A to the Supreme Court (General Civil Procedure) Rules 2015, the Expert Witness Code of Conduct (Code of Conduct); and
- Victorian Civil & Administrative Tribunal Practice Note – PNVCAT2, Expert Evidence (Practice Note).

We acknowledge that:

- we have read and understood the Code of Conduct and the Practice Note, and agree to be bound by them; and
- our opinions set out here are based wholly or substantially upon our specialised knowledge.

We have been assisted in the preparation of this report by our colleague Claire Rollinson. Notwithstanding this assistance, the opinions in this report are our own, and we take full responsibility for them.

## 1.3 Structure of the report

We have structured this report as follows:

- section 2 summarises the ESC's preliminary views on the liquidity and market cap filters that PoM has adopted in its 2023/24 TCS;

- section 3 assesses the benchmark asset beta and gearing for PoM, taking into consideration the ESC's preliminary views in the interim commentary;
- section 4 assesses the benchmark cost of debt for PoM, taking into consideration the ESC's preliminary views in the interim commentary;
- section 5 calculates the pre-tax WACC estimate for PoM based on our conclusions in the preceding sections;
- appendix A1 sets out the gearing estimates for firms in our comparator samples;
- appendix A2 describes the differences between our comparator samples and CEPA's; and
- appendix A3 sets out our instructions.

# 2. ESC's interim commentary on the 2023/24 TCS

The interim commentary on the 2023/24 TCS states the ESC's preliminary view that PoM had not provided sufficient reasoning to support its proposed benchmark gearing of 10 per cent.[15] Instead, the ESC states a re-estimated gearing range of between 18 per cent and 19 per cent.

We find the ESC's preliminary view surprising given that the methodology adopted to estimate benchmark gearing is unchanged from the approach applied in PoM's 2022/23 TCS.[16] Specifically, benchmark gearing reflected the average gearing of the comparator sample used to determine the asset beta for PoM. This approach is consistent with clause 23 of the Undertaking, and the ESC considered it to be well-accepted.[17] CEPA also stated that:[18]

> Australian regulatory precedent provides strong support for using the observed gearing of an appropriate comparator sample to set benchmark gearing.

The overwhelming reason that the benchmark gearing falls from 20 per cent in the 2022/23 TCS to 10 per cent in the 2023/24 is due to the introduction of a country filter. We consider that the method for estimating benchmark gearing in our 2023 report remains well accepted.

The difference between the gearing estimate in our 2023 report and that estimated by CEPA, is due to:[19]

- CEPA adding one additional firm, China Container Terminal Corporation, to the sample, with this change raising the sample average gearing to 18 per cent; and
- CEPA further introducing different liquidity and/or market cap filters, with CEPA calculating its 18 per cent to 19 per cent gearing range (which includes China Container Terminal Corporation) as the average across three samples with different liquidity and market cap filters.

Regarding the first dot point above, we previously omitted China Container Terminal Corporation from the samples in our 2023 report because it derives substantial revenues from stevedoring activities, but we accept that reasonable minds may differ on whether this company should be included as a comparator.

Regarding the second dot point above, we consider that the liquidity and market cap filters from our 2023 report remain well accepted. Furthermore:

- we have applied the liquidity and market capitalisation filters consistently when providing PoM with benchmark pre-tax WACC estimates for its 2022/23 TCS and 2023/24 TCS; and
- the thresholds that we have applied for the liquidity and market capitalisation filters are identical to the thresholds that CEPA applied in its advice to the ESC's 2021 inquiry and the ESC's review of PoM's 2023/24 TCS.

Changing either filter at this point would reduce regulatory certainty to the detriment of both PoM and its port users.

We also consider that adjusting the liquidity and market cap filters does not reflect a well accepted approach for estimating the WACC under clause 4.3.1 of the Pricing Order because:

[15] ESC, *Interim commentary – Port of Melbourne Tariff Compliance Statement 2023-24*, 20 December 2023, p 17.

[16] HoustonKemp, Estimation of the weighted average cost of capital for the Port of Melbourne, 11 May 2022, pp 23-24.

[17] ESC, *Inquiry into the Port of Melbourne compliance with the pricing order*, Final report, 31 December 2021, pp 72-73.

[18] CEPA, *Port of Melbourne five-year review – WACC*, Final report, 17 December 2021, p 75.

[19] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, pp 29-32, 45-47, 55-58.

- no regulator or court in Australia and New Zealand adjusts its liquidity filter for the purpose of expanding its comparator sample; and
- loosening the liquidity filter to increase the sample of comparable companies used to calculate both beta and gearing results in inaccurate and imprecise beta estimates.

Finally, we consider that:

- manipulating the bid-ask spread threshold to backsolve for a particular comparator sample with specific asset beta and gearing estimates does not reflect good regulatory practice;
- loosening the liquidity filter does not reflect the general principles adopted by Australian and New Zealand regulators and courts as required under clause 25(a) of the Undertaking; and
- loosening the market capitalisation filter will not enable us to identify additional firms that will serve as relevant comparators for PoM.

We also reiterate our view that omitting the country filter remains a well accepted approach.

## 2.1 The WACC methodology in the 2023/24 TCS remains well accepted

The preferred and alternative comparator samples from our 2023 report apply:[20]

- a market capitalisation filter that omits comparators with a market capitalisation that is smaller than USD 100 million as at 31 March 2023; and
- a liquidity filter that omits comparators:[21]
  - with an average bid-ask spread that exceeds 1 per cent over the averaging period; or
  - that were not traded on more than 20 per cent of available trading days.

The interim commentary does not set out the ESC's views regarding whether the liquidity and market cap filters from our 2023 report are well accepted.

Instead, the ESC's preliminary view is that our alternative sample of five firms is limited. The ESC also suggests that PoM can adjust its market capitalisation or liquidity filters to expand its comparator sample:[22]

> The Port has stated it prefers to exclude country filters on the premise that it would lead to a larger sample and in its view, more likely to generate stable estimates of 'true' parameters. Our preliminary view, consistent with our 2022 interim commentary, is that excluding country filters is not well accepted as there is little or no regulatory precedents for such an approach. **However, consistent with regulatory precedents, the Port could reconsider how it uses market capitalisation or liquidity filters to increase its selection of comparators, even while applying a country filter.** (emphasis added)

The ESC's preliminary view is consistent with advice from its consultant CEPA, whereby CEPA tests how its beta estimates change with the application of different liquidity thresholds.[23] In particular, CEPA develops a sample that includes firms that pass one of our two liquidity tests, which is analogous to removing firms with a bid-ask spread above 2 per cent.[24] CEPA refers to this filter as a 'loose liquidity filter'.

[20] HoustonKemp, *Estimation of the weighted average cost of capital and forecast inflation for the Port of Melbourne*, 15 May 2023, p 20.

[21] The liquidity filter will omit different companies for different averaging periods. For example, a company with an average bid-ask spread that exceeds 1 per cent from 2019 to 2023 but less than 1 per cent from 2014 to 2023 will be omitted when estimating gearing and asset beta for the former period but will not be omitted from the latter period.

[22] ESC, *Interim commentary – Port of Melbourne Tariff Compliance Statement 2023–24*, 20 December 2023, p 16. Also see:

[23] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, p 28.

[24] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, p 28.

We discuss in section 2.2 below our view that adjusting the liquidity and market cap filters for the purpose of expanding the comparator sample is not a well accepted approach. However, notwithstanding this view, we note that there can be multiple well accepted approaches for deriving PoM's comparator sample.

Consequently, the ESC's suggestion that there is scope for PoM to adjust its market capitalisation or liquidity filters does not mean that the thresholds PoM has adopted for the 2023/24 TCS are no longer well accepted under clause 4.3 of the Pricing Order.

We continue to consider that the liquidity and market cap filters from our 2023 report, which PoM has adopted for its 2023/24 TCS, are well accepted. In particular, we note that:

- we have applied the liquidity and market capitalisation filters consistently when providing PoM with benchmark pre-tax WACC estimates for its 2022/23 TCS and 2023/24 TCS;[25] and
- the thresholds that we have applied for the liquidity and market capitalisation filters are identical to the thresholds that CEPA applied in:
  - its advice for the ESC's 2021 inquiry into PoM's compliance with the Pricing Order, which also assessed the liquidity and market capitalisation filters from Australian regulatory precedent;[26] and
  - its advice for the ESC's review of PoM's 2023/24 TCS, although we note that CEPA's analysis includes samples based on strict and loose liquidity filters:[27]

    • We removed companies with less than US$100 million market capitalisation as of 31 March 2023.

    • We applied a liquidity filter which removed companies where the percentage of trading days where no trading occurred exceeded 20% of available trading days **or** where the average bid-ask spread for the period exceeded 1%.

CEPA also identifies a comparator sample that applies the same liquidity and market capitalisation filters from our 2023 report but includes one additional comparator, China Container Terminal Corporation.[28]

We previously omitted this firm from the preferred comparator sample in our earlier May 2022 report because it derived 60 per cent of its revenues from 'stevedoring operation' and 35 per cent of its revenues from 'container operation'.[29] We continued to omit this firm from the comparator samples in our May 2023 report.[30]

However, we acknowledge that reasonable minds may differ on whether these firms should be included in the comparator sample, such that it would be well accepted to adopt a comparator sample that includes or excludes China Container Terminal Corporation.

Nevertheless, we note that:

- China Container Terminal Corporation's inclusion does not change the benchmark asset beta materially, whereby our 0.70 asset beta estimate is not materially different from CEPA's 0.69 estimate; and
- if we adopt 0.20 benchmark gearing then this is not materially different from CEPA's estimate.

[25] HoustonKemp, *Estimation of the weighted average cost of capital and forecast inflation for the Port of Melbourne*, 15 May 2023, p 20. HoustonKemp, *Estimation of the weighted average cost of capital for the Port of Melbourne*, 11 May 2022, p 12.

[26] In that advice, CEPA's market capitalisation filter removed companies with less than USD 100 million market capitalisation, and its liquidity filter removed companies where the percentage of trading days where no trading occurred exceeded 20 per cent of available trading days and where the average bid-ask spread for the period exceeded one per cent. See: CEPA, *Port of Melbourne five-year review - WACC*, Final report, 17 December 2021, pp 51, 55.

[27] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, p 28.

[28] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, pp 29-32, 55-58.

[29] HoustonKemp, *Estimation of the weighted average cost of capital for the Port of Melbourne*, 11 May 2022, pp 51-52.

[30] For the 2022 calendar year, China Container Terminal Corp derived 88 per cent of its revenues from 'stevedoring operation' and 9 per cent from 'container operation'.

In appendix A2 below we provide further discussion about the differences between the comparator samples in our 2023 report and CEPA's comparator samples.

## 2.2 Not well accepted to adjust liquidity and market cap filters

We have previously provided feedback to the ESC regarding a draft version of CEPA's report. As part of that feedback, we expressed our view that applying a loose liquidity filter is:

- not well accepted, since both liquidity tests are important for ensuring that the resulting beta estimates are measured accurately and precisely, consistent with clause 25(b)(ii) of the Undertaking; and
- inconsistent with clause 25(c)(ii) of the Undertaking, which refers to both liquidity filters being applied when identifying comparators.

We accept that CEPA's characterisation of the loose liquidity filter as a 2 per cent bid-ask spread threshold while omitting firms that were not traded on more than 20 per cent of available trading days may be consistent with clauses 25(b)(ii) and 25(c)(ii) of the Undertaking. This is because the Undertaking requires both liquidity tests to be used but does not specify thresholds for the respective tests, such that:

- it would be inconsistent with the Undertaking if PoM construes the liquidity filter as one that only includes firms with **either** average bid-ask spread less than or equal to 1 per cent **or** were not traded on 20 per cent or less of available trading days; but
- it would be consistent with the Undertaking if PoM construes the liquidity filter as one that only includes firms with **both** average bid-ask spread less than or equal to 2 per cent **and** were not traded on 20 per cent or less of available trading days.

These two approaches result in the same comparator sample that corresponds to CEPA's loose liquidity filter,[31] but raising the threshold of the bid-ask spread filter to two per cent means that the loose liquidity filter can then be construed as applying both the bid-ask spread filter and the trading days filter as required under clauses 25(b)(ii) and 25(c)(ii) of the Undertaking.

However, no regulator or court in Australia and New Zealand has adopted the practice of adjusting its liquidity filter in order to expand its comparator sample. Of the four regulators or courts that CEPA identifies as applying a liquidity filter, none has loosened its liquidity filter for the purpose of generating a larger comparator sample, ie:[32]

- IPART applies the Amihud measure with 25 as a threshold;[33]
- the QCA requires comparators to have a complete trading history over the observation window and has considered the Amihud measure but concludes that its market cap filter led to a sample of comparators with sufficient liquidity;[34]
- the WASC applies the same two liquidity tests that we have used for our liquidity filter;[35] and
- the NZCC's 2016 approach omitted firms with low percentage of trading days without setting an explicit threshold.[36]

[31] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, pp 28, 31.

[32] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, p 18.

[33] IPART, *Estimating equity beta for the weighted average cost of capital*, Final report, August 2020, p 5.

[34] QCA, *Rate of return review*, Final report, November 2021, pp 74-75.

[35] The WASC's judgment derives a sample with comparator airports that are publicly listed and traded in a liquid market. We understand that the WASC excludes comparators with average bid-ask spread greater than one per cent and less than 80 per cent of days traded. See: *Perth Airport Pty Ltd v Qantas Airways Ltd [No 3]* [2022] WASC 51 paras 197(a), 266.

[36] NZCC, *Input methodologies review decisions | Topic paper 4: Cost of capital issues*, 20 December 2016, para 284.1, 466-467.

We also consider that loosening the liquidity filter with the objective of expanding the comparator sample is inconsistent with good regulatory practice.

Consistent with our previous feedback to the ESC, we observe that betas for illiquid stocks are measured inaccurately and imprecisely. This means that small, arbitrary adjustments to the liquidity filter can lead to disproportionate changes in betas. Thus, loosening the liquidity filter will result in beta estimates that are less accurate and less precise, which will offset the benefits of obtaining a larger sample.

Furthermore, we question the validity of using a 2 per cent bid-ask spread threshold, noting that CEPA provides no economic justification for this threshold other than that it is analogous to the loose liquidity filter, and represents a change from its previously adopted use of a 1 per cent bid-ask spread.[37] Changing the previously adopted liquidity filter without economic justification is inconsistent with good regulatory practice and so the change could be inferred as a way to backsolve for a particular comparator sample with specific asset beta and gearing estimates.

Consequently, changing the filter at this point would reduce regulatory certainty to the detriment of both PoM and its port users.

Thus, we conclude that loosening the liquidity filter:

- does not reflect a well accepted approach for estimating the WACC under clause 4.3.1 of the Pricing Order; and
- does not reflect the general principles adopted by Australian and New Zealand regulators and courts as required under clause 25(a) of the Undertaking.

When considering the market capitalisation filter, CEPA hypothesises that the market capitalisation and liquidity filters interact, in that companies with larger market capitalisations may be more liquid.[38]

We agree that there is some overlap between the filters. However, we consider that the market capitalisation filter has an additional role in omitting firms that are not sufficiently comparable to PoM. As the QCA explains:[39]

> We consider it is appropriate to maintain our use of a market capitalisation filter. Generally, we would expect larger firms to be more liquid than smaller firms. **While there may be instances where smaller firms are sufficiently liquid, we consider that these firms would likely serve as poor comparators for any of the industry samples for which we are trying to estimate beta.** This is because our industry samples typically comprise firms involved in infrastructure services that necessarily require them to have higher market capitalisations. (emphasis added)

CEPA identifies that the QCA is the only regulator with an explicit market capitalisation filter, which the QCA sets at a USD 150 million threshold.[40] Our USD 100 million market capitalisation filter is lower than the QCA's, and the QCA's reasoning suggests that loosening this filter further will not enable us to identify additional firms that will serve as relevant comparators for PoM.

For these reasons, we consider that loosening the liquidity filter and/or market capitalisation filter for the purpose of expanding the comparator sample is also inconsistent with the general principles adopted by Australian and New Zealand regulators and courts, as required under clause 25(a) of the Undertaking.

[37] CEPA, *Port of Melbourne five-year review – WACC*, 17 December 2021, p 55.

[38] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, p 18.

[39] QCA, *Rate of return review*, Final report, November 2021, p 7.

[40] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, p 23. QCA, *Rate of return review*, Final report, November 2021, pp 74-75.

## 2.3 Loosening the country filter continues to be well accepted

Clause 25(c)(iv) of the Undertaking requires PoM to use less restrictive search criteria if the sample of comparable firms is not of a sufficient size. Regulatory precedent suggests that in cases where Australian and New Zealand regulators and courts require the comparator samples to be expanded, they have done so by loosening or omitting the country filter, ie:

- the ERA's 2022 gas rate of return instrument states its concern that the domestic comparator sample it adopted in its 2018 gas rate of return instrument was too small, so the ERA expands its analysis to assess the benchmark equity beta with reference to a domestic comparator sample and an international comparator sample containing firms from the United States, Canada, the United Kingdom and New Zealand;[41]
- the QCA's 2021 rate of return review states that if restricting the comparator sample to firms from developed countries results in concerns about the sample being too small, then the QCA will investigate firms operating in developing countries to generate a potentially larger sample;[42]
- the NZCC's 2016 input methodologies omits the country filter for its airport comparator sample containing 26 airports, while applying a country filter for its energy sample containing 77 firms based in New Zealand, Australia, the United Kingdom and the United States;[43]
    - CEPA notes that the NZCC's 2023 input methodologies draft decision applies a country filter for airports, but we do not include this draft decision and the subsequent final decision in our analysis since they were published after 31 March 2023;[44] and
- the WASC's judgment on Perth Airport's WACC uses the NZCC's 2016 airport comparator sample as a starting point before applying a liquidity filter and excluding one firm for lack of comparability, with the Court rejecting an alternative smaller sample of containing European airports plus Sydney and Auckland airports;[45]
    - the expert for Perth Airport proposed the NZCC's 2016 airport comparator sample for various reasons, including that having regard to a wide range of comparator airports was a robust approach.

Thus, although we consider that the asset beta and gearing estimates derived from our alternative comparator sample of five firms with a country filter reflect a well-accepted approach, we reiterate our view from our 2023 report that identifying a comparator sample without a country filter is also a well-accepted approach in the context of a firm such as PoM, which operates in an industry with diverse systematic risks.[46]

Finally, our samples also differ from CEPA's because of differing views on the relevance of three firms as comparators. We list these firms in appendix A2 below, but we do not carry out additional analysis on these firms at this point since the asset beta estimate from our alternative sample is not materially different from that of CEPA's sample when the country filter, market capitalisation filter and strict liquidity filters are applied.

[41] ERA, *2022 final gas rate of return instrument*, 16 December 2022, paras 1,000-1,006 and 1,094-1,110.

[42] QCA, *Rate of return review*, Final report, November 2021, p 73.

[43] NZCC, *Input methodologies review decisions | Topic paper 4: Cost of capital issues*, 20 December 2016, paras 275-279, 460-463.

[44] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, p 22.

[45] *Perth Airport Pty Ltd v Qantas Airways Ltd [No 3]* [2022] WASC 51 paras 200, 262-267.

[46] HoustonKemp, *Estimation of the weighted average cost of capital and forecast inflation for the Port of Melbourne*, 15 May 2023, pp 12, 19-20.

# 3. Estimating beta and gearing

Most regulators and courts in Australia and New Zealand use a gearing between 40 per cent and 60 per cent, although some decisions use gearing as low as approximately 20 per cent. Some regulators also adopt a benchmark gearing that is unchanged from the current estimate, even if the sample average gearing deviates from it by approximately 0.10.

Having regard to the gearing of our comparator samples, we conclude that it is well accepted and internally consistent for PoM to adopt:

- 0.71 asset beta and 0.20 gearing for our preferred sample, which is unchanged from our 2023 report;
- 0.71 asset beta and 0.10 gearing for our alternative sample, which is unchanged from our 2023 report; or
- 0.70 asset beta and 0.20 gearing for our alternative sample, the latter of which is higher than the 0.10 gearing estimate from our 2023 report.

## 3.1 Internal consistency between gearing and beta

The ESC's preliminary view is that the 10 per cent average gearing observed from our alternative sample is:[47]

- not an intuitive reflection of the gearing of the benchmark efficient entity; and
- inconsistent with the 20 per cent to 30 per cent gearing that PoM has adopted over the last five to six years.

The ESC also considers that:[48]

- the average gearing of the comparator sample should not be adopted without a broader assessment of the long-term capital structure of the benchmark efficient entity; and
- it is also well accepted to give consideration to whether there is sufficient evidence that the gearing of the benchmark efficient port has changed, or whether changes in gearing estimates primarily reflect short-term adjustments in gearing across the comparator sample.

We agree with the ESC that evaluating whether the long-term capital structure of the benchmark efficient port has changed is a well-accepted approach. This is consistent with clause 23 of the Undertaking, which requires PoM to first refer to the benchmark gearing that currently applies before referring to the average gearing of the comparator sample as a cross check.

However, clause 17(a)(ii) of the Undertaking requires PoM to calculate all rate of return on capital parameters in an internally consistent manner that has regard to the interrelationships between parameters. We consider that this requirement constrains PoM's ability to apply a benchmark gearing that is materially different from the average of the comparator sample used to estimate beta.[49]

In the remainder of this section, we:

[47] ESC, *Interim commentary – Port of Melbourne Tariff Compliance Statement 2023–24*, 20 December 2023, p 16.

[48] ESC, *Interim commentary – Port of Melbourne Tariff Compliance Statement 2023–24*, 20 December 2023, p 16.

[49] For example, the ICRC states that it has regard to internal consistency between the benchmark gearing, equity beta and benchmark credit rating since these parameters depend on each other to some extent. See: ICRC, Review of methodologies for the weighted average cost of capital, Final report, April 2021, p 14.

- review the regulatory precedent on the threshold for which gearing differences result in internally consistent estimates of gearing and beta; and
- carry out additional analysis on the gearing of our alternative comparator sample.

We conclude that it is also well accepted and internally consistent for PoM to apply a 20 per cent gearing while retaining the 0.70 asset beta estimate derived from our alternative comparator sample.

### 3.1.1 Precedent on internal consistency between gearing and beta

We set out in table 3.1 below our review of regulatory precedent on gearing from regulators and courts in Australia and New Zealand as at 31 March 2023.

We reiterate our view from our 2023 report that gearing is an industry specific parameter, such that a well-accepted approach is one that is consistent with the general principles applied by regulators and courts in Australia and New Zealand, without having to apply their approaches verbatim.[50]

Nevertheless, we observe that most of the decisions use a gearing between 40 per cent and 60 per cent, although some decisions use gearing as low as approximately 20 per cent. This is consistent with the ESC's preliminary view that 10 per cent gearing for a benchmark efficient firm appears low,[51] although we note that none of these decisions apply to a container port.

We also observe from table 3.1 below that some regulators adopt a benchmark gearing that is materially different from the average of the comparator sample. In particular:

- the AER's 2022 rate of return instrument adopts 60 per cent benchmark gearing compared to 51 per cent, 53 per cent and 59 per cent sample average gearing over five years, 10 years and 17 years respectively;[52]
- ICRC's 2021 decision for Icon Water adopts 60 per cent benchmark gearing, having regard to an Industry Panel study in 2014 that includes a comparator sample with average of 43 per cent to 45 per cent;[53]
- the QCA applies 50 per cent benchmark gearing for GAWB compared to the sample average gearing of 34 per cent to 40 per cent;[54] and
- the ACCC in 2008 applied a benchmark gearing of 50 per cent for interstate rail compared to the sample average gearing of 37 per cent, although the ACCC also accepted ARTC's proposed 0.65 asset beta that was lower than the 0.70 sample average.[55]

The AER and ICRC cite regulatory stability or consistency as a reason for continuing to apply the benchmark gearing from previous decisions.[56] This is consistent with the ESC's preliminary view that it is well accepted to adjust the benchmark gearing only if there is sufficient evidence to indicate a change in the gearing of a benchmark efficient port.[57]

[50] HoustonKemp, *Estimation of the weighted average cost of capital and forecast inflation for the Port of Melbourne*, 15 May 2023, pp 9-10.

[51] ESC, *Interim commentary – Port of Melbourne Tariff Compliance Statement 2023–24*, 20 December 2023, p 15.

[52] AER, *Rate of return instrument | Explanatory statement*, February 2023, pp 23, 87.

[53] ICRC, *Review of methodologies for the weighted average cost of capital*, Final report, April 2021, pp 13-14. Industry Panel, *Review of the Independent Competition and Regulatory Commission's 2013 Price Direction for Regulated Water and Sewerage Services in the ACT*, Draft report, December 2014, table A8.9.

[54] QCA, *Gladstone Area Water Board price monitoring 2020–25 Part A: Overview*, Final report, May 2020, pp 92-93.

[55] The ACCC reported 57.75 per cent sample average debt-to-equity ratio, which corresponds to 37 per cent gearing. See: ACCC, *Australian Rail Track Corporation Access Undertaking – Interstate Rail Network*, Final decision, July 2008, pp 155, 159-160.

[56] AER, *Rate of return instrument | Explanatory statement, February 2023*, p 23. ICRC, *Review of methodologies for the weighted average cost of capital*, Final report, April 2021, p 14.

[57] ESC, *Interim commentary – Port of Melbourne Tariff Compliance Statement 2023–24*, 20 December 2023, p 15.

Three of the above four regulators apply zero debt beta in their decisions,[58] with the QCA being the only Australian regulator to apply a positive debt beta of 0.12.[59]

The above precedent suggests that it is well accepted for PoM to adopt a benchmark gearing that is unchanged from its current estimate, even if the sample average gearing deviates from it by approximately 0.10. This applies in the present case where PoM adopted 0.20 benchmark gearing for its 2022/23 TCS, which is 0.10 higher than the 0.10 average gearing observed for our alternative sample that applies a country filter using data up to 31 March 2023.

The precedent also supports continuing to apply zero debt beta in the WACC formula.

### Table 3.1: Regulatory precedent on gearing

| Regulator | Benchmark gearing | Sample gearing | Gearing methodology |
|---|---|---|---|
| ACCC | Australia Post: 28.3%<br>Interstate rail: 50%<br>Hunter Valley rail: 52.5% | Australia Post: 28.3%<br>Interstate rail: 37%<br>Hunter Valley rail: no sample | Australia Post: estimated from sample<br>Interstate rail: approximated from sample<br>Hunter Valley rail: assumed from precedent |
| AER | 60% | 51% to 59% | Assumed from AER precedent, informed by sample |
| ERA | Gas and electricity: 55%<br>Public Transport Authority: 50%<br>Arc Infrastructure: 25%<br>Pilbara railways: 20% | Gas and electricity: 53% to 55%<br>Public Transport Authority: 47%<br>Arc Infrastructure: 23%<br>Pilbara railways: 22% | Assumed from ERA precedent, informed by sample |
| IPART | Rail access: 45%<br>Ferries: 40%-60%<br>Others: 60% | Not set out in decision | Assumed from precedent, informed by sample |
| QCA | Seqwater: 60%<br>GAWB: 50%<br>Rural irrigation: 60%<br>Queensland Rail: 40%<br>Aurizon rail: 55% | Seqwater: no sample<br>GAWB: 34% to 40%<br>Rural irrigation: no sample<br>Queensland Rail: 38% to 42%<br>Aurizon rail: no sample | Assumed from Australian precedent and/or informed by sample |
| ESCOSA | SA Water: 60% | SA Water: no sample | Assumed from Australian precedent |
| ICRC | Icon Water: 60% | Icon Water: 43% to 45% | Assumed from Australian precedent, informed by sample |
| OTTER | TasWater: 60% | TasWater: no sample | Assumed from AER precedent |
| NZCC (2016) | Energy: 42%<br>Airports: 19% | Energy: 42%<br>Airports: 19% | Estimated from sample |
| WASC | Perth Airport: 20% | Perth Airport: 20% | Estimated from sample |

*Source:* ACCC, *Decision on Australia Post's 2022 price notification*, December 2022, p iv. ACCC, *Australian Rail Track Corporation Access Undertaking – Interstate Rail Network*, Final decision, July 2008, pp 158-160, 164. ARTC, *ARTC Hunter Valley Access Undertaking | Rate of return*, Revised application, 13 April 2011, p 4. ACCC, *In relation to Australian Rail Track Corporation's Hunter Valley Rail Network Undertaking*, Decision, 29 June 2011, pp 47-49. ACCC, *In relation to the Australian Rail Track Corporation's proposed Hunter Valley Rail Network Access Undertaking*, Position paper, 21 December 2010, pp 102, 112. AER, *Rate of return instrument | Explanatory statement*, February 2023, pp 23, 87. AER, *Gearing*, Discussion paper, February 2018, pp 20-21. ERA, *Explanatory statement for the 2022 final gas rate of return instrument*, 16 December 2022, paras 262-273. ERA, *2018 and 2019 Weighted Average Cost of Capital | For the Freight and Urban Networks, and the Pilbara Railways*, Final determination, 22 August 2019, paras 45-72. ERA, *Determination on the 2022 weighted average cost of capital for the freight and urban railway networks, and for Pilbara railways*, 3 August 2022, p 4. IPART, *Review of our WACC method*, Final Report, February 2018, p 74. IPART, *Estimating equity beta for the weighted average cost of capital*, Final report, August 2020, pp 6-7. IPART, *WACC biannual update*, Fact sheet, 24 August 2023, p 4. QCA, *Rate of return review*, Final report, November 2021, pp 22-27. QCA, *Seqwater Bulk Water Price Review 2022–26*, Final report, March 2022, pp iv, 62. QCA, *Gladstone Area Water Board price monitoring 2020–25 Part A: Overview*, Final report, May 2020, pp 92-93. QCA, *Rural irrigation price review 2020–24 Part A: Overview*, Final report, January 2020, pp 93-96. QCA,

[58] The ACCC applied zero debt beta, while the AER and ICRC use WACC formulae that implicitly assume zero debt beta. See: ACCC, *Australian Rail Track Corporation Access Undertaking – Interstate Rail Network*, Final decision, July 2008, table 5.1.

[59] QCA, *Rate of return review*, Final report, November 2021, p iv.

*Queensland Rail 2020 draft access undertaking*, Decision, February 2020, pp 29, 38-39. QCA, *Aurizon Network's 2017 draft access undertaking*, Appendices, December 2018, p 73. Incenta Economic Consulting, *QCA | Aurizon Network's WACC for the 2017 DAU*, December 2017. ESCOSA, *SA Water regulatory determination 2020*, Final determination: statement of reasons, June 2020, pp 215-216. ICRC, *Review of methodologies for the weighted average cost of capital*, Final report, April 2021, pp 13-14. Industry Panel, *Review of the Independent Competition and Regulatory Commission's 2013 Price Direction for Regulated Water and Sewerage Services in the ACT*, Draft report, December 2014, table A8.9. OTTER, *Investigation into TasWater's prices and services for the period 1 July 2022 to 30 June 2026*, Final report, May 2022, pp 81-82. NZCC, *Input methodologies review decisions | Topic paper 4: Cost of capital issues*, 20 December 2016, table X1. *Perth Airport Pty Ltd v Qantas Airways Ltd [No 3]* [2022] WASC 51 para 338.

### 3.1.2 Well accepted and internally consistent to apply 0.20 gearing for alternative sample

In our 2023 report, we adopt an alternative benchmark gearing of 0.10 that reflects the average of five-year and ten-year gearings from our alternative sample of five comparators.[60] These five-year and ten-year averaging periods match the estimation periods that we use for calculating betas, which we consider to be a well-accepted approach.

Nevertheless, we observe that there is precedent for calculating the sample average gearing using a range of averaging periods that may not match the beta estimation periods. For example, we explain above that the AER's 2022 rate of return instrument calculates the sample average gearing over five-year, 10-year and 17-year averaging periods.[61] This contrasts with the AER's eight beta estimation periods ranging from five years to 22 years.[62]

Considering this precedent, we further calculate the prevailing gearing as at 31 March 2023 for the firms in our preferred and alternative comparator samples, which we show in table 3.2 below. We observe that:

- the average gearing for our preferred sample is 0.18 to 0.21, which is within ±0.02 from PoM's 0.20 benchmark gearing in its 2022/23 TCS; and
- the average gearing for our alternative sample is 0.09 to 0.14, which is 0.11 to 0.06 lower than PoM's 0.20 benchmark gearing in its 2022/23 TCS.

Based on these estimates, we consider that it is well accepted and internally consistent to adopt:

- 0.71 asset beta and 0.20 gearing for our preferred sample, which is unchanged from our 2023 report; and
- 0.70 asset beta and 0.20 gearing for our alternative sample, the latter of which is higher than the 0.10 gearing estimate from our 2023 report, given that:
  - clause 23 of the Undertaking requires PoM to refer to the benchmark gearing that currently applies, ie, 0.20; and
  - the regulatory precedent set out in section 3.1.1 above suggests that it is well accepted to adopt the current benchmark gearing even if the sample average gearing deviates from it by approximately 0.10.

We note that the regulatory precedent set out in section 3.1.1 above also supports adopting 0.20 benchmark gearing for our alternative sample even without the prevailing gearing estimates, in which case the average gearing is 0.11 to 0.10 lower than PoM's 0.20 benchmark gearing in its 2022/23 TCS. This range is still consistent with the regulatory precedent set out in section 3.1.1 above, whereby some regulators have adopted benchmark gearing that was more than 0.10 higher than the average of their respective comparator samples.

We provide the full set of gearing estimates for each comparator firm in appendix A1 below.

[60] HoustonKemp, *Estimation of the weighted average cost of capital and forecast inflation for the Port of Melbourne*, 15 May 2023, pp 35-36.

[61] AER, *Rate of return instrument | Explanatory statement*, February 2023, pp 23, 87.

[62] AER, *Rate of return instrument | Explanatory statement*, February 2023, table 8.4.

## Table 3.2: Average gearing for different country categories

| Sample | 10-year | 5-year | Prevailing |
|---|---|---|---|
| Preferred (omit country filter) | 0.20 | 0.21 | 0.18 |
| Alternative (apply country filter) | 0.10 | 0.09 | 0.14 |

*Source: Bloomberg, HoustonKemp analysis. We calculate the prevailing gearing using a 20-day average as at 31 March 2023.*

In table 3.3 below we update table 1 and table 7.2 from our 2023 report to include a third pre-tax WACC estimate that we also consider well accepted. As seen from table 3.3 below:

- our preferred WACC estimate derived from our preferred comparator sample that omits a country filter remains at 9.49 per cent;
- our alternative WACC estimate derived from our alternative comparator sample that applies a country filter and uses the sample average gearing remains at 9.34 per cent; and
- our second alternative WACC estimate derived from our alternative comparator sample that applies a country filter while applying 0.20 gearing is 9.42 per cent.

## Table 3.3: Weighted average cost of capital estimates with and without country filter

| | Parameter | HoustonKemp 2023-24 | HoustonKemp 2023-24, country filter applied, 0.10 gearing | HoustonKemp 2023-24, country filter applied, 0.20 gearing | Formula |
|---|---|---|---|---|---|
| (a) | Return on debt (including debt raising costs) | 4.88% | 4.88% | 4.88% | Rounded to two decimal places. |
| (b) | Return on equity | 9.05% | 8.36% | 8.97% | (b1) + (b2) × (b3) |
| (b1) | - risk free rate | 3.45% | 3.45% | 3.45% | Rounded to two decimal places. |
| (b2) | - MRP | 6.31% | 6.31% | 6.31% | Rounded to two decimal places. |
| (b3) | - equity beta | 0.89 | 0.78 | 0.88 | (b3b) ÷ (1 – (c)) |
| (b3b) | - asset beta | 0.71 | 0.70 | 0.70 | Rounded to two decimal places. |
| (c) | Gearing | 20% | 10% | 20% | Rounded to nearest percentage point. |
| (d) | Tax rate | 30% | 30% | 30% | |
| (e) | Gamma | 0.50 | 0.50 | 0.50 | (e1) × (e2) |
| (e1) | - utilisation rate | 0.625 | 0.625 | 0.625 | |
| (e2) | - distribution rate | 0.80 | 0.80 | 0.80 | |
| | **Pre-tax nominal WACC** | **9.49%** | **9.34%** | **9.42%** | $(c) \times (a) + \frac{(1-(c)) \times (b)}{1-(d) \times (1-(e))}$ |

*Source: HoustonKemp, Estimation of the weighted average cost of capital and forecast inflation for the Port of Melbourne, 15 May 2023, pp vi, 29-30; HoustonKemp analysis. We round the parameter estimates to two decimal places before inserting them into the formulae shown in the rightmost column without subsequently rounding the intermediate steps, ie, the equity beta, return on equity, and gamma estimates are unrounded.*

# 4. Estimating the cost of debt

HSF has asked us to provide advice on:

- the approach to estimating the cost of debt using the trailing average approach under circumstances where the Pricing Order precludes annual updates; and
- an estimate of the cost of debt for the 2023-28 Regulatory Period.

Four regulators and courts in Australia and New Zealand do not apply an annual update or a true up on the cost of debt. These four regulators and courts each apply different approaches, so we consider that all four approaches are well accepted for calculating the benchmark cost of debt for the benchmark efficient port.

Of these four approaches, we consider that the approach adopted by ESCOSA is most consistent with the requirements of clause 27 of the Undertaking. Clauses 27(b)(iii)-(v) of the Undertaking specify that the on-the-day cost of debt that forms part of the trailing average will be calculated using the arithmetic average of the 20 business days ending 31 March of the relevant financial year. It could potentially be argued that the ESCOSA may be interpreted as implicitly estimating a ten year trailing average cost of debt that uses an estimate of the rates that would apply at the start of each year of the pricing period.

We calculate that:

- applying ESCOSA's approach results in 4.88 per cent return on debt for 2023/24, consistent with the estimate in our 2023 report, before increasing in each year to reach 5.32 per cent return on debt for 2027/28;
- applying OTTER's approach results in 5.10 per cent return on debt for each year from 2023-28, which corresponds to the average return on debt that ESCOSA's approach generates for the same period;
- applying the ACCC's approach results in the 6.53 per cent on-the-day cost of debt from 2023/24 being adopted for all subsequent years up to 2027/28; and
- applying the WASC's approach results in 4.69 per cent return on debt being adopted for all years up to 2027/28, which reflects the midpoint of the five-year and 10-year trailing average using data up to the 2023/24 regulatory year, ie, 31 March 2023.

## 4.1 Trailing average cost of debt consistent with the Undertaking

Our 2023 report calculates PoM's cost of debt at 4.88 per cent as at 31 March 2023 using a 10-year trailing average of the 10-year BBB cost of debt, with a transition beginning in 2017/18.[63] This approach is consistent with the Undertaking, whereby:

- clause 19 states that PoM will calculate the return on debt using a transition to an arithmetic trailing average cost of debt, starting in 2017/18; and
- clause 27 specifies the formula that PoM will use for calculating the transition to an arithmetic trailing average cost of debt, including that the on-the-day cost of debt will be calculated using the arithmetic average of the 20 business days ending 31 March of the relevant financial year.

PoM adopts our cost of debt estimate for its 2023/24 TCS, and proposes to:[64]

- update the trailing average cost of debt annually; and

[63] HoustonKemp, *Estimation of the weighted average cost of capital and forecast inflation for the Port of Melbourne*, 15 May 2023, p iv.

[64] HoustonKemp, *Estimation of the weighted average cost of capital and forecast inflation for the Port of Melbourne*, 15 May 2023, p 93.

- apply a true-up in the next regulatory period for annual differences in the cost of debt from the previous period.

In the remainder of this section, we:

- review the regulatory precedent on calculating the cost of debt without true ups or annual updates;
- assess the cost of debt approaches for consistency with the Undertaking.

### 4.1.1 Precedent on calculating the cost of debt without true-up or annual updates

Our 2023 report sets out the regulatory precedent on the benchmark debt management strategies that Australian regulators and courts have adopted as at 31 March 2023. We summarise this precedent in table 4.1 below, which includes additional rail decisions by the ACCC and ERA.

We observe from table 4.1 below that four regulators and courts do not apply an annual update or a true up on the cost of debt. The four regulators and courts each apply different approaches, namely:

- the ACCC applies the prevailing 10-year cost of debt in its Australia Post and rail decisions, which are updated when the regulated firm next submits an application;[65]
- ESCOSA applies the 10-year trailing average of the 10-year cost of debt, holding the latest available observation constant for the remaining years of SA Water's four-year regulatory period, with no annual update or true up;[66]
- OTTER applies ESCOSA's approach but further takes the average of the four 10-year trailing average cost of debt estimates over TasWater's four-year regulatory period, with no annual update or true up;[67] and
- WASC accepts IPART's approach that takes the midpoint of the five-year and 10-year trailing averages of the 10-year cost of debt;[68]
    - airports and airlines negotiate aeronautical pricing agreements individually, but we understand from our work for various airports that the cost of debt is generally updated in the next pricing agreement.

We note that no regulator currently uses a market forecast to estimate the annual trailing average cost of debt during the regulatory period. As such, the use of market forecast would not be consistent with the requirement of the Pricing Order or the Undertaking to use a 'well accepted approach to estimating the return on capital parameters'.

Since the four regulators and courts each apply different approaches for calculating the cost of debt without annual updates or true ups, we consider that all four approaches are well accepted for calculating the benchmark cost of debt for the benchmark efficient port.

[65] ACCC, *Decision on Australia Post's 2022 price notification*, December 2022, p v. ACCC, *Australian Rail Track Corporation Access Undertaking – Interstate Rail Network*, Final decision, July 2008, pp 150-151. ARTC, *ARTC Hunter Valley Access Undertaking | Rate of return, Revised application*, 13 April 2011, p 4. ACCC, *In relation to Australian Rail Track Corporation's Hunter Valley Rail Network Undertaking*, Decision, 29 June 2011, pp 47-49. ACCC, *In relation to the Australian Rail Track Corporation's proposed Hunter Valley Rail Network Access Undertaking*, Position paper, 21 December 2010, pp 115-117.

[66] ESCOSA, *SA Water regulatory determination 2020, Final determination: statement of reasons*, June 2020, pp 216-217.

[67] OTTER, *Investigation into TasWater's prices and services for the period 1 July 2022 to 30 June 2026*, Final report, May 2022, pp 85-87.

[68] *Perth Airport Pty Ltd v Qantas Airways Ltd [No 3]* [2022] WASC 51 paras 299, 333-336.

Table 4.1: Regulatory precedent on benchmark debt management strategies

| Regulator | Cost of debt | Updates |
|---|---|---|
| **No annual update or true up** | | |
| ACCC | Australia Post, Interstate rail, Hunter Valley rail: prevailing 10-year cost of debt | When regulated firm next submits an application |
| ESCOSA | SA Water: 10-year trailing average of 10-year cost of debt, holding latest available observation constant until next four-year regulatory period | No annual update or true up |
| OTTER | TasWater: 10-year trailing average of 10-year cost of debt, holding latest available observation constant and then taking the average over the four-year regulatory period | No annual update or true up |
| WASC | Perth Airport: midpoint of five-year trailing average and 10-year trailing average of the 10-year cost of debt | Negotiated between airports and airlines; we understand that in practice, the cost of debt is generally updated in the next pricing agreement |
| **Annual update or true up** | | |
| AER | Existing network providers: 10-year trailing average of 10-year cost of debt<br>New network providers: Prevailing 10-year cost of debt transitioning to 10-year trailing average | Updated annually |
| ERA | Gas and electricity: prevailing five-year swap rate and 10-year trailing average of the spread to swap<br>Rail: prevailing 10-year cost of debt | Gas and electricity: updated annually<br>Rail: updated annually |
| IPART | Rail access, ferries, water: midpoint of five-year trailing average and 10-year trailing average of the 10-year cost of debt | Updated annually or true-up as decided on a case-by-case basis |
| QCA | Water and rail: 10-year trailing average of 10-year cost of debt | Updated annually |
| ICRC | Icon Water: 10-year trailing average of 10-year cost of debt | Updated annually |

*Source:* ACCC, *Decision on Australia Post's 2022 price notification*, December 2022, p v. ACCC, *Australian Rail Track Corporation Access Undertaking – Interstate Rail Network*, Final decision, July 2008, pp 150-151. ARTC, *ARTC Hunter Valley Access Undertaking | Rate of return*, Revised application, 13 April 2011, p 4. ACCC, *In relation to Australian Rail Track Corporation's Hunter Valley Rail Network Undertaking*, Decision, 29 June 2011, pp 47-49. ACCC, *In relation to the Australian Rail Track Corporation's proposed Hunter Valley Rail Network Access Undertaking*, Position paper, 21 December 2010, pp 115-117. ESCOSA, *SA Water regulatory determination 2020*, Final determination: statement of reasons, June 2020, pp 216-217. OTTER, *Investigation into TasWater's prices and services for the period 1 July 2022 to 30 June 2026*, Final report, May 2022, pp 85-87. *Perth Airport Pty Ltd v Qantas Airways Ltd [No 3]* [2022] WASC 51 paras 299, 333-336. AER, *Rate of return instrument | Explanatory statement*, February 2023, pp 23, 87. ERA, *Explanatory statement for the 2022 final gas rate of return instrument*, 16 December 2022, table 2. ERA, *2018 and 2019 Weighted Average Cost of Capital | For the Freight and Urban Networks, and the Pilbara Railways*, Final determination, 22 August 2019, paras 73-82. ERA, *Determination on the 2022 weighted average cost of capital for the freight and urban railway networks, and for Pilbara railways*, 3 August 2022, appendix 2. IPART, *Review of our WACC method*, Final Report, February 2018, pp 24-25. IPART, *Estimating equity beta for the weighted average cost of capital*, Final report, August 2020, pp 6-7. QCA, *Rate of return review*, Final report, November 2021, pp 39-42. ICRC, *Regulated water and sewerage services 2023-28*, Draft report, October 2022, p 81.

### 4.1.2 Regulatory approach for calculating the cost of debt without an annual update or true-up

This section assesses whether any of the four well accepted approaches for calculating the benchmark cost of debt without an annual update or true up is consistent with clause 27(b)(iii)-(iv) of the Undertaking.

Specifically, clause 27(b)(iii) specifies that the on-the-day cost of debt that forms part of the trailing average will be calculated using the arithmetic average of the 20 business days ending 31 March of the relevant financial year.

Under the Pricing Order and clause 17(a) of the Undertaking, PoM is still required to apply a well accepted approach to estimating the return on capital parameters that:

- calculates all parameter values in an internally consistent manner that has regard to the interrelationships between parameters; and
- uses methods and approaches applied by Australian and New Zealand regulators and courts for the purposes of calculating a revenue requirement.

We conclude in section 4.1.1 above that all four approaches for calculating the benchmark cost of debt without an annual update or true up are well accepted. It follows that PoM's WACC estimate will be consistent with the Pricing Order and clause 17(a) of the Undertaking.

In this case, one important reason for changing the cost of debt approach is to enable PoM to calculate its rate of return in a manner consistent with the ESC's preliminary views in the interim commentary, without requiring a court decision or Government amendment.

Of the four well accepted approaches that we discuss in section 4.1.1 above, we consider that ESCOSA's approach could arguably be interpreted as being consistent with the requirements of clause 27 of the Undertaking. That is, ESCOSA's approach, which holds the latest available observation constant for the remaining years of the regulatory period, could be argued to be interpreted as:

- providing an estimate of the cost of debt for the 20 business days ending 31 March of each year of the pricing period by using the values available for the most contemporaneous available period (ie, the 20 days to 31 March 2023); then
- calculating a ten-year trailing average cost of debt for each relevant financial year.

However, none of the other three well accepted approaches for calculating the benchmark cost of debt without an annual update or true up is consistent with clause 27(b)(iii)-(iv) of the Undertaking, ie:

- OTTER's approach, which applies ESCOSA's approach with an additional averaging across the regulatory period, requires PoM to:
  - hold the latest available cost of debt observations constant for the remaining years of the regulatory period in the same manner as for ESCOSA's approach; and
  - adjust the approach set out in clause 27(b)(i)-(ii) to specify that the allowed return on debt will be averaged across all years in the regulatory period;
- the ACCC's prevailing 10-year cost of debt approach requires PoM to adjust the approach set out in:
  - clause 19 to allow PoM to apply a prevailing cost of debt instead of a trailing average cost of debt; and
  - clause 27 to allow PoM to apply a prevailing cost of debt that is calculated as the arithmetic average of the 20 business days ending 31 March in the most recent financial year at the time of the TCS; and
- the WASC's approach that takes the midpoint of the five-year and 10-year trailing average cost of debt requires PoM to adjust the approach set out in:
  - clause 19 to allow PoM to deviate from the arithmetic trailing average cost of debt; and
  - clause 27(b) to specify a different formula for calculating the trailing average cost of debt in each year.

In table 4.2 below, we show our calculations of the benchmark return on debt for 2023-28 using each of the four above approaches that we consider well accepted. We note that:

- the red numbers in the rows labelled 'transition' reflect the 5.45 per cent on-the-day cost of debt that is applied to all years up to 2017/18 as part of the transition to the 10-year trailing average, consistent with clause 27(b) of the Undertaking; and
- the red numbers in the rows corresponding to 2024-28 reflect the 6.53 per cent on-the-day cost of debt that is constant for the remaining years of the regulatory period under ESCOSA's and OTTER's approaches.

We obtain the on-the-day cost of debt for 2017/18 to 2023/24 from our 2023 report.[69]

We observe from table 4.2 below that:

- applying ESCOSA's approach results in 4.88 per cent return on debt for 2023/24, consistent with the estimate in our 2023 report, before increasing in each year to reach 5.32 per cent return on debt for 2027/28;
- applying OTTER's approach results in 5.10 per cent return on debt for each year from 2023-28, which corresponds to the average return on debt that ESCOSA's approach generates for the same period;
- applying the ACCC's approach results in the 6.53 per cent on-the-day cost of debt from 2023/24 being adopted for all subsequent years up to 2027/28; and
- applying the WASC's approach results in 4.69 per cent return on debt being adopted for all years up to 2027/28, which reflects the midpoint of the five-year and 10-year trailing average using data up to the 2023/24 regulatory year, ie, 31 March 2023.

In section 5 below we calculate the resulting pre-tax WACC estimates using each approach.

Table 4.2: Return on debt calculations for 2023-28 (including 0.1 per cent debt raising costs)

| Regulatory year | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 |
|---|---|---|---|---|---|
| Transition | 5.45% | | | | |
| Transition | 5.45% | 5.45% | | | |
| Transition | 5.45% | 5.45% | 5.45% | | |
| 2017/18 | 5.45% | 5.45% | 5.45% | 5.45% | |
| 2018/19 | 4.58% | 4.58% | 4.58% | 4.58% | 4.58% |
| 2019/20 | 4.21% | 4.21% | 4.21% | 4.21% | 4.21% |
| 2020/21 | 3.42% | 3.42% | 3.42% | 3.42% | 3.42% |
| 2021/22 | 3.12% | 3.12% | 3.12% | 3.12% | 3.12% |
| 2022/23 | 5.18% | 5.18% | 5.18% | 5.18% | 5.18% |
| 2023/24 | 6.53% | 6.53% | 6.53% | 6.53% | 6.53% |
| 2024/25 | | 6.53% | 6.53% | 6.53% | 6.53% |
| 2025/26 | | | 6.53% | 6.53% | 6.53% |
| 2026/27 | | | | 6.53% | 6.53% |
| 2027/28 | | | | | 6.53% |
| **ESCOSA trailing average** | **4.88%** | **4.99%** | **5.10%** | **5.21%** | **5.32%** |
| **OTTER average of trailing average** | **5.10%** | **5.10%** | **5.10%** | **5.10%** | **5.10%** |
| **ACCC prevailing** | **6.53%** | **6.53%** | **6.53%** | **6.53%** | **6.53%** |
| **WASC midpoint of 5y and 10y trailing average** | **4.69%** | **4.69%** | **4.69%** | **4.69%** | **4.69%** |

*Source: HoustonKemp, Estimation of the weighted average cost of capital and forecast inflation for the Port of Melbourne, 15 May 2023, pp 29-30; HoustonKemp analysis.*

[69] HoustonKemp, *Estimation of the weighted average cost of capital and forecast inflation for the Port of Melbourne*, 15 May 2023, pp 29-30.

# 5. WACC estimates from well accepted approaches

Based on the discussion in the previous sections, we show in table 5.1 below three sets of pre-tax WACC estimates that we consider are also well accepted. These correspond to:

- comparator sample that omits a country filter, ie, 0.71 asset beta and 0.20 gearing;
- comparator sample that applies a country filter and adopts the sample average gearing, ie, 0.70 asset beta and 0.10 gearing; and
- comparator sample that applies a country filter and adopts the benchmark gearing from PoM's 2022/23 TCS, ie, 0.70 asset beta and 0.20 gearing.

For each set of estimates, we show the pre-tax WACC for the 2023-28 regulatory period using four well accepted cost of debt approaches that do not apply annual updates or true ups. These correspond to the cost of debt approaches adopted by ESCOSA, OTTER, the ACCC and the WASC.

We note that the 9.49 per cent and 9.34 per cent pre-tax WACC estimates calculated using ESCOSA's approach for 2023/24 match the preferred and alternative pre-tax WACC estimates from our 2023 report. In addition, the 9.42 per cent pre-tax WACC estimate corresponds to the estimate that we calculate in the preceding sections using our alternative comparator sample with gearing set at 0.20.

Table 5.1: Pre-tax WACC estimates without annual update or true-up

| Cost of debt approach | On-the-day cost of debt, including 0.10 per cent debt raising costs | HoustonKemp 2023-24; 0.71 asset beta, 0.20 gearing) | HoustonKemp 2023-24, country filter applied; 0.70 asset beta, 0.10 gearing | HoustonKemp 2023-24, country filter applied; 0.70 asset beta, 0.20 gearing |
|---|---|---|---|---|
| ESCOSA, 2023-28 | | | | |
| - 2023/24 | 4.88% | 9.49% | 9.34% | 9.42% |
| - 2024/25 | 4.99% | 9.52% | 9.35% | 9.44% |
| - 2025/26 | 5.10% | 9.54% | 9.36% | 9.46% |
| - 2026/27 | 5.21% | 9.56% | 9.37% | 9.49% |
| - 2027/28 | 5.32% | 9.58% | 9.38% | 9.51% |
| | | | | |
| OTTER, 2023-28 | 5.10% | 9.54% | 9.36% | 9.46% |
| ACCC, 2023-28 | 6.53% | 9.82% | 9.50% | 9.75% |
| WASC, 2023-28 | 4.69% | 9.46% | 9.32% | 9.38% |

*Source: HoustonKemp, Estimation of the weighted average cost of capital and forecast inflation for the Port of Melbourne, 15 May 2023, pp vi, 29-30; HoustonKemp analysis.*

# A1. Comparator gearing estimates

The table below reproduces table A.2 from our 2023 report, which sets out the five-year and ten-year gearing estimates for each company in our preferred and alternative samples. We include in the last column of the table below the prevailing gearing for each company, which we calculate as at 31 March 2023.

## Table A.1: Gearing estimates for the preferred and comparator samples

| Ticker | Name | Sample | 5 yr gearing | 10 yr gearing | Prevailing gearing |
|---|---|---|---|---|---|
| 000582 CH Equity | Beibuwan Port Co Ltd | Preferred | 0.22 | 0.20 | 0.36 |
| 1199 HK Equity | COSCO SHIPPING Ports Ltd | Preferred | 0.49 | 0.35 | 0.13 |
| 144 HK Equity | China Merchants Port Holdings Co Ltd | Preferred | 0.39 | 0.29 | 0.33 |
| 600017 CH Equity | Rizhao Port Co Ltd | Preferred | 0.46 | 0.36 | 0.55 |
| 600018 CH Equity | Shanghai International Port Group Co Ltd | Preferred | 0.14 | 0.12 | 0.10 |
| 601008 CH Equity | Jiangsu Lianyungang Port Co Ltd | Preferred | 0.37 | 0.34 | 0.23 |
| 601018 CH Equity | Ningbo Zhoushan Port Co Ltd | Preferred | 0.19 | 0.16 | 0.08 |
| 6198 HK Equity | Qingdao Port International Co Ltd | Preferred | 0.00 | 0.00 | 0.00 |
| ADSEZ IN Equity | Adani Ports & Special Economic Zone Ltd | Preferred | 0.21 | 0.22 | 0.24 |
| GPPV IN Equity | Gujarat Pipavav Port Ltd | Preferred | 0.00 | 0.00 | 0.00 |
| HHFA GR Equity | Hamburger Hafen und Logistik AG | Preferred and applied country filter | 0.28 | 0.22 | 0.41 |
| POT NZ Equity | Port of Tauranga Ltd | Preferred and applied country filter | 0.10 | 0.10 | 0.11 |
| PPA GA Equity | Piraeus Port Authority SA | Preferred and applied country filter | 0.00 | 0.03 | 0.00 |
| WPRTS MK Equity | Westports Holdings Bhd | Preferred and applied country filter | 0.06 | 0.06 | 0.05 |
| 002040 CH Equity | Nanjing Port Co Ltd | Preferred | 0.16 | 0.13 | 0.09 |
| 001872 CH Equity | China Merchants Port Group Co Ltd | Preferred | 0.49 | 0.29 | 0.44 |
| 601228 CH Equity | Guangzhou Port Co Ltd | Preferred | 0.24 | - | 0.29 |
| GMD VN Equity | Gemadept Corporation | Preferred | 0.15 | - | 0.05 |
| NMTP RM Equity | Novorossiysk Commercial Sea Port PJSC | Preferred | 0.24 | 0.38 | 0.00 |
| SISCO AB Equity | Saudi Industrial Services Co (SISCO) | Preferred | 0.21 | 0.32 | 0.09 |
| STBP3 BZ Equity | Santos Brasil Participacoes S/A | Preferred and applied country filter | 0.00 | - | 0.16 |
| **Mean - preferred** | | | **0.21** | **0.20** | **0.18** |
| **Mean - alternative** | | | **0.09** | **0.10** | **0.14** |

*Source: Bloomberg, HoustonKemp analysis. ^ SISCO AB Equity currently trades on a Sunday through Thursday weekly cycle. As such, our calculations shift the relevant data forward by one day to obtain a Monday through Friday cycle that is consistent with the other comparators.*

# A2. Differences with CEPA's comparator samples

CEPA formulates eight samples that comprise various combinations of:[70]

- applying and not applying a country filter;
- applying and not applying a market capitalisation filter; and
- applying a strict liquidity versus a loose liquidity filter.

We explain in section 2.2 above our view that not applying a market capitalisation filter and/or applying a loose liquidity filter is inconsistent with the Pricing Order and/or Undertaking. It follows that only two of CEPA's samples are consistent with the Undertaking, ie:[71]

- sample B, which corresponds to our alternative sample since it applies our liquidity filter and market capitalisation filter while also applying a country filter; and
- sample F, which corresponds to our preferred sample since it applies our liquidity filter and market capitalisation filter without applying a country filter.

Our samples differ in that:[72]

- CEPA includes China Container Terminal Corporation (2613 TT Equity) in samples B and F, while we exclude it from our preferred and alternative samples;
- CEPA includes Tianjin Port Holdings Co (600717 CH Equity) in sample F, while we exclude it from our preferred sample; and
- CEPA includes five-year and 10-year estimates for Gemadept Corporation in sample F, while we only include its five-year estimates in our preferred sample.

The above differences arise due to differing views about the relevance of the above firms as comparators. Specifically, the above firms receive substantial revenues from activities relating to stevedoring or logistics.[73]

CEPA errs on the side of including comparators that provide most or all of PoM's prescribed services, even though these comparators may provide additional services that tend to be common across port operators.[74] Conversely, we have restricted our two comparator samples to firms that derived their revenues primarily from container port operations.

We accept that reasonable minds may differ on whether these ports should be included as comparators, such that it would be well accepted to adopt a comparator sample that includes or excludes these firms.

In the present case, when we use a comparator sample with a country filter:[75]

- our 0.70 asset beta estimate is not materially different from CEPA's 0.69 estimate for sample B; and
- if we adopt 0.20 benchmark gearing then this is not materially different from CEPA's 0.21 gearing estimate for sample B.

[70] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, p 26.

[71] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, p 26.

[72] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, pp 29-32, 55-58.

[73] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, pp 30-32.

[74] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, p 29.

[75] CEPA's estimates from: CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, table 5-3 and table 6-2.

# A3. Instructions

## A3.1 Estimating beta and gearing

Independent Expert view for the purposes of HSF providing legal advice to PoM:

- Identify potential options for estimating the WACC to address the comments by the ESC in its Interim Commentary. For example, these options could include (but should not necessarily be limited to):
  - Retaining the approach adopted in the 2023-24 TCS (to be revisited after the ESC's next 5-year Inquiry in 2026 or for the next Regulatory Period commencing 1 July 2028);
  - Relaxing the liquidity filter to include additional comparators (e.g. by allowing a higher bid-ask spread, or some other approach for which there is regulatory precedent);
  - Retaining the gearing that previously applied, all else remaining equal (i.e. 20%) (essentially decoupling gearing from the latest estimate of the average gearing of the comparator set); and
  - Removing the country filter.
- Provide a view on each option with respect to:
  - The Independent Expert's view on the basis for adopting the approach;
  - Whether there is reasoning for the proposed benchmark gearing level; and
  - The extent to which the Independent Expert considers the approach is sound from an economic perspective, taking account the requirements of the Pricing Order and the Undertaking, and the extent to which the Independent Expert considers the approach is well accepted.
- Estimate the beta, gearing and WACC for each option.

## A3.2 Estimating the cost of debt

The ESC's Statement of Regulatory Approach (SoRA) and Interim Commentary both state that the use of a trailing average approach (with a transition period from the 'on the day' approach) for the averaging period is considered a 'well accepted approach' to establishing the cost of debt. However, the ESC Interim Commentary suggests a possibility that PoM may be unable to update its ARR for annual changes in the cost of debt.

As such, PoM considers that it may be required to re-estimate the WACC for the 2023-28 Regulatory Period using a forecast of the cost of debt over the regulatory period.

Independent Expert advice is required to advise on the following, in order for legal advice to be provided to PoM:

- The approach to estimating the cost of debt using the trailing average approach under an assumption that the Pricing Order precludes annual updates;
- An estimate of the cost of debt for the 2023-28 Regulatory Period.

## A3.3 Estimating the WACC

Independent Expert advice is required to prepare a revised estimate of the WACC taking into account the above updates to the estimation of beta, gearing and the cost of debt, which will be used in providing legal advice to PoM.

# A4. Impact of loosening the liquidity filter

We explain in section 2.2 above our view that loosening the liquidity filter for the purpose of expanding the comparator sample used to measure beta and gearing is not well accepted and is inconsistent with the Undertaking.

An argument may be made for loosening the liquidity filter when measuring gearing while retaining the filter when measuring betas. This is because the liquidity filter is meant to exclude firms with betas that cannot be measured accurately and precisely, but several regulators assume that the benchmark gearing is stable over time, even if gearing for individual ports may fluctuate due to their large and lumpy expenditure requirements.

Notwithstanding the strength and validity of the above argument, our empirical analysis shows that loosening the liquidity filter will not lead to a materially higher sample average gearing for our alternative sample that applies a country filter. Specifically, loosening the liquidity filter will increase the average gearing from 0.10 to 0.11.

We note that CEPA obtains a gearing range of 0.18 to 0.19 when applying a country filter with a loose liquidity filter. However, the difference between our estimates arises because CEPA includes one additional firm, China Container Terminal Corporation (2613 TT Equity), which has 0.48 to 0.65 gearing.[76] We previously excluded this firm from our preferred and alternative comparator samples because it derived a large proportion of its revenues from stevedoring activities.[77]

The figure below shows the average of the five-year and 10-year gearing for our comparator samples, separated into different country classifications. We further include illiquid firms from developed and advanced emerging countries, which pass the country filter specified by the ESC.

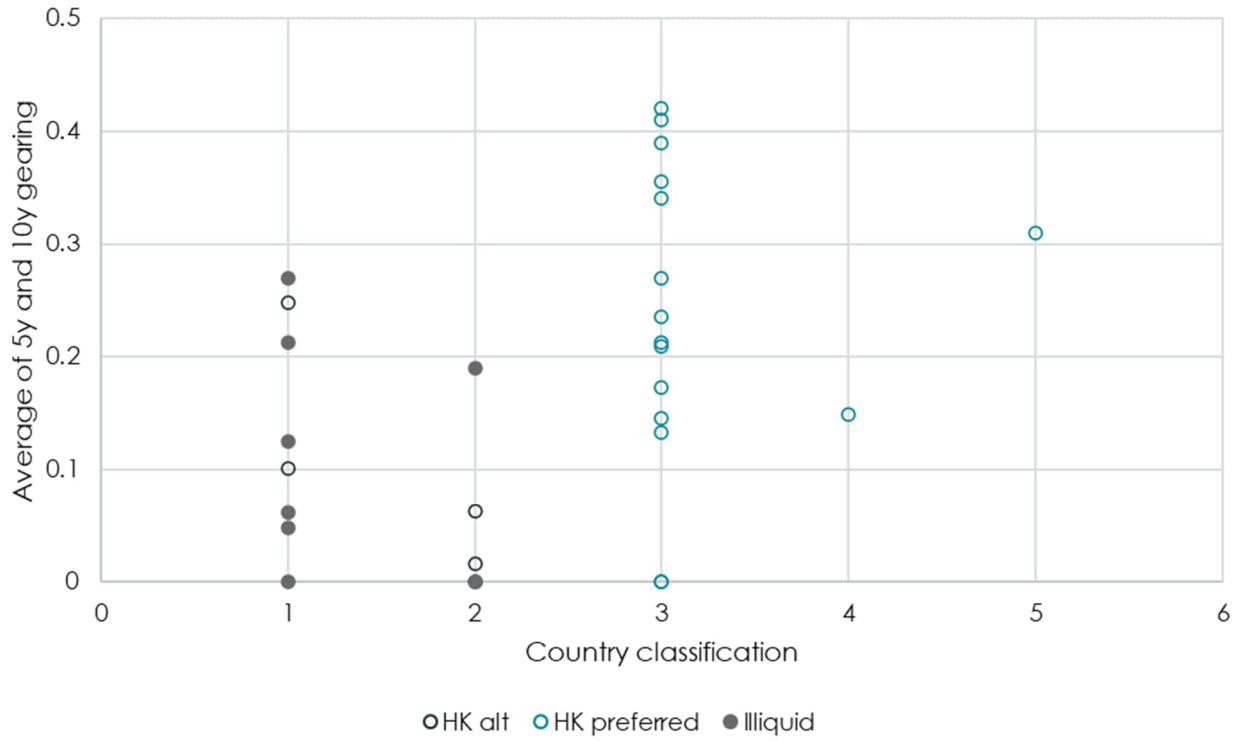
We observe from the figure that:

- the higher gearing from our preferred comparator sample arises because there are several firms in the 'secondary emerging' category with comparatively higher gearing, but which are excluded by the ESC's country filter; and
- illiquid firms that pass the ESC's country filter tend to have comparatively low gearing.

[76] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, p 60.

[77] CEPA, *Port of Melbourne - review of gearing and beta*, 21 November 2023, footnote 87. For the 2022 calendar year, China Container Terminal Corp derived 88 per cent of its revenues from 'stevedoring operation' and 9 per cent from 'container operation'.

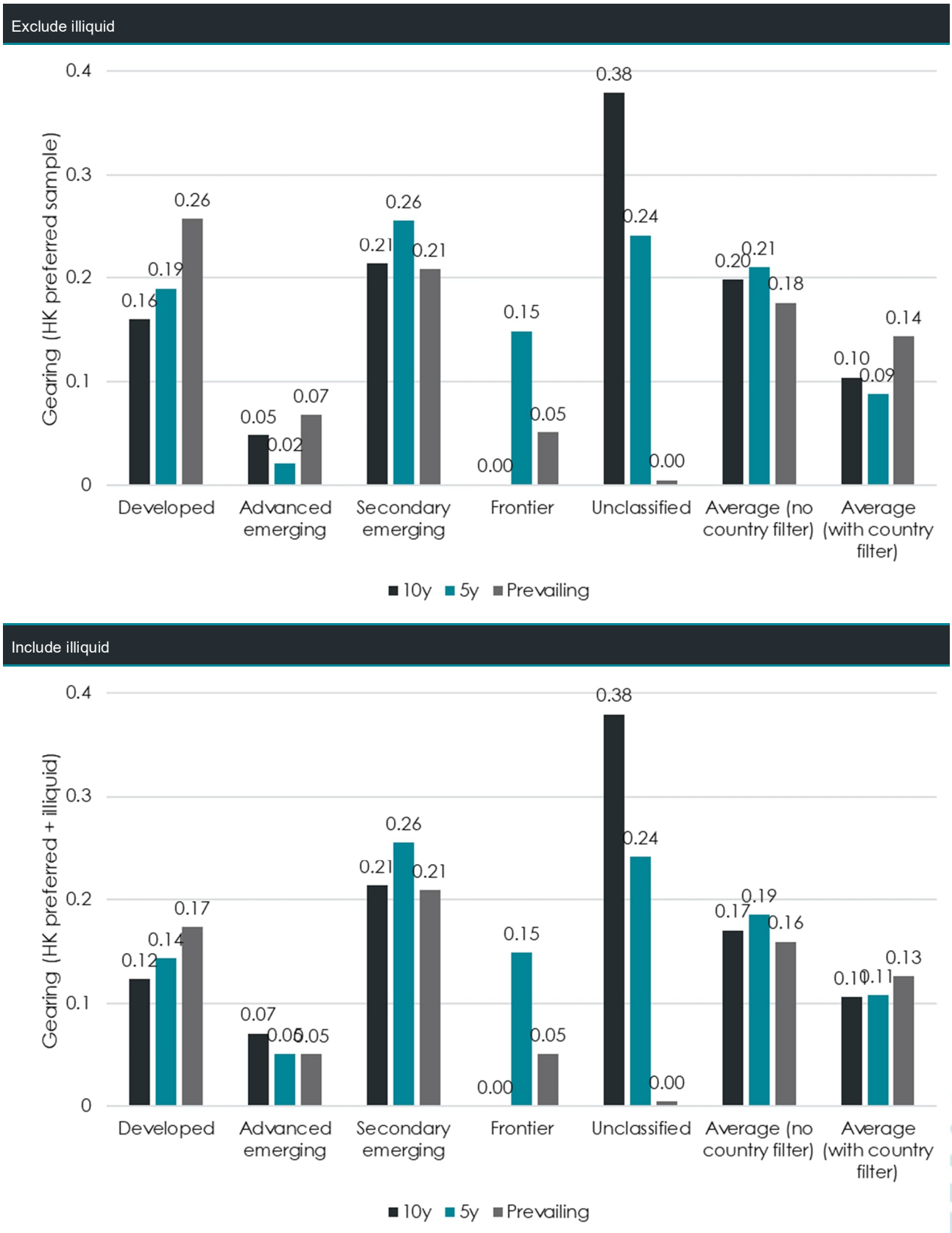
Figure A 1: Gearing ratio of Airports by country classification




*Source: Bloomberg, HoustonKemp analysis. Country classification: (1) developed; (2) advanced emerging; (3) secondary emerging; (4) frontier, ie, Vietnam; and (5) unclassified, ie, Russia.*

The figures below show the average gearing of the firms in our comparator samples with and without illiquid firms. We observe that the average gearing of the samples do not change materially when illiquid firms are included. We note that comparators in developed countries have high gearing, but restricting the sample to these firms may require the asset beta comparator sample to also be restricted to these firms.

Figure A 2: Gearing ratio of different samples of airports measured over different assessment periods



# A5. Impact of cost of debt methodology

In section 4.1.2 above we set out four well accepted approaches for calculating the benchmark cost of debt without an annual update or true up.

Two of the approaches by ESCOSA and OTTER involve holding the latest available observation constant for the remaining years of the regulatory period. These approaches assign increasing weight to the on-the-day cost of debt calculated as at 31 March 2023.

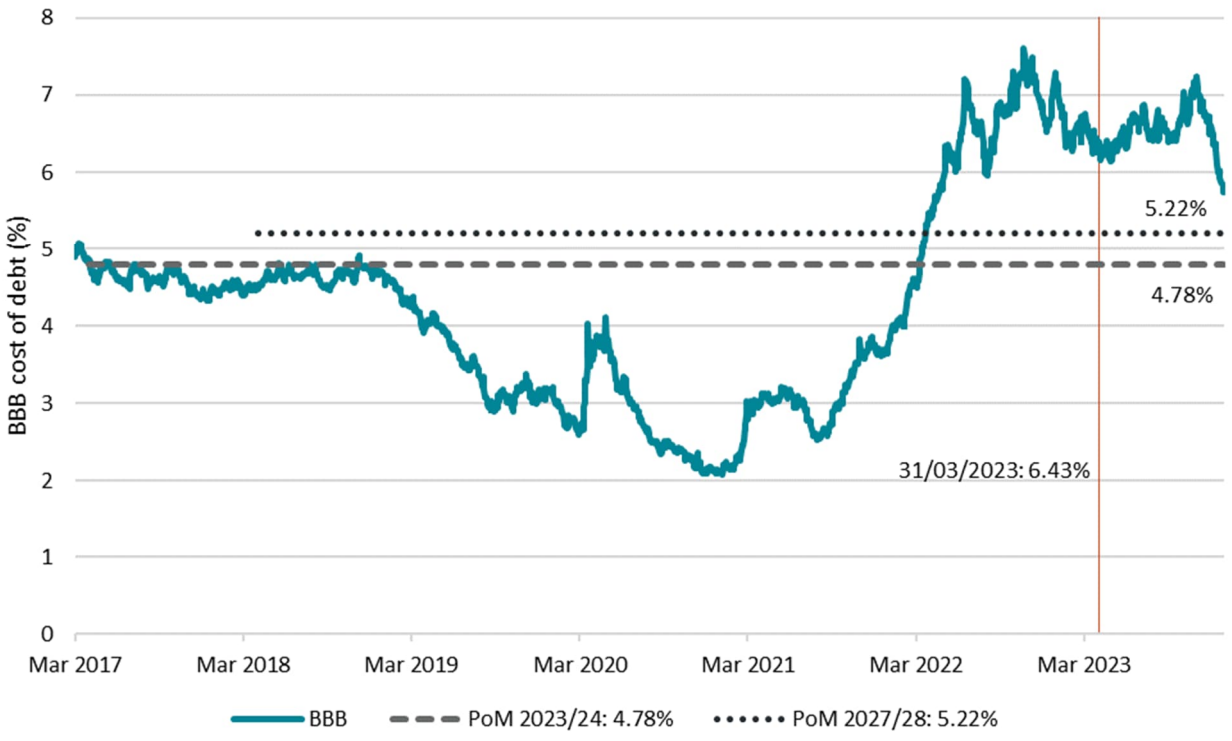
The figure below shows the on-the-day BBB 10-year cost of debt up to December 2023, excluding 0.10 per cent debt raising costs. We include in the figure:

- PoM's 10-year trailing average cost of debt from the 2023/24 TCS, ie, 4.78 per cent excluding debt raising costs; and
- PoM's 10-year trailing average cost of debt in 2027/28 using ESCOSA's approach, ie, 5.22 per cent excluding debt raising costs.

The figure also shows that the on-the-day cost of debt as at 31 March 2023 is 6.43 per cent excluding debt raising costs. The ACCC's prevailing return debt approach assumes that this prevailing cost of debt estimate will apply for all years in the regulatory period.

The figure does not include the WASC's approach, which fixes the return on debt at 4.59 per cent excluding debt raising costs for all years in the regulatory period.

Figure A 3: BBB corporate bond yields




*Source: Bloomberg, RBA, HoustonKemp analysis. Cost of debt series extends to December 2023.*

It can be seen from the figure that the on-the-day cost of debt:

- increased materially between 2021 and 2023; and
- declined in the last quarter of 2023, to be below the on-the-day cost of debt as at 31 March 2023.

If the on-the-day cost of debt in future years remains below that observed as at 31 March 2023, then:

- the ACCC's cost of debt approach, which fixes the return on debt for the regulatory period at at the on-the-day estimate derived as at 31 March 2023 will:
  - generate the highest return on debt estimate among the four approaches; and
  - exceed the return on debt under the annually updated 10-year trailing average;
- ESCOSA's and OTTER's cost of debt approaches, which holds the latest available observation constant for the remaining years of the regulatory period will:
  - generate return on debt estimates that are lower than the ACCC's but higher than the WASC's approach; and
  - exceed the return on debt under the annually updated 10-year trailing average; and
- the WASC's cost of debt approach, which fixes the return on debt for the regulatory period at the midpoint of the five-year trailing average and 10-year trailing average as at 31 March 2023:
  - will generate the lowest return on debt estimate among the four approaches; and
  - may exceed or undershoot the return on debt under the annually updated 10-year trailing average, depending on the materiality of any future decline in the on-the-day cost of debt, ie, if there is a very substantial decline in the future on-the-day cost of debt, then the WASC's cost of debt approach will exceed the return on debt under the annually updated 10-year trailing average and vice-versa.

The opposite observations apply if the on-the-day cost of debt in future years exceeds that observed as at 31 March 2023.

HOUSTONKEMP
Economists

**Sydney**
Level 40
161 Castlereagh Street
Sydney NSW 2000

Phone: +61 2 8880 4800