

The Tribunal has not previously considered this approach because no party applied it during the 2009 WACC review or in subsequent decisions. We consider the equity ownership approach is a reasonable estimate for the following reasons:

- The proportion of domestic investment in Australian equity is a good proxy for the value weighted average investor's eligibility to utilise franking credits. This is because:
 - in general, domestic owners of equity (who expect to hold shares for a full CAPM period) can utilise franking credits
 - conversely, foreign owners of Australian equity cannot utilise franking credits
 - the proportion of domestic ownership of Australian equity is therefore an average of investors that expect to be eligible to redeem franking credits weighted by their market value ownership
 - where investors redeem credits, company tax is reduced by one dollar per dollar of imputation credit. This is because the redemption of credits transfers company tax from an expense to a return for investors.

However, under the Officer framework (or the alternative derivations in Lally and Van Zijl or Monkhouse), the weightings for the representative investor should account for both:

- the value weighting of each individual investor—that is, the proportion of equity in the market that they own
- the risk aversion of all investors—specifically, the expected return of each investor's portfolio divided by their expectations of variance in that portfolio.⁵⁷⁸

The equity ownership approach accounts for the first of these factors, but not for the risk aversion of all investors. We consider it is not practically possible to estimate this factor. This is because it would require specific calculations or assumptions relating to the portfolios and risk preferences of all individuals or classes of investors. Because risk aversion is complex to measure or observe outside of its effects on prices, these calculations are unfeasible.

In our explanatory statement to the draft guideline, we stated that the equity ownership approach might underestimate the true utilisation rate. This was because it assumed that imputation credits would be evenly distributed in proportion to the overall balance between domestic and foreign investors. There is an incentive for domestic investors who are eligible to redeem imputation credits to disproportionately hold shares that do pay imputation credits over those that do not. Foreign investors have the opposite incentive. Hence, there may be a divergence between the domestic proportion of total equity ownership and the domestic proportion of total imputation credits received.⁵⁷⁹

We no longer hold this view. In his critical review, Lally points out that even if this clientele effect existed, it would not alter the true underlying utilisation rate.⁵⁸⁰ This is because the utilisation rate is defined using value weights that reflect the overall proportion of equity held by each investor. It is not defined using the proportion of imputation credits that investors received. Hence, the equity ownership

⁵⁷⁸ Risk aversion is also in the weighting derivation in Monkhouse (1993) equation 4.8. P. Monkhouse, 'The cost of equity under the Australian dividend imputation system', *Accounting and finance*, November 1993, vol. 33(2), p. 10.

⁵⁷⁹ Interestingly, the Hathaway report indicates that foreign investors actually receive more than their expected proportion of imputation credits. Using data from 2004-2011, they hold 25 per cent of total equity and receive 29 per cent of all fully franked dividends and imputation credits. N. Hathaway, *Imputation credit redemption: ATO data 1988-2011, Where have all the credits gone?*, September 2013, p. 19.

⁵⁸⁰ Lally, *The estimation of gamma*, November 2013, p. 16.

approach correctly aligns with the conceptual definition of the utilisation rate. Also, any divergence arising from a clientele effect is not a source of bias (either as an overestimate or underestimate) for this approach. In contrast, estimates from implied market value studies or tax redemption studies may be influenced by this effect, as discussed below.

We accept that there are potential disadvantages with the equity ownership approach. Nonetheless, we consider the equity ownership approach is a reasonable estimate because:

- It is well aligned with our interpretation of the conceptual framework as set out in sections 9.3.1 and 9.3.2.
- It is the only measure of the representative utilisation rates that is representative of the entire trading year.
- It is simple and intuitive.
- It is based on reliable data and calculations.
- Both tax value studies and implied market value studies are sensitive to trading around the cum-dividend and ex-dividend days. For dividend drop off studies in particular, this issue can critically affect the resulting estimate. This limitation, that affects other approaches, does not affect the equity ownership approach.

Tax statistic estimates

Tax statistic estimates are based on ATO data for the amount of tax reduced (or refunded) through the use of imputation credits. Hence, tax statistics report the actual dollar benefit to Australian taxpayers from their imputation credits. While they are not identical, this estimation technique aligns closely with our interpretation of the conceptual definition of the utilisation rate. This conceptual definition is the expected ability of equity holders to use the imputation credits they receive to reduce their personal tax.⁵⁸¹ According to our conceptual definition, this true utilisation rate is value weighted by the total equity ownership of each investor. However, tax statistics reflect the final set of investors who redeem the credits. It is possible that some of these investors have traded specifically to receive the credits (tax arbitrage). Hence, tax statistics estimates are weighted by imputation credits received, not by equity ownership across the entire period.

The most relevant estimates are from the period post 2000, when taxation laws were changed to allow eligible investors to claim a refund for any excess or unused imputation credits.⁵⁸² Prior to this time, when investors received franking credits above their tax assessment, they were not entitled to any benefit from the unusable credits.⁵⁸³ The estimates from the period post 2000 are 0.81 (Handley and Maheswaran), 0.62 (Hathaway, using dividend data) and 0.44 (Hathaway, using dividend data and franking account balance data).⁵⁸⁴ We round this range to 0.4 to 0.8. Rounding avoids inappropriate specificity in our consideration of this class of evidence as a whole.

⁵⁸¹ Further, equity holders can also use imputation credits to receive a refund, where they have imputation credits in excess of their total tax assessment.

⁵⁸² We have not excluded the earlier estimates entirely; they have been interpreted with regard to their strengths and weaknesses, including that the effect of this tax change might cause them to underestimate the (current) utilisation rate. See appendix H for a more detailed discussion.

⁵⁸³ For clarity, this tax law change did not allow foreign investors to redeem imputation credits that would otherwise have been ineligible for redemption.

⁵⁸⁴ J. Handley and K. Maheswaran, 'A measure of the efficacy of the Australian imputation tax system', *The economic record*, March 2008, vol. 84(264), pp. 82–94; and N. Hathaway, *Imputation credit redemption ATO data 1988–2011, Where have all the credits gone?*, September 2013, p. 7.

The potential advantages of tax statistic estimates are that:

- They are consistent with our interpretation of the conceptual framework, as set out earlier in this chapter. This is because tax statistics produce an estimate of the extent that investors are eligible to use their imputation credits to reduce their personal tax.
- They are an estimate from the only event where imputation credits are 'traded' separately. That is, it is only in tax returns that we can observe anything about franking credits unattached from dividend payments. This avoids the 'allocation problem', which is discussed below in the section on implied market value studies.
- Effects of market movements that are not associated with the value of imputation credits do not confound measurements of imputation credit redemption. However, market value studies are sensitive to this problem. We consider that more critical data and method issues affect the implied market value approaches. We describe this below and in appendix H.
- They use a comparatively simple and replicable method. They also pose fewer econometric challenges than market value studies.

However, when having regard to this class of evidence, we give due consideration to the data quality concerns raised in some of these studies. In particular, Hathaway urges caution in using tax statistics on account of a large and unexplained discrepancy between the data series on dividends and the data series on franking account balances.⁵⁸⁵ This notwithstanding, we continue to have some regard to tax statistics in proposing a value for the utilisation rate because:⁵⁸⁶

- We do not propose to rely entirely on this class of evidence.
- We have strengthened confidence in this class of evidence because it produces a range of estimates that covers the range of estimates under the equity ownership approach.
- There is an apparent consensus regarding the efficacy of using data from the franking account balance to estimate the payout ratio.
- We give appropriately higher regard to the estimate that is internally consistent. We do this considering the two estimates produced by Hathaway, whilst acknowledging the potential problems with each individual series.. This is 0.62, arrived at by using dividend data only.

We note that estimates of the utilisation rate from tax statistics are weighted by imputation credits received and not by equity ownership across the entire period. However, we cannot determine the direction of any bias this creates in such estimates relative to the true utilisation rate. In examining this question, we have considered conceptual arguments around investors' incentives to obtain (or avoid) franked dividend packages. We have also considered empirical observations of the proportion of franking credits paid out to different classes of investors. See appendix H for further discussion.

Implied market value estimates

Implied market value studies are another class of evidence that can be used to estimate the utilisation rate. In general, implied market value studies seek to infer a value for imputation credits using a price differential for a security. This differential includes a security with a imputation credit entitlement, and

⁵⁸⁵ N. Hathaway, *Imputation credit redemption ATO data 1988–2011, Where have all the credits gone?*, September 2013, p. 5.

⁵⁸⁶ See appendix H for a more detailed response to Hathaway.

the same security without the imputation credit entitlement. The most prominent type of implied market value estimates are dividend drop off studies, which compare the price of a share before and after a dividend is distributed. Econometric techniques (regressions) are then used to infer the value of the imputation credit attached to the dividend. The estimate of the utilisation rate (0.35) from the 2011 Tribunal decision was established using a dividend drop off study.⁵⁸⁷

We have reviewed the available implied market value studies, with due regard to the relative strengths and weaknesses of the individual studies. For instance, studies that use data from the current tax regime (after 2000) are more relevant. Studies that use more rigorous econometric techniques are also more relevant. Even after accounting for these attributes, there is considerable disparity in the results. Overall, we consider that they support an estimate of 0.0–0.5 for the utilisation rate. This broad range reflects the uncertainty around the disparate results.

However, consistent with our position in the explanatory statement accompanying the draft guideline, we consider a number of shortcomings affect implied market value studies. There are a number of conceptual reasons why the market value of imputation credits does not align with the relevant utilisation rate. Secondly, there are implementation difficulties in establishing the 'true' market value of imputation credits using these implied market value studies. We have regard to these weaknesses when we include the estimate from implied market value studies (0.0–0.5) in broadly considering different evidence on the utilisation rate.

The implied market value studies do not align with the conceptual definition of the utilisation rate because:⁵⁸⁸

- The utilisation rate is a complex average of investors' utilisation rates, weighted by the value of equity they provide across the relevant period—a year or longer.⁵⁸⁹ Implied market value studies reflect only those investors holding the shares around the time the dividend is distributed. This is just two days; with cum-dividend and ex-dividend dates used in most studies. In other words, the sample of investors holding imputation credits around the ex-dividend date differs systematically from the relevant population. That is, the population of those investing in the Australian share market across the entire year.
- The defined utilisation rate in the Officer framework assumes a segmented domestic market and an absence of a tax differential between capital gains and dividends.⁵⁹⁰ The implied market value studies reflect the presence of foreign investors and differential tax rates, both of which are conceptually incompatible with the Officer framework.⁵⁹¹
- The utilisation rate is defined with regard to the representative investor's utilisation rate—that is, the ability to use each imputation credit received to reduce personal tax (or get a refund). Price behaviour around the dividend date, however, may reflect a number of incentives separate from the taxation incentive. Hence, equating the implied market value studies with the utilisation rate inappropriately assumes away these other factors.

⁵⁸⁷ Australian Competition Tribunal, *Application by Energex Limited (Gamma) (No 5) [2011] ACompT 9*, May 2011; SFG, *Dividend drop-off estimate of theta, Final report, Re: Application by Energex Limited (No 2) [2010] ACompT 7*, 21 March 2011.

⁵⁸⁸ We discuss these issues in greater depth in appendix H.

⁵⁸⁹ Lally, *The estimation of gamma*, November 2013, p. 14.

⁵⁹⁰ Lally, *The estimation of gamma*, November 2013, p. 20.

⁵⁹¹ The conceptual goalposts approach directly addresses this question. It assesses whether a reasonable estimate of the return on equity will arise from the inconsistent combination of the Officer framework (which assumes full segmentation) and input parameters (which reflect partial integration). This unreasonable overall outcome might arise even if each component is justified in isolation—that is, the Officer model is the best available option, and the input parameters reflect empirical reality.

The implied market studies themselves are difficult to interpret because.⁵⁹²

- The value of franking credits is not independently observable, since they are only traded together with a cash dividend.⁵⁹³ In dividend drop off studies, an estimate of the implied value of imputation credits requires econometric separation of the value of dividends from the value of franking credits. While there are econometric techniques available to do this, the nature of the imputation credit data means applying these techniques to imputation credits is particularly problematic. This is often labelled the allocation problem.
- The form of the regression equation has a material effect on the overall estimate, and there is no consensus on the appropriate equation.⁵⁹⁴ Similarly, the implied market value estimates are sensitive to input choices, with reasonable alternative treatments to data generating materially different outcomes.⁵⁹⁵ For dividend drop off studies in particular, there is considerable noise in the data. Further, there is no consensus on whether it is better to resolve this issue through data filtering or outlier treatment.
- Even where implied market value studies purport to use the same data period and the same econometric techniques, different estimates of the utilisation rate are produced.⁵⁹⁶ Similarly, studies comparing the utilisation rate across time periods (and different underlying tax regimes) produce results that move in different directions.⁵⁹⁷ This variability undermines the credibility of all implied market value studies.

Therefore, we consider that implied market value studies are of limited use in estimating the utilisation rate. This is because they do not produce an estimate for the representative investor in accordance with the conceptual definition of the utilisation rate. Further, even if implied market value estimates were conceptually appropriate, there are significant limitations with the accuracy and robustness of such studies.

To this effect, McKenzie and Partington (2010) observe that:⁵⁹⁸

It is clear that a precise and unambiguous valuation of theta is unlikely to be derived from traditional ex-dividend studies. It would be unwise, therefore, to rely on one ex-dividend study to determine theta (the utilisation rate). Equally, it would be unwise to just rely on combining results across several ex-dividend studies; triangulation with other evidence is desirable.

In contrast, in reaching its decision on the utilisation rate, the Tribunal relied on a single study from this single class of evidence.⁵⁹⁹ We consider this leads to an outcome that does not promote the long term interests of users of electricity or natural gas. This is a significant factor in our proposal to depart from the Tribunal's estimate.

⁵⁹² We discuss these issues in greater depth in appendix H.

⁵⁹³ M. McKenzie and G. Partington, *Report to the AER, Evidence and submissions on gamma*, 25 March 2010, p. 12.

⁵⁹⁴ Lally, *The estimation of gamma*, November 2013, p. 26.

⁵⁹⁵ Lally, *The estimation of gamma*, November 2013, pp. 24–25.

⁵⁹⁶ Lally, *The estimation of gamma*, November 2013, pp. 22–23.

⁵⁹⁷ Lally, *The estimation of gamma*, November 2013, pp. 22–23.

⁵⁹⁸ M. McKenzie and G. Partington, *Report to the AER, Evidence and submissions on gamma*, 25 March 2010, p. 11.

⁵⁹⁹ Australian Competition Tribunal, *Application by Energex Limited (Gamma) (No 5) [2011] ACompT 9*, May 2011, para 29.

Conceptual goalposts

The Officer framework we use assumes segmented capital markets.⁶⁰⁰ That is, domestic (Australian) investors make all domestic (Australian) investments. Further, these domestic investors cannot make foreign investments, just as foreign investors cannot make investments in Australia.

If capital markets were fully segmented as per this assumption, all investors would be eligible to fully redeem their imputation credits (either as reduction in personal tax or as a tax rebate). Therefore, the utilisation rate would be 1.0 (or very close to it).⁶⁰¹

In his critical review of the explanatory statement accompanying the draft guideline, Associate Professor Lally considers it paramount to estimate the utilisation rate consistently with the underlying theoretical framework:⁶⁰²

In my view, the most important requirements in selecting a methodology for estimating *U* [the utilisation rate] are that the estimate be consistent with the definition of *U*, as a value-weighted average over the utilisation rates of all investors who are relevant to the Officer CAPM, that the parameter estimate is likely to give rise to an estimated cost of equity from the Officer model that lies within the bounds arising from either complete segmentation or complete integration of equity markets, and that the estimate is reasonably precise.

The importance of theoretical consistency leads Lally to recommend that the optimal estimate of the utilisation rate is 1.0, on these conceptual grounds:⁶⁰³

In respect of *U* [the utilisation rate], there are five possible approaches to estimating it. The first of these arises from the definition of the parameter as a weighted average across all investors; coupled with ignoring foreigners (consistent with the Officer CAPM), this yields an estimate of 1 (the utilisation rate of local investors).

...

Using the three criteria described above, my preferred estimate is 1 from the first approach...

The empirical reality does not accord with the segmentation assumption. Domestic (Australian) investors are able to invest overseas, and foreigners make significant investments in Australia. As set out above when discussing the equity ownership approach, around 20–30 per cent of Australian equity (listed and unlisted) is supplied by overseas investors. However, data does not support the opposing assumption—that capital markets are fully integrated.⁶⁰⁴ Rather, the reality lies between these two theoretical ideals.

We are not aware of any pricing models that assume partial integration. There are pricing models that assume fully integrated capital markets (such as the international CAPM), but they were not proposed by any party during the guideline development process (including ourselves). Instead, we attempt to recognise the messy empirical reality of 'partial integration' by adopting the Officer framework, while acknowledging that it is predicated on a segmented domestic market. We then adopt a market definition which does reflect the empirical reality. That is, we define the market as an Australian domestic market that recognises the presence of foreign investors to the extent they invest in the Australian market. In practice, where we select proxies for input parameters to the Officer framework,

⁶⁰⁰ Note that the standard Sharpe–Lintner CAPM also assumes segmented capital markets – in effect, the Officer framework is the standard Sharpe–Lintner CAPM adjusted to incorporate imputation credits.

⁶⁰¹ The ENA considers that the utilisation rate would be at most just less than 1 because there is a time delay before investors receive benefit from their imputation credits. ENA, *Response to the draft guideline*, October 2013, p. 102.

⁶⁰² Lally, *The estimation of gamma*, November 2013, pp. 3–4, emphasis added by the AER.

⁶⁰³ Lally, *The estimation of gamma*, November 2013, pp. 3–4.

⁶⁰⁴ For example, domestic investors hold too much domestic equity (and therefore too little foreign equity) relative to that predicted by an international CAPM. This issue is often called the 'home bias' problem and is the subject of much academic research and debate.

these proxies reflect that market definition. Such a proxy could include using an index on the Australian Stock Exchange (ASX) to calculate the return on the market.

In response to the draft guideline, the ENA made a number of points. These related to the market definition, capital market segmentation/integration, the Officer framework derivation, and the appropriate basis for the estimation of the utilisation rate. The ENA considers that:

- Every CAPM, by definition, requires a 'closed system' where investors and investment opportunities inside the system are entirely isolated (segmented) from any external investors/investment opportunities outside the system.⁶⁰⁵
- The AER market definition does not provide this closed system, since it includes some foreign investors in a domestic market.⁶⁰⁶
- Under the AER market definition, the requirements for the CAPM are not met, so there is no market clearing price, no equilibrium, no representative investor, and the CAPM cannot be used to estimate the return on equity.⁶⁰⁷
- Notwithstanding each of the above points, if the AER populates the Officer framework with a 'market price' estimate for all input parameters (including the utilisation rate); it will produce a reliable estimate of the return on equity.⁶⁰⁸

The core of the ENA criticism is that we have been inconsistent between choosing the model and when populating the inputs to the model. There are two primary ways to resolve the inconsistency. First, it would be consistent to adopt an entirely segmented domestic model. This would use the (domestic) Officer framework with domestic inputs, including a utilisation rate of 1.0 (or close to it).⁶⁰⁹ The ENA has not proposed this. Second, it would be consistent to adopt an entirely integrated global model. This would use an international CAPM with international inputs, including a utilisation rate of 0.0 (or close to it). The ENA has not proposed this approach either. It is not apparent how the ENA's proposal to use 'market prices' that reflect foreign investors in the Officer (domestic only) CAPM resolves the internal inconsistency they criticise.

However, these two extreme positions—a fully segmented and a fully integrated approach—provide a means to assess whether our approach is reasonable. Associate Professor Lally presented this approach in his critical review. This has been labelled by us as the 'conceptual goalposts' approach. To begin, Lally notes the inconsistency we are grappling with (and which the ENA has identified):⁶¹⁰

The AER (2013, section 8.3.1, page 120) also includes foreign investors to the extent that they invest in the Australian market, to reflect the empirical reality of their existence. However this involves use of a model (the Officer CAPM) that assumes that national markets for risky assets are segmented along with the definition for a parameter (U) [*the utilisation rate*] that is inconsistent with this model.

Lally considers the overarching concern is whether the inconsistency between input parameters and model definitions might produce an unreasonable outcome. That is, even if the individual components

⁶⁰⁵ ENA, *Response to the draft guideline*, October 2013, pp. 104–106.

⁶⁰⁶ That is, the market is defined as an Australian domestic market that recognises the presence of foreign investors to the extent they invest in the Australian market. ENA, *Response to the draft guideline*, October 2013, p. 102.

⁶⁰⁷ ENA, *Response to the draft guideline*, October 2013, p. 106.

⁶⁰⁸ ENA, *Response to the draft guideline*, October 2013, p. 104, 107.

⁶⁰⁹ The domestic MRP would have to recognise only domestic investors, without foreign investors investing in Australia, but also without the domestic investors being able to invest overseas.

⁶¹⁰ Lally, *The estimation of gamma*, November 2013, p. 14.

are each justified in isolation, the combination might produce an overall result that is no longer reasonable.⁶¹¹

The Officer (1994) CAPM implicitly assumes that national markets for risky assets are completely segmented, in the sense that investors are precluded from purchasing foreign risky assets. However, most estimates of [the utilisation rate] U reflect the presence of foreign investors. Consequently the potential for economically unreasonable estimates of the cost of equity arises, i.e., values that lie outside range of those arising under complete segmentation and complete integration of national markets for risky assets. In this event the partial recognition of foreign investors would effectively constitute cherry-picking that maximises the revenue or price cap, i.e., ignoring foreign investors when it is favourable to regulated firms (choosing the CAPM) and also estimating U by a methodology that reflects the presence of these investors when it is also favourable to regulated firms. We therefore assess whether various estimates of U lead to this outcome.

To do so it is necessary to consider the implications for the cost of equity of complete integration and complete segmentation of national markets for risky assets.

Lally points out that, while there is some uncertainty about the return on equity in a partial integration scenario, it must lie within two boundaries. At one end, there is the return on equity that would be required if the domestic market was entirely segmented. At the other extreme is the return on equity if the capital market was completely integrated (that is, global). These are the goalposts that the true return on equity must lie between. To assess whether our approach passes this test, Lally estimates for the average Australian firm.⁶¹²

- The return on equity under segmentation, using a domestic-only (segmented) CAPM populated with domestic parameters. That is, a market risk premium for a segmented Australian market, an equity beta relative to the Australian market, and a utilisation rate of 1.0.
- The return on equity under integration, using an international CAPM (based on Solnik, 1974) populated with global parameters. That is, using a market risk premium for an integrated (global) market, an equity beta relative to the global market and a utilisation rate of 0.0.
- The return on equity under the AER's approach, using a segmented (Officer) CAPM, populated with parameters that accord with the AER's partially integrated market definition. That is, a market risk premium and an equity beta that reflect the domestic market, but recognising foreign investors to the extent that they invest there.

Lally estimates the input parameters in a manner that is consistent with the available data (and regulatory practice where relevant). He also implements a sensitivity analysis with different plausible permutations of these parameters.

The aim is to ascertain what utilisation rates under the third scenario will result in a return on equity that lies between the return on equity from the first two scenarios (full segmentation and full integration). This is how Lally presents the results of this assessment.⁶¹³

In summary, in the face of an inconsistency between the use of the Officer model (which assumes that national equity markets are segmented) and an estimate of the utilisation rate on imputation credits that is less than 1 (which reflects the presence of foreign investors), a minimum requirement is that the results from this approach should lie within the bounds arising from complete segmentation of national equity markets and complete integration (to ensure that the cost of capital results are consistent with some scenario regarding segmentation or integration). However, estimates of [the utilisation rate] U that are significantly less than 1 fail this test in virtually every case examined, and are therefore deficient. In effect, combining Officer's CAPM with a utilisation rate that is significantly less than 1 constitutes a defacto form of

⁶¹¹ Lally, *The estimation of gamma*, November 2013, p. 38.

⁶¹² Lally, *The estimation of gamma*, November 2013, pp. 38–47.

⁶¹³ Lally, *The estimation of gamma*, November 2013, pp. 46–47.

cherry-picking of parameter values and models that maximises the price or revenue cap for regulated businesses. By contrast, if the Officer model were combined with a utilisation rate on imputation credits of 1, or close to it, the test described here would be satisfied in most cases. All of this suggests that, if the Officer model is used, the only sensible estimate of the utilisation rate is at or close to 1.

Associate Professor Lally recommends, based on this approach, the utilisation rate should be set at 1 or close to it. To refine this estimate, we have undertaken further analysis using the approach set out by Lally. This indicates that utilisation rates between 0.8 and 1.0 will generate a reasonable return on equity (that is, one that lies between the goalposts) in the majority of permutation scenarios.⁶¹⁴ Further, when interpreting this sensitivity analysis, it is also relevant whether each particular scenario has arisen from an extreme permutation—that is, if the individual parameters are all at their highest (or lowest) possible values. Such a scenario is much less likely than a permutation where most of the parameters are at their expected (average values). A utilisation rate of 0.6 or below generates very few return on equity results that are reasonable (between the goalposts), and these all arise at extreme permutations.

It appears that the ENA's key concern with the AER's approach is that it does not sufficiently account for the investment opportunities overseas:⁶¹⁵

Moreover, the conceptual framework that the AER proposes to use to derive a value for theta assumes that the returns that are available on investments outside Australia have no impact whatsoever on the returns that investors require from their Australian investments.

We consider the use of these conceptual goalposts is the best available approach to respond to this concern. It considers not just the value of imputation credits, but the overall return on equity encompassing these imputation credits in the context of domestic and global returns.

Finally, the ENA's submission refers to a NERA report which describes an econometric exercise that relates tangentially to this issue.⁶¹⁶ They use a general-equilibrium model to postulate that, if one assumes fully integrated capital markets, the introduction of imputation credits makes relatively little difference to the observed market risk premium, even when those imputation credits are fully redeemed. As Lally notes, this relates to the use of an international CAPM—but this is not what the ENA is proposing.⁶¹⁷

We consider the conceptual goalposts approach supports an estimate of the utilisation rate in the range 0.8 to 1.0. It also suggests that a utilisation rate of 0.6 or below is unreasonable.

Other supporting evidence

Aside from the empirical estimates detailed above, we have considered whether observed policy decisions and market behaviours suggest investors obtain significant, little or no value from imputation credits. This includes consideration of:

- Surveys that reveal the value ascribed to imputation credits, in several different forms:

⁶¹⁴ That is, utilisation rates in this range generate a return on equity between the 'full integration' and 'full segmentation' return on equity in at least 50 per cent of all permutations.

⁶¹⁵ ENA, *Response to the draft guideline*, October 2013, p. 103.

⁶¹⁶ NERA Economic Consulting, *Imputation credits and equity prices and returns: A report for the Energy Networks Association*, 11 October 2013.

⁶¹⁷ Lally, *The estimation of gamma*, November 2013, pp. 19–20.

- Surveys of senior management of ASX listed companies (chief financial officers, managers, accountants)⁶¹⁸
- Surveys of key institutions (investment banks, professional services firms, infrastructure funds)⁶¹⁹
- Examination of independent expert reports lodged with the ASX (themselves prepared by a number of different consulting firms)⁶²⁰
- Other evidence on imputation credits:
 - The ongoing participation of equity imputation funds⁶²¹
 - Government tax policy to 'close the loophole' for dividend washing⁶²²

Consistent with the explanatory statement accompanying the draft guideline, we interpret this class of evidence with regard to its particular characteristics. The primary strength of this material is that it relates to real-world behaviour.⁶²³ The primary weakness is that it does not report the utilisation rate relevant to our definition. For example, the relevant utilisation rate is for all investors in the market, but the supporting evidence might include anecdotal evidence that relates to one particular category of investors. Hence, it may only be useful in a restricted qualitative sense. This type of information is not precise enough to imply a specific quantitative estimate, but may be able to inform broad observations about the apparent value.

Discussion of the available supporting evidence is included in appendix H. This discussion builds upon the material in the explanatory statement accompanying the draft guideline. On balance, we consider this evidence suggests it is reasonable to conclude that imputation credits have significant value to investors. We have not relied on this information to determine a specific value, but this information is consistent with the significant and positive estimate for gamma we have proposed.

⁶¹⁸ For example, Truong, Partington and Peat, 'Cost-of-capital estimation and capital-budgeting practice in Australia', *Australian Journal of Management*, June 2008, vol. 33(1), pp. 95–121.

⁶¹⁹ For example, KPMG, *Corporate finance: Valuation practices survey*, April 2013.

⁶²⁰ For example, SFG, *Evidence on the required return on equity from independent expert reports: Report for the Energy Networks Association*, 24 June 2013.

⁶²¹ Our non-comprehensive survey indicates that fund managers such as ANZ, BT Wholesale Investment Funds, Colonial First State all offer wholesale imputation investment funds. See AER, *Explanatory statement: Draft rate of return guideline*, August 2013, p. 136.

⁶²² Parliamentary library, *Measures to minimise exploitation of franking credits by 'dividend washing'*, May 2013, Available at: http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/BudgetReview2013/14/FrankingCredits. See AER, *Explanatory statement: Draft rate of return guideline*, August 2013, p. 136.

⁶²³ This statement does not imply that the market value of imputation credits defines the utilisation rate, for the reasons set out previously. We also consider whether the empirically observed 'real-world' parameters are consistent with our overall framework such that the overall return on equity is reasonable—the conceptual goalposts approach attempts exactly this task.