THE WEIGHTED AVERAGE COST OF CAPITAL

A INTRODUCTION AND PRELIMINARY COMMENTS

A.1 The Draft Indicative Prices Principles Determination is too Brief

1 In the draft Indicative Pricing Principles determination the Commission outlines the weighted average cost of capital (**"WACC"**) that it has used to calculate the relevant ULLS annual charges. The Commission has also outlined the inputs it has used to calculate the WACC.

A.2 ACCC WACC Calculation Contains Errors

2 If the Commission is not minded to accept the plain vanilla and pre-tax WACC that Telstra has submitted at paragraph 177 of this submission, Telstra is concerned that the Commission's calculation of the plain vanilla and pre-tax WACC in the draft Indicative Pricing Principles determination contains errors.

3 Telstra has run the Commission's WACC parameters through its CAPM Model. Telstra has largely relied on the WACC parameters in the draft Indicative Pricing Principles determination. Using these parameters, the results for the plain vanilla and pre-tax WACC are:

	Draft Indicative Pricing Principles Determination	**Corrected**
Plain vanilla WACC	**9.87%**	**9.95%**
Pre-Tax nominal WACC	**10.77%**	**10.85%**

4 If these are the parameters the Commission has adopted, the WACC has been miscalculated and, if the Commission does not accept Telstra's WACC parameter, the corrected ACCC WACC should be used.

A.3 The WACC

5 A reasonable value of the WACC to use for converting the investment cost of the Customer Access Network (CAN) into an annualised cost should be no less than the minimum expected return that an investor requires as compensation in return for making an investment in the CAN.

6 The WACC is a weighted average of the cost of debt and the cost of equity with the weights reflecting the relative amounts of debt and equity funds appropriate for the CAN investment. The formulas used by Telstra to calculate the vanilla WACC and component inputs into that WACC formula are set below.

7 The nominal vanilla WACC is calculated using the following formula:

$$WACC = R_e (E/V) + R_d (D/V)$$

where

R_e = cost of equity capital, calculated as set out in paragraph 6,

R_d = cost of debt capital, calculated as set out in paragraph 5;

E = market value of equity,

D = market value of net debt, and

V = market value of the firm (E+D).

8 The cost of debt capital is calculated using the following formula:

$R_d = R_f + DRP + DIC$

where

R_d = cost of debt capital

R_f = risk free rate of return

DRP = debt risk premium, and

DIC = debt issuance cost

9 The cost of equity capital is calculated using a version of the CAPM as set out below:

$E(R_e) = R_f + [E(R_m) - R_f] * \beta_e + EIC$

where

E(.) = indicates the variable is an expectation,

R_e = cost of equity capital

R_f = risk free rate of return

R_m = market rate of return, and

β_e = systematic risk parameter for equity ("equity beta")

EIC = equity issuance costs

10 In its draft Indicative Pricing Principles determination, the Commission does not outline the formula it has used to calculate the WACC. However, Telstra understands from the WACC input sheet in the Analysys Model that the Commission has used a similar formula to the one Telstra outlines above.

B THE WACC PARAMETERS

B.1 Risk-free rate

B.1.1 Introduction and Commission's Preliminary View

11 The risk free rate is used as an input into the formulae for estimating both the cost of equity capital and the cost of debt capital. From a theoretical perspective the risk-free rate represents the yield available on a notional risk-free investment, which is typically assumed to be a government bond.

12 In the draft Indicative Pricing Principles determination the Commission outlines that the risk-free rate should be the 10 year government bond rate, averaged in the period leading up to the relevant observation date. Further, the risk free rate around 30 June 2009 was apparently used but the Commission has stated that it would update the risk free rate prior to the finalisation of the indicative prices.

B.1.2 Maturity of risk-free investment

13 Telstra agrees with the Commission's approach in adopting the 10 year government bond rate. Telstra has consistently applied a 10-year government bond as a proxy for the risk-free investment and the yield thereon as an indicator of the risk-free rate for WACC purposes where the underlying asset lives are expected to be quite long. Telstra approves the 10-year government bond rate as this construct:

(a) matches the useful life of the assets with the term of the risk-free investment;

(b) matches the term of the risk-free investment with the investment horizon which is generally long-term;

(c) reflects the consistent practice of Australian regulatory bodies, including the Commission;[1] and

(d) is typically used by independent valuation experts.

14 Furthermore, it is generally consistent with the funding approach actually employed by Telstra to fund its mix of assets and therefore indicative of the funding costs that would likely be incurred by a stand-alone provider of the CAN.[2]

B.1.3 Timing of valuation of risk-free rate

15 The draft Indicative Pricing Principles determination explains that the Commission considers that the 10 year government bond rate should be averaged in the period leading up to the relevant observation to address day-to-day market volatility. In the draft Indicative Pricing Principles determination the Commission has stated that it has calculated the risk free rate at 30 June 2009, and has indicated that this would be updated

[1] Australian Energy Regulator (AER), *Final Decision, Electricity Transmission and Distribution Network Service Providers, Review of the Weighted Average Cost of Capital (WACC) Parameters*, May 2009.

[2] Statement of **[start TC1 c-i-c]** [redacted] **[end TC1 c-i-c]** dated 9 October 2009, para [21] to [30] (**Submission Supporting Documents, Document 1.16**)

prior to the finalisation of the indicative prices. Telstra's view is that the WACC applicable for estimating annualised capital costs must relate to a particular date at which the relevant assets are valued (costed) and that therefore all the components in the WACC calculation, as much as practicable, should be estimated on or projected to that same date. This then enables the identification of the true economic (or opportunity) cost of the capital employed in the relevant assets in a manner consistent with the TSLRIC pricing principles.

16 The appropriate yield should be that available in the relevant government bond market at the time the provider of the assets (in this case the CAN-related assets) notionally commits to their construction at which point the assets are notionally sunk and the opportunity cost of foregone alternative investments is incurred. This requires a bond yield at the opening of the markets on the valuation and/or notional construction date. If the price for the 2009/10 financial year is to be estimated, the notional construction date would typically be 1 July 2009. The opening yield as at that date is reliably proxied by the closing yield from the previous trading day (or averaged over a reasonable period, often 10 prior trading days).

17 Since in the draft Indicative Pricing Principles determination context the Commission is likely to estimate WACC with asset values established under TSLRIC principles effectively as at 1 July of each relevant financial year, it would not be appropriate to use a WACC incorporating a risk-free rate from a completely different period (eg contemporary yields on government bonds). Matching the timing for the valuation of the risk-free rate and asset costs (ie TSLRIC) allows the true opportunity cost associated with the asset base as at the relevant date (ie the construction and/or valuation date) to be estimated. As a matter of logic, it is not possible for an access provider that did not proceed with the network investment on the notional construction date to invest in Government bonds (or any alternate investment) at prices based on some alternate date. Support for the matching process is also inherent in valuation theory which calibrates the WACC, asset valuation and expected cashflows at a particular point in time. Applying different times for the WACC and asset valuation does not enable development of appropriately compensatory cashflows and is inconsistent with valuation theory. Telstra therefore submits that the opportunity cost (or WACC) should be based on a bond yield that is proximate to the asset valuation date, unless it can be separately established that yields at this date do not reflect the likely prevailing conditions in the market over the medium-term.

18 Telstra's view is that the risk-free rate should be established by the yield to maturity of government bonds with approximately 10 years to maturity and valued around the same date as the assets are valued. Averaging is only technically required where there is evidence of market distortion on the particular relevant date. This has not been established. Nevertheless, Telstra considers that averaging does not materially distort the WACC estimates in most cases and therefore Telstra will accept averaging over the 10 trading days prior to the relevant asset valuation date. In effect the Commission's cost modelling essentially estimates the CAN capital cost as at 1 July. Given this; to ensure internal consistency of WACC, asset valuation and (notional) cashflows; the riskfree rate should be valued as at opening-of-trading on that day (proxied by close-of-trading yields on the 10 previous trading days).

19 In summary Telstra recommends that the appropriate risk-free rate should be established by an observed yield on a Government 10-year bond. The observed yield should be based on opening yields on a particular date linked to the valuation and/or construction date and proxied by closing yields on the 10 previous trading days. This information can be sourced directly from the Reserve Bank of Australia's (RBA) website (http://www.rba.gov.au).

20 Consistent with the valuation date underpinning the cost modelling Telstra recommends application of the observed closing yields on the 10 previous trading days to 1 July each relevant financial year. This rate would then be applied as an unbiased estimate of the rate applicable at the opening of trading on 1 July each relevant financial year. Accordingly, and as set out in Table 1, Telstra considers that the risk-free rate used in the calculation of the WACC at 1 July 2009 should be 5.61%.

B.1.4 Telstra cannot replicate a risk free rate of 5.64%

21 On the basis of a valuation as at 30 June 2009 estimated by an average yield over the 10 previous trading days, the risk free rate is 5.61% rather than 5.64%. Therefore the Commission may have mis-estimated the risk-free rate.

22 If the Commission's approach to observing the risk-free rate, and the relevant dates at which this is observed is different from what has been outlined above, Telstra requests the Commission outline this in detail.

B.2 Debt Risk Premium

B.2.1 The Commission's preliminary view

23 In the draft Indicative Pricing Principles determination, the Commission proposes a debt risk premium of 2%. and has stated that using Bloomberg's A-Rated cost of debt benchmark is appropriate.

24 Telstra notes that the Analysys Model uses a debt risk premium of 2.4%, which Telstra assumes is a typographical error. If not, Telstra requests the Commission clarify this. In the interim, Telstra assumes that the Commission intended to use a debt risk premium of 2.6%.

B.2.2 Introduction to the debt risk premium

25 The debt risk premium (DRP) is the margin above the risk-free rate that a particular entity must offer to attract debt funding. The quantum of the DRP will reflect the underlying riskiness of the relevant business and will reflect the credit rating attributed to that business or the debt of a similar business by the ratings agencies.

26 Given that the DRP is a component of the cost of debt it must be set relative to and consistent with the risk-free rate. This ideally requires the DRP to be quantified:

- As a margin that would apply to debt issued by the provider of the CAN-related assets of similar maturity to that assumed for the risk-free rate. Given the application of a 10-year government bond as the risk-free investment consistency requires the DRP to be measured at the 10-year maturity;

- As at the same date as the risk-free rate underpinning the WACC estimate. In circumstances where the risk free rate is determined on or around a day, the DRP should also be quantified on or around that same day. As outlined above, this requires the DRP to be estimated at or around the construction and/or valuation date applied in valuing the risk-free rate;

- With the same extent of averaging as applied in the estimation of the risk-free rate. Given Telstra's acceptance of averaging over the 10 trading days prior to the relevant construction and/or valuation date in the context of estimating the risk-free rate, this requires the DRP to also be averaged over the same time period.

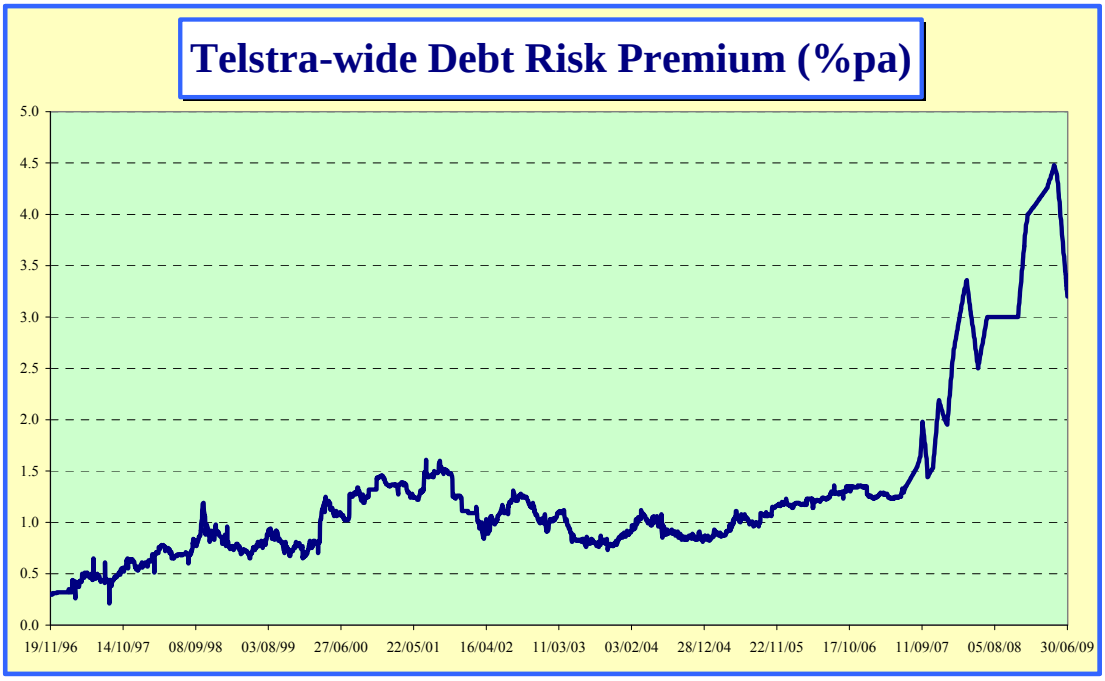
27 The DRP relevant in this context is one that would apply to a stand-alone provider of the relevant CAN-related assets. There is no direct market evidence available for the level of this DRP as Telstra does not issue debt hypothecated to or relevant only to CAN-related assets. Nevertheless, given the share of CAN-related assets in total assets and the centrality of the CAN-related assets to Telstra's overall business, the Telstra-wide DRP will provide the best available market-based guide to the likely size of the DRP that would be likely apply to the CAN-related assets.

28 The likely quantum of the DRP is affected in part by the ratings ascribed by various ratings agencies to particular debt issuers. In broad terms the current ratings attributable to Telstra by the various ratings agencies are likely to be indicative of the likely rating applied by such agencies to a stand-alone provider of CAN-related assets.

B.2.3 The Telstra-wide debt risk premium

29 Telstra considers that in estimating the various WACC parameters reliance should be placed on market based information as much as practicable. Although no direct market information on the DRP for CAN-related assets is available, there is market-derived information available at the Telstra-wide level which provides some reasonable guidance for the DRP of the CAN-related assets.

30 The Telstra-wide DRP for debt with (approximately) 10 years to maturity over much of the last decade is plotted in the chart below. It is quite apparent that the Telstra-wide DRP has risen sharply from around late-2007 reflecting the impact of financial market turbulence in the aftermath of the near-collapse of the US sub-prime mortgage and related financial markets. The consequent illiquidity heightened credit spreads including for corporations like Telstra.



Source: Telstra Treasury

31 Telstra contends that, on balance, the Telstra-wide DRP at 10-year maturity is a reliable guide to the DRP applicable to the CAN-related assets.

B.2.4 The Bloomberg A-rated benchmark bond

32 As outlined above, in the draft Indicative Pricing Principles determination, the Commission has advocated the application of a benchmark debt risk premium for an A-rated benchmark bond[3] sourced from Bloomberg.

33 Telstra submits that the Commission does not establish the relevance of the benchmark bond rating to a CAN only provider. Telstra notes that concerns have recently been raised by a number of regulated firms over sole reliance on Bloomberg estimates of fair yields for long rated bonds. Supporting analyses have been provided to both AER and state-based regulatory reviews, and a diverse range of regulatory approaches have been adopted, including relying on CPASpectrum fair yield estimates.[4] Both approaches rely on non-transparent propriety models, with a number of subjective judgements necessarily embedded within the models. A further weakness in reliance on a benchmark approach is that the Commission does not provide any detail as to the range of companies sampled in the A-rated benchmark. Telstra submits that these companies will invariably differ to the CAN only provider to some extent in terms of at least the following factors which are material to the likely relevant DRP:

- industry structure or competitive dynamics;
- company specific growth or life-cycle dynamics;
- perspective of ratings agencies (eg whether on credit watch negative/positive or not); and
- differential liquidity, coverage and/or gearing of A-rated corporations.

34 Given these differentiating factors, the range of company-specific DRP's embedded in any estimate of the average would likely be quite wide and specifically identifying where the CAN-related assets would be located in this spectrum is extremely problematic. The arbitrary adoption of the simple average, without any adjustment for the factors that in practice would lead the DRP to vary from company to company, is simplistic and potentially distorting.[5]

B.2.5 The Telstra-wide DRP is the preferable measure

35 In Telstra's view it is preferable to use information from a context as close to the actual context as possible to minimise any subjective overlay in establishing a value. In this was the risk of distortion and measurement errors can be minimised. In other words adjusting from the Telstra-wide DRP is more straight-forward and practical than attempting to adjust an average from a cohort of diverse corporations with sometimes significant differences that will matter for the DRP. This is especially so for the CAN-related assets given their centrality and criticality in Telstra's broader operations. This suggests that the observable Telstra-wide DRP would be a reasonable guide to that applicable to the CAN. The range of business issues likely encountered by the CAN-only provider would significantly overlap the business issues faced by Telstra meaning that the Telstra-wide DRP would be a reasonable starting-point for considering the CAN-only DRP. It is unlikely (and has not been established by either the Commission or Ovum) that the business issues likely facing the cohort of A-rated entities in the Bloomberg sample has any overlap with

[3] draft Indicative Pricing Principles determination, p 72.
[4] IPART, *NSW Rail Access Undertaking - Review of Rate of Return and Remaining Mine Life*, 1 July 2009, p 24.
[5] The Australian Competition Tribunal in *Re East Australian Pipeline Limited* [2004] ACompT 8 (8 July 2004) specifically overruled a 'crude averaging' approach to establishing benchmark credit ratings for the purpose of determining an appropriate debt risk premium: see para [66].

those faced by the CAN-only provider. As such, there is an unacceptable risk that the A-rated DRP does not reliably reflect that likely faced by the standalone CAN-only provider.

36 Given the above, Telstra recommends application of the Telstra-wide DRP as the most reliable, market-driven guide to the DRP likely relevant for the CAN assets. This can be observed on the same basis as the risk-free rate (ie on 1 July each relevant year without averaging). Accordingly, and as set out in Table 1, Telstra considers that the debt risk premium used in the calculation of the WACC at 1 July 2009 should be 3.36%.

B.3 Debt Issuance Costs

B.3.1 Introduction and the Commission's preliminary view

37 In the draft Indicative Pricing Principles determination, the Commission proposes issuance costs of 0.083% which reflects the benchmark debt issuance costs for a company which provides fixed network services to itself and others.

38 Debt issuance costs are legitimately incurred in the long-term provision of the CAN-related assets and need to be recouped to ensure appropriate full-cost recovery. Telstra advocates the inclusion of a margin in the cost of debt to cover the costs associated with the issuance of debt rather than the alternative of specific recognition of these costs in the notional cash flows. This is consistent with the recognition by various Australian regulators of debt issuance as a cost requiring recovery and legitimately includable in the WACC. Critically this perspective reflects the fact that these costs are incurred directly because of raising debt and hence are effectively capitalised at issue.

B.3.2 The Commission favours the ACG approach

39 The Commission has previously recognised the appropriateness of including debt issuance costs as a margin on the cost of debt. This has resulted in the allowance for debt issuance costs of the order of 10.5 to 12.5 basis points being recovered in electricity and gas decisions,[6] and the Tribunal's allowance of 25 basis points being recovered in the context of the GasNet Access Arrangement. In its final decision regarding Telstra's undertaking in respect of ULLS the Commission recommended[7] application of a benchmark (annualised) rate reflecting debt issuance costs developed by the Allen Consulting Group[8] (ACG) to reflect annualised debt issuance costs.

B.3.3 Telstra's approach is more appropriate for valuing debt issuance costs in relation to CAN related assets

40 Telstra relies on various empirical analysis [9] to estimate the level of issuance costs associated with raising debt for the CAN-related assets. Given the likely asset valuation of the CAN-related assets and the extent of debt funding (30% debt), the debt required to fund these assets is likely in the highest dollar range identified by Lee and others (i.e. above US$500m). This suggests that total debt issuance costs are likely to be around 1.53% of the gross amount of debt raised. Arguably this estimate understates the true contemporary cost burden associated with debt raising given the greater complexity involved in debt instruments and consequent higher costs. Telstra also relies on estimates from Telstra Treasury across a number of particular debt issues (see below).

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[6] Australian Competition Tribunal, *Application by GasNet Australia (Operations) Pty Ltd* [2003] ACompT 6.
[7] ACCC, *Assessment of Telstra's ULLS Band 2 Monthly Charge Undertaking: Final Decision*, April 2009, p 205-206.
[8] Allen Consulting Group, *Debt and Equity Raising Transaction Costs – Report to the Australian Competition and Consumer Commission*, December 2004, p xvii.
[9] I Lee, S Lochhead, J Ritter and Q Zhao, *The Costs of Raising Capital*, Journal of Financial Research, Spring 1996, p 59-74.

41 Given that these costs associated with debt issuance are typically incurred on a once-off basis (although there can be costs associated with rolling over debt) they need to be converted into annualised amounts for inclusion in the WACC or alternatively for inclusion as an operating expense. Quantified correctly, Telstra is indifferent between these two approaches to recouping debt issuance costs. However, consistent with emerging regulatory best-practice it seems sensible to include these costs as part of the cost of debt (and hence WACC).

42 These once-off costs are converted to an annual amount suitable for addition in the cost of debt using the logic of net present value and the coupon yield of the relevant bond as the discount rate. This suggests an annualised margin for debt issuance costs for the CAN-related assets of 22 basis points (applying the US empirical estimates). According to **[start c-i-c] [redacted] [end c-i-c](Submisison Supporting Documents, Document 1.20)**, the annualised total costs associated with the issuance of debt range from 0.1% to 0.2% pa for bank debt and 0.05% to 0.1% pa for bonds.[10] Accordingly the mid-point of the US empirical estimates and Telstra estimates is around 15 basis points.

B.4 Market Risk Premium

B.4.1 The Commission's preliminary view

43 In the draft Indicative Pricing Principles determination the Commission states that it considers it appropriate to use up-to-date historical estimates of MRP over long term estimation periods with an imputation credit factor of 0.5 and proposes an MRP of 6.5%.

B.4.2 The market risk premium

44 The MRP relevant in the CAPM is the premium that investors in a fully diversified portfolio expect to earn above the relevant risk-free rate over some indeterminate forward period. The *ex ante* MRP relevant for the CAPM is therefore expectational and thus not directly observable. It is not precisely clear how historical returns (which are at least observable on an annual *ex post* basis) will influence expected returns, though it is likely they will form some part of investors' expectations of longer-term returns.

45 Telstra has relied on a number of sources in determining an appropriate *ex ante* MRP for application in the CAPM. Consistently central to these considerations were the various estimates of both historical and forward looking premia of Officer and/or Bishop. The most recent updated historical estimates, excluding any specific consideration of the contribution to investor returns from dividend imputation (ie apply a gamma of 0.0[11]), range from 6.7% (covering period 1958-2007) to 7.5% (covering period 1883-2007)[12]. Updated to include 2008 these estimates fall to 5.7% (covering period 1958-2008) to 7.1% (covering period 1883-2008)[13]

46 Over recent years there has been discussion around the explicit inclusion of the contribution from imputation to *ex post* MRP outcomes and the need for internal consistency across perspectives on gamma and the MRP. As noted, the estimates above did not include any contribution to market returns (and by extension to the MRP) to reflect the value to investors of dividend imputation. If gamma was valued at 0.5 (as the Commission has consistently applied) the estimates for the MRP range from 7.1% (covering period 1958-2007 and incorporating adjustments to the underlying data

[10] Statement of **[start TC1 c-i-c] [redacted] [end TC1 c-i-c]** dated 9 October 2009, [14]**.(Submission Supporting Document, Document 1.16)**
[11] As to the gamma see section I.
[12] B Officer and S Bishop, *Market Risk Premium, A review Paper*, p 24.
[13] B Officer and S Bishop, *Market Risk Premium, Further Comments*, January 2009, tables A1 and A2, p 11.

proposed by Brailsford) to 7.7% (covering period 1883-2007). Updated to include 2008 these estimates fall to 6.0% (covering period 1958-2008 and incorporating adjustments to the underlying data proposed by Brailsford) to 7.2% (covering period 1883-2008)[14].

47 As is apparent from the above the inclusion of outcomes for 2008 makes an outsized contribution to the long-term average ex post MRP. This reflects the fact that the overall market return was -40.4%; the lowest outcome in the 126 year history analysed by Officer and Bishop.[15] The simple weighting of this observation in shorter time periods (eg 1/51 if the period covered is from 1958 to 2008 inclusive) almost inevitably overstates the frequency of likely occurrence of such aggressively weak outcomes; although there is no way of quantifying an appropriate weighting (or frequency).

48 Telstra considers there are 2 possible approaches in regard to the treatment of the highly unusual outcome for 2008. Firstly incorporate it as part of the longest time series available (1883 to 2008) at which point the weight for this particular outcome (1/126) will be closer to an appropriate weighting. This weight structure, however, includes 2 arguably "once-in-a-century" events in the 126 year sample (the Great Depression and the current GFC) and thus is still likely to over-weight extremely low outcomes. This implies an average of 7.1% (with gamma valued at 0.0) and 7.2% (with gamma valued at 0.5)[16].

49 Alternatively, the 2008 year outcome could be included in the shorter period averaging but with its weight downward-adjusted to 1/126 (down from 1/51) consistent with re-estimates undertaken by Officer and Bishop[17]. This implies an average of 6.0% (with gamma valued at 0.0) and 6.3% (with gamma valued at 0.5 and incorporating the Brailsford adjustments).

50 The Commission has focussed on the Officer and Bishop estimates applying the Brailsford adjustments (as well as other MRP estimates) as reinforcing its previous view that 6% MRP is appropriate.[18] This ignores the conclusion of Officer and Bishop that if imputation is to be positively valued they would recommend that the internally consistent MRP should be valued at 7%. This is clear in their statement "We recognise that precise estimation of both the MRP without imputation tax benefits and the estimation of imputation tax benefits is a challenge due to 'noise' in historical data. An overlay of the need for regulatory certainty encourages us to recommend that there be no change in the widely used 6% under a view that imputation tax benefits have no value but it this is not enough to prevent our recommendation of 7% when imputation benefits are included. While we have not focused on estimating an explicit value of gamma or the value of imputation tax credits once distributed in this paper, regulatory practice places a value on gamma of 0.3 and greater. Under these circumstances we recommend the MRP be 7%."[19]

51 Telstra considers that these estimates and the conclusion of Officer and Bishop reinforce a perspective that the long-term ex post MRP is reliably estimated at around 7%.

52 Telstra also considers that there is an inconsistency between the application of MRP valued at 6% and imputation (gamma) valued at 0.5 as highlighted by SFG.[20] Specifically,

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[14] B Officer and S Bishop, *Market Risk Premium, Further Comments*, January 2009, table 1, p 3.
[15] B Officer and S Bishop, *Market Risk Premium, Further Comments*, January 2009, p 4.
[16] B Officer and S Bishop, *Market Risk Premium, Further Comments*, January 2009, table 1, p 3.
[17] B Officer and S Bishop, *Market Risk Premium, Further Comments*, January 2009, p 6 and table 1. Presumably the weights of other years have been adjusted upwards to counter-balance the down-weighting of 2008 and thus ensure weights aggregate to unity.
[18] ACCC, *Assessment of Telstra's ULLS Band 2 Monthly Charge Undertaking: Final Decision*, April 2009, p 212.
[19] B Officer and S Bishop, *Market Risk Premium, A Review Paper*, p 39.
[20] Strategic Finance Group Consulting (SFG), *The Relationship Between Franking Credits and the Market Risk Premium, Implications for Regulatory Cost of Capital*, 18 August 2005.

it is logically inconsistent to exclude a component of the MRP that effectively recognises the value of imputation credits (in effect valuing imputation credits at zero) whilst simultaneously applying a gamma of 0.5 (implying a partial valuation of imputation credits at 50% of their face value). If the imputation exclusive MRP is 6% (as typically applied by regulators) based on estimates that have not specifically adjusted for or incorporated imputation credits and imputation is set at 0.5 (again as typically applied by regulators), the imputation inclusive MRP is 8.6%.[21] This implies significant inconsistency in the Commission's currently recommended parameters. SFG argue that this requires an exorbitantly **high dividend yield** relative to those observed to justify such a high MRP. SFG note that the simplest way to resolve this issue is to set gamma to zero as this would essentially require no further adjustment to other parameters (specifically due to the re-alignment of gamma).[22] They state that such an approach "*is consistent with the market practice of valuation experts and corporate treasuries*".[23]

53 The Commission also argues that the historical MRP needs downward adjustment to reflect declining dividend yields consistent with Dimson, Marsh and Staunton[24] who argue that historical *ex post* MRP estimates need to be adjusted to exclude components that are unlikely to persist. This includes the following adjustments:

- the exclusion of the effect caused by the increase of price-earnings ratios across the twentieth century, which appears non-repeatable going forward and hence not part of an *ex ante* MRP;
- a reduction to lower the dividend yield component of the future MRP on average (across all the countries in the sample group analysed) by between 0.5% to 1.0% (according to Dimson, Marsh and Staunton) because current dividends are lower.

54 Dimson, Marsh and Staunton argue that achieved market returns (in real terms) were significantly higher in the second half of the 20th century (9.0% annualised) compared with the first half (3.5%). The first half included a number of major negative events whilst in the second half "many events turned out better than expected".[25]

55 The MRP appropriate for inclusion in the CAPM WACC is the *ex ante* MRP required by investors which inevitably reflects differing syntheses of historical returns – with investors each implicitly attributing different probabilities to the potential for historical market moving events to repeat in their forward investment horizon. It is therefore difficult, if not impossible, to comprehend on a systematic basis what events are included in the synthesised *ex ante* MRP and the overall weighting of such. It is likely that investors will attribute some likelihood to past events recurring or to events that might move markets in similar ways to past events occurring within their investment horizon.

56 Investors really only have ready access to data on past returns without any analysis of components which are arguably due to transitory and/or non-repeatable influences. Thus, the information that sets their expectations does not readily facilitate the kind of adjustment proposed by Dimson, Marsh and Staunton; even if such an adjustment were

[21] SFG, *The Relationship Between Franking Credits and the Market Risk Premium, Implications for Regulatory Cost of Capital*, 18 August 2005, p 20.
[22] SFG, *The Relationship Between Franking Credits and the Market Risk Premium, Implications for Regulatory Cost of Capital*, 18 August 2005, p 3.
[23] SFG, *The Relationship Between Franking Credits and the Market Risk Premium, Implications for Regulatory Cost of Capital*, 18 August 2005, p 24.
[24] E Dimson, P Marsh and M Staunton, *The Worldwide Equity Premium: A Smaller Puzzle*, 7 April 2006, p 24-27.
[25] E Dimson, P Marsh and M Staunton, *The Worldwide Equity Premium: A Smaller Puzzle*, 7 April 2006, p 23.

technically feasible and prudent. If these factors are opaque to investors then they cannot influence expectations of the *ex ante* MRP.

57 Dimson, Marsh and Staunton implies that the estimated real market return is non-stationary or specifically that it has risen between the half centuries. The extent of the increase is quite significant (3.5% annualised over 1900-1949 and 9.0% annualised over 1950-1999).

58 Even if this were correct on the basis of the data analysed by Dimson, Marsh and Staunton, it is likely that were the analysis repeated now, including the highly unusual 2008 outcome, the extent of uptrend in the real market return would not be as obvious.

59 Dimson, Marsh and Staunton also advocate adjusting MRP downwards to reflect the declining trend in dividend yields such that the long-term average is not representative of current rates (and presumably expected yields) but do not propose a similar adjustment to the non-dividend component of the real market return which has trended higher across the long-term.

60 Telstra disagrees with the argument for making ad hoc adjustments to the historical MRPs measures due to claimed one-off events. As the Australian Energy Regulator (AER) has recently observed there is a lack of any guiding theory for the selection and implementation of such adjustments, and significant potential for the introduction of bias. Telstra agrees with the AER's recent conclusion on this market wide parameter that there is no clear evidence that historical estimates are likely to be influenced in any particular direction by the range of positive and negative one-off events commonly discussed as potentially impacting ex post realised returns.[26] Telstra considers the goal of regulatory stability and predictability should lead the Commission to reject the adoption of a methodological approach which is inconsistent with the AER's recent comprehensive examination of this issue.

61 The adjustment proposed by Dimson, Marsh and Staunton in respect of dividend yields appears to average the 17 countries covered in their sample. Even if an adjustment along the lines proposed by Dimson, Marsh and Staunton were appropriate, the adjustment should be Australian specific. The extent to which current dividend yields do not represent those embedded in the long-term MRP varies by market (country) and hence the required adjustment should reflect that divergence across markets. Applying some global average in the Australian context would likely distort the results.

62 Further, the analysis covers the period 1900-2005 therefore excluding recent years including the highly unusual outcome for 2008 in terms of market return (worst outcome in 126 years), bond markets in significant relative under-supply and rapid global re-pricing of risk. It is not clear how updating the analysis to include recent years would affect the proposed adjustment. This is especially the case given there is no algorithm for identifying what information is compounded in investor expectations of the forward-looking MRP, the weights ascribed to various events/years/outcomes and investor expectations around the possibility of repetition.

63 In Telstra's view applying arbitrary adjustments without some proper examination of the appropriateness to Australian conditions especially in uncertain times is risky.

[26] AER, *Final Decision, Electricity Transmission and Distribution Network Service Providers, Review of the Weighted Average Cost of Capital (WACC) Parameters*, May 2009, p 214.

B.4.3 Impact of the GFC on MRP

64 Based on the above analyses Telstra recommends that the preferred, conservatively low estimate of the future ex ante MRP taken from historical data for Australia should be 7%. The estimates detailed above clearly indicate that the 6.5% MRP applied by the Commission is too low and heightens the risk that Telstra will not earn sufficient returns, thereby reducing long-term investment incentives. Telstra's assessment of a reasonable estimate of an ex ante 7.0% must also be supplemented, however, by consideration of the impact of current capital market conditions, forward-looking ex anta assessments, and recent regulatory determinations made by the Australian Energy Regulator, a constituent part of the Commission.

65 Recent dislocation on global financial markets accompanied by aggressive re-pricing of risk suggests that the contemporary MRP is above its past levels. A recent paper by Officer and Bishop[27] highlight a number of factors that provide empirical support to this view, although direct quantification of an adjustment to the forward-looking MRP is not attempted. The following factors identified by Officer and Bishop clearly indicate that investors have heightened their current forward expectation for the MRP:

- The MRP outcome for 2008 was the worst on record (covering 126 years) which can in part reflect an inverse relationship between *ex post* and *ex ante* MRP's as well as downgraded cashflow projections. This implies a higher short-term MRP.

- Current high volatility in forward markets implies estimates for the *ex ante* MRP well above historical estimates.

- The re-pricing of risk in corporate bond markets is clearly apparent given the sharp increase in corporate credit spreads. Corporate debt can be priced according to the CAPM which would imply an increase in the debt beta, an increase in the MRP or more likely some combination.

66 All these factors suggest that the current forward-looking MRP has been heightened by the GFC and the consequent re-pricing of risk.

67 The strong tendency towards an inverse relationship between the *ex ante* (forward-looking) MRP and the *ex post* (achieved) MRP (at least in the short term) also reinforces the perspective that the MRP has risen. As the AER has recently recognised the dynamics of the GFC give rise to a situation where the likely response of investors is to downgrade expected cashflows (given expectations of weaker demand) and simultaneously to increase the discount rate applied in valuation (given the more rigorous recognition of risk and the increased volatility) and hence contribute to a heightened MRP, especially as bond yields contract.[28]

68 Noting this inverse relationship Officer and Bishop estimate that the forward-looking (short and medium term) MRP reflecting the above factors could be as high as 16% to 18%[29]. CEG estimate the forward-looking (long-term) MRP prevailing through 2008 was around 12%[30]. Telstra does not recommend these estimates of the MRP be directly

[27] B Officer and S Bishop, *Market Risk Premium, Further Comments*, January 2009, p 6-10.
[28] AER, *Final Decision, Electricity Transmission and Distribution Network Service Providers, Review of the Weighted Average Cost of Capital (WACC) Parameters*, May 2009, p 213.
[29] AER, *Final Decision, Electricity Transmission and Distribution Network Service Providers, Review of the Weighted Average Cost of Capital (WACC) Parameters*, May 2009, p 7-8.
[30] Competition Economists Group (CEG), *Forward Looking Estimates of the Equity Premium; For Regulated Businesses and the Market as a Whole; A report for the JIA*, January 2009.

applied in the current WACC calculations, however, the sharp heightening of forward-looking estimates strongly suggests there has been a significant increase in the "true" long-term MRP as a direct consequence of the GFC.

69 As such estimates of the MRP for inclusion in WACC estimates valued as at dates after the GFC should apply a heightened MRP estimate. CEG essentially date the GFC as from 9th August 2007 when BNP Paribas suspended three investment funds that invested in sub-prime mortgage debt due to a complete evaporation of liquidity[31].

70 The AER has recently revised its estimate of the MRP taking into account the GFC, raising their estimate by 0.5%, pushing their recommended MRP from 6.0% to 6.5%[32]. The AER uplift to MRP was moderated by their view that current turbulent conditions in global financial markets will abate. Whilst this may be a reasonable expectation overall, Telstra considers that there will be a durable upwards re-pricing of risk post-GFC and combined with expectation of some heightening regulatory response the MRP post-GFC is likely to be significantly higher than the MRP pre-GFC. It is likely that the post-GFC financial architecture will be considerably different to that pre-GFC and will affect many of those involved including lenders, borrowers, investment banks, credit ratings agencies, insurance providers, regulators, government agencies, those involved in securitisation and those involved as providers of wholesale funds. Overall, the severity of the GFC has likely generated a more cautious and less aggressive approach to financing which is likely to ensure that risk is fulsomely recognised and priced accordingly. Heightened requirements by both debt and equity providers seems highly probable in this environment.

71 A further key consideration is that the AER's final recommendation for a MRP of 6.5% was based on a National Electricity Rule requirement to adopt a single point value to apply over a series of regulatory pricing reviews from 2009 to 2014. This requirement to adopt a single value led the AER to acknowledge that any value locked in may not fully reflect forward-looking expectations prevailing at the time of the decision. The AER stated that for some reset determinations, the actual MRP may be above the value of 6.5%. The AER has also stated that it considers that there are two possible scenarios in current market conditions. First, that the medium-term MRP is above the long-term MRP, but it will revert to the long-term MRP over time. Second, that a structural break has occurred in the long term MRP, and a higher long-term MRP now prevails. The only plausible manner of reconciling these statements and positions is to conclude that the AER has determined the value of 6.5% as representing on balance a correct 'average' figure to apply across the 2009 to 2014 period. This in turn implies that adoption of this value is likely to under-compensate investors affected by reviews at the commencement of this period, and potentially, the in the AER's view, overcompensate those affected at the end of the period.[33] In this context, this suggests that a more accurate estimate of the market risk premium would be based on an adjustment of greater than 0.5%,

72 Despite this, Telstra considers that revised estimate incorporating an increase of 0.5% is reasonable. Consequently Telstra proposes that MRP estimates for incorporation in WACC

[31] CEG, *Forward Looking Estimates of the Equity Premium; For Regulated Businesses and the Market as a Whole; A Report for the JIA*, January 2009, footnote 17, p 23.
[32] AER, *Final Decision, Electricity Transmission and Distribution Network Service Providers, Review of the Weighted Average Cost of Capital (WACC) Parameters*, May 2009, p 237-238.
[33] That is, under the first 'mean reverting' scenario it could be expected that the MRP is currently greater than 6.5, however, the AER was forced by the National Electricity Rules to select a single value and therefore also was required to consider and balance any overcompensation a figure might deliver towards the end of the period. Under the second scenario relating to a 'structural break' in long-term MRP there would be no clear rationale for the AER's comments acknowledgement of the risks of a 6.5% MRP overcompensating service providers. See AER, *Final Decision, Electricity Transmission and Distribution Network Service Providers, Review of the Weighted Average Cost of Capital (WACC) Parameters*, May 2009, p 45.

estimates prior to 9th August 2007 apply an MRP of 7.0%. Conversely, MRP estimates for incorporation in WACC estimates subsequent to 9th August 2007 apply an MRP of 7.5%.

B.5 Asset beta

B.5.1 The Commission's preliminary view

73 In the draft Indicative Pricing Principles determination, the Commission proposes an equity beta of 0.83 on the basis that the Commission considers it appropriate to use an asset beta of 0.5 (based on a business providing access to a fixed network) leveraged to provide an equity beta of around 0.83

B.6 The asset and equity beta

74 The asset beta reflects the level of non-diversifiable risk associated with a particular asset and is measured relative to a fully diversified portfolio of assets (typically proxied by a broad measure of the relevant equity market). The asset beta reflects the underlying extent of systematic business risk on an ungeared basis (i.e. essentially with no debt). The asset beta required in this context is one narrowly related to a stand-alone provider of the CAN-related assets. Telstra is not aware of a listed entity that uniquely only provides services such as those provided over the CAN-related assets. Consequently, some judgement is required in determining a robust estimate of an asset beta for the CAN-related assets. Given the subjective nature of estimating beta for unlisted entities, information from a range of sources can be informative in this process.

75 Reflecting this, Telstra has relied on three approaches that provide some insight into the appropriate quantum for the asset beta of the CAN-only provider. These estimates were detailed in the Undertaking WACC submission (see paras 168 – 181). In general and for reasons outlined below, Telstra continues to rely on these estimates to support application of an asset beta for the CAN of around 0.725 in the current context.

76 Nevertheless, Telstra has updated estimates of the asset beta for Telstra and in the benchmarking approach for a peer group of telcos whose business characteristics partly align with that of the CAN-only provider.

77 Telstra considers that Telstra-wide information will often be a useful starting point for quantifying CAN-specific values for many of the WACC parameters. Consistent with this, the data obtained from Bloomberg Financial Services on 14 July 2009 of various estimates of the Telstra-wide equity beta is summarised in the table below. These equity betas are then de-levered to estimate the Telstra-wide level asset beta using the converse of the typical re-levering equation for an equity beta (i.e. with asset beta as the dependent variable). This reveals the following estimated asset betas and indicative standard errors (scaled relative to the Bloomberg standard errors for estimates of the equity beta).

Periodicity	Raw or adjusted	Equity beta	R-squared	Standard error or equity beta	Implied asset beta	Standard error of asset beta
Daily	Raw	0.444	0.159	0.029	0.358	0.023
	Adjusted	0.630		0.041	0.508	0.033
Weekly	Raw	0.433	0.151	0.064	0.349	0.052
	Adjusted	0.622		0.092	0.501	0.074
Monthly	Raw	0.321	0.061	0.167	0.259	0.135
	Adjusted	0.548		0.285	0.442	0.230

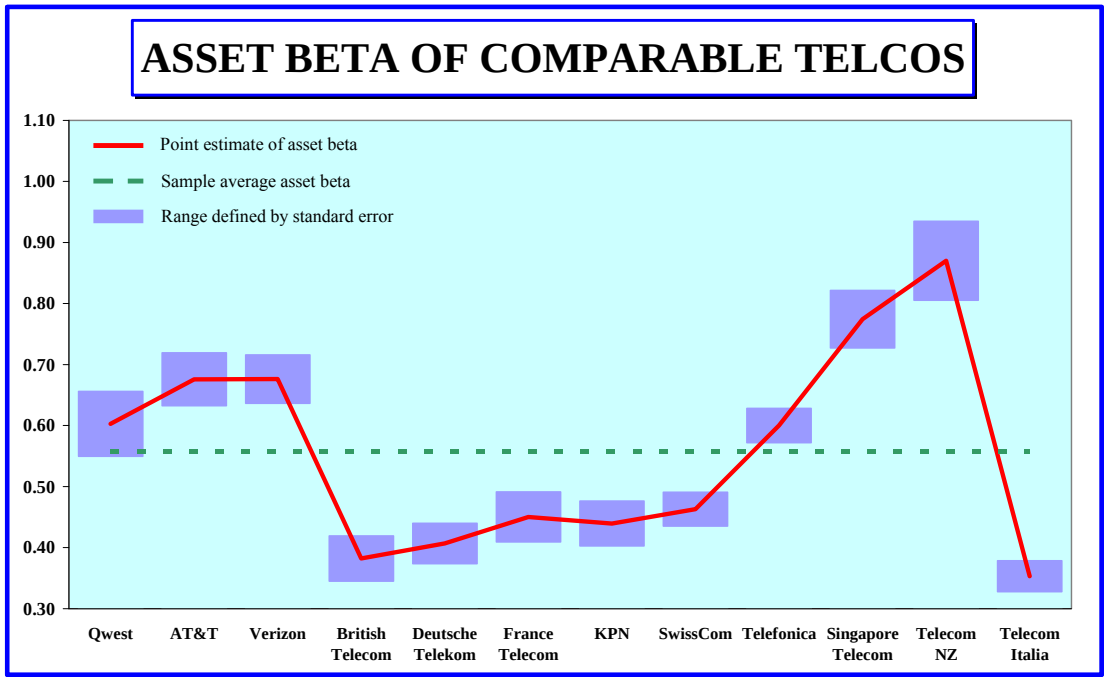
Source: Bloomberg Financial Services; accessed 14 July 2009

78 These data suggest that the Telstra-wide asset beta is somewhere around 0.26 to 0.51 with a simple average around 0.40. These estimates have a significant standard error and generally it is possible that the Telstra-wide asset beta could range from 0.12 to 0.67.

79 Another generally useful approach is to analyse estimated asset betas for a range of comparables to the target entity. This is a commonly applied technique for estimating asset betas used by practitioners and by regulators, especially when the target entity for which the WACC is to be estimated is not listed. If the analogues are reasonably close to the target entity in terms of business operations and exposure to systematic risk then the information obtained from this approach is indicative of the likely beta relevant for the target entity. However, the beta estimates obtained directly from the various information providers (in this case Bloomberg Financial Services) are generally in equity format and need to remove the impact of differential gearing.

80 As far as Telstra is aware there is no listed entity that uniquely and solely provides only the range of services supplied by the notional CAN-only provider, the subject of this WACC estimation exercise. However, Telstra considers that the remaining regional Bell operating companies (colloquially referred to as the "RBOC's") are reasonable analogues of the CAN-only provider. This includes Verizon, AT&T and Qwest. Moreover, given the centrality of the CAN to generalised telco operations (especially those biased towards fixed services) broader estimates of the asset beta for a select range of telecommunications companies will provide some information (essentially similar to the informational content of the Telstra-wide asset beta). In any case, averaging the estimates across the larger sample augmented by general carriers facilitates the curtailment of individual peculiarities in the beta estimates. As such a more robust estimate is generated with the larger peer group.

81 The results of this analysis are summarised in the chart below. The underlying data used to calculate the indicative asset betas was accessed from Bloomberg on 14 July 2009.

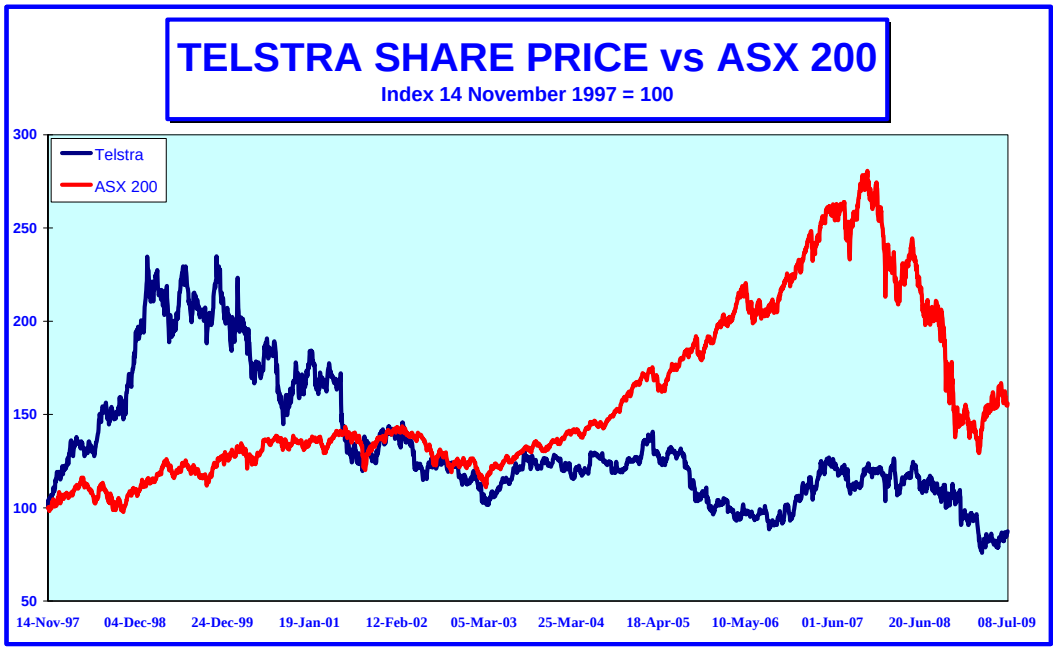


Source: Bloomberg Financial Services; accessed 14 July 2009

82 The average estimated asset beta of the remaining RBOC's (Verizon, AT&T and Qwest) is 0.65. The average estimated asset beta of the non-RBOC telecommunications companies is 0.53. The average estimated asset beta of the entire peer group is 0.56.

83 There are strong reasons that suggest the direct estimation method and to a similar extent the benchmarking approach (which involves direct estimation for a range of potential analogue entities) will under-estimate the sensitivity of certain listed equities to the overall market and thus the forward-looking equity beta.

84 First, recent data captures periods of strong trends that effectively reduce the equity beta measured in the normal manner and that are unlikely to continue in the future. Since these trends are unlikely to be replicated in the future the backwards-calculated betas are not appropriate in a forward-looking context (such as WACC calculations). The chart below shows the relative performance of the Telstra share price and the ASX200 over the period since Telstra's initial partial listing in November 1997. The significant increase in the ASX200 index from around 2004 was strongly linked to the commodity price boom driven by the rapid industrialisation of China and the over-representation of resource equities on the ASX200 relative to other countries. This over-riding factor driving the ASX200 higher did not directly relate to other sectors and, specifically, Telstra or the telecoms sector. As is clear in the chart, the Telstra share price seemed insensitive to both the strong uptrend in the ASX200 and then its strong downtrend. Consequently, the estimated equity betas of Telstra (but also other sectors unrelated to resources including telecommunications) were lower than they would have been absent the short-term resources boom and bust. It would be incorrect to conclude that a low beta measured through the resource boom-bust would continue in the future. As a result, market estimated betas for Telstra, telcos in general, and many businesses outside the resource sector are currently significantly downward biased relative to likely appropriate forward-looking betas assuming more normal equity markets trends going forward (ie absent a resource boom as strong and pervasive as the recent version).

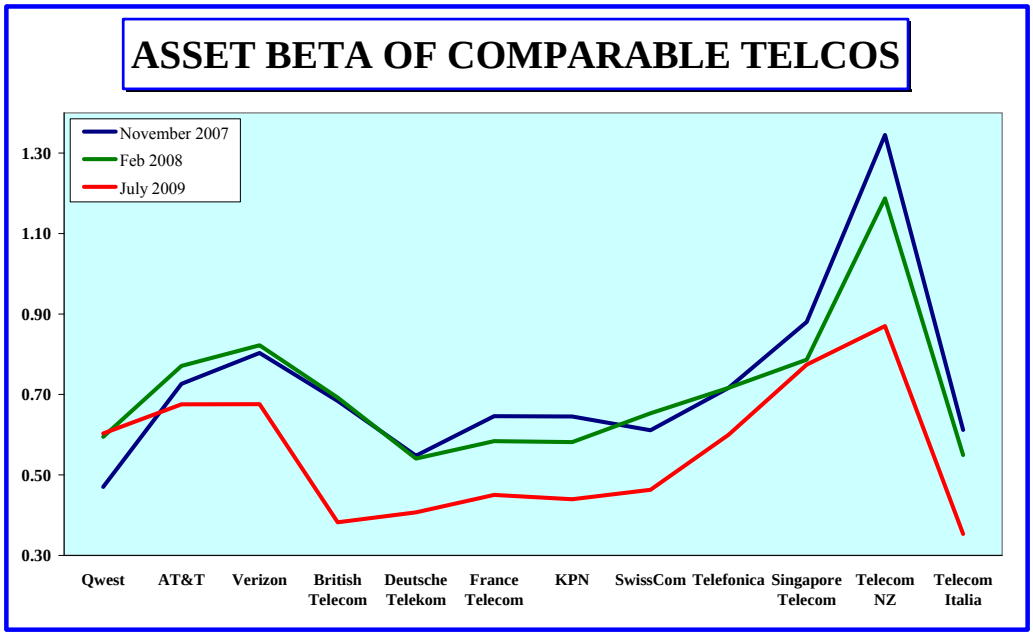


Source: Yahoo.com.au

85 Strategic Finance Group Consulting (SFG)[34] identifies similarities between the "technology bubble" period (typically regarded as July 1998 to December 2001) and the "commodity boom". The common theme was that both episodes were notable in that a single sector (technology, media and communications in the "technology bubble" period and resources in the "commodity boom") were largely responsible for a strong appreciation in value of the overall market. Firms not in these market driver sectors did not perform as well which ultimately reduced their correlation with the overall market and hence estimated beta. This analysis suggests that recent historical equity beta estimates are likely to underestimate the forward-looking equity beta.

86 The chart below tracks the evolution of asset betas for a range of peer telcos across the period from late-2007 until mid-2009. There has been a clear reduction in estimated asset betas well above the normal expected tendency for change driven by evolutionary factors including business mix shifts, changes in consumer preference or other more structural factors.

[34] SFG, *The Reliability of Empirical Beta Estimates,* 15 September 2008, p 30-31.

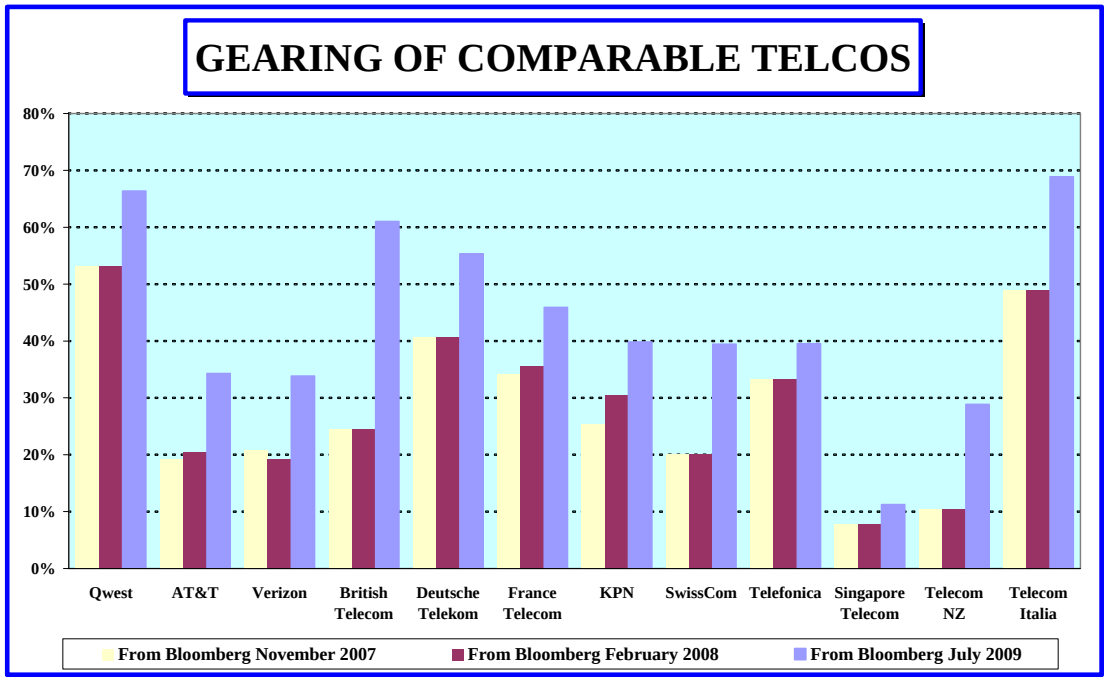


Source: Bloomberg Financial Services; accessed on 14 July 2009.

87 Secondly, Telstra also considers that a significant issue highlighted by the GFC is that risk was significantly under-priced for a long period of time. The corollary of this is that estimates of beta that straddle the period including the lead-up to the GFC (dated as from 9th August 2007 when BNP Paribas suspended three investment funds that invested in sub-prime mortgage debt due to a complete evaporation of liquidity)[35] will likely under-estimate risk, including systematic risk given the role of macro-economic factors.

88 The GFC has also caused a major contraction in the market value of equity which has contributed to a significant heightening of measured debt gearing (based on Bloomberg information on debt from the balance sheet of latest officially lodged financial statements). When share prices are falling (rising) so aggressively current gearing is likely to move away from its long-term optimal level simply because changing debt levels (both upwards and downwards to compensate the move in equity) takes time to effect. Short-term gearing is not indicative of investor long-term expectations around gearing which would ideally be applied to de-lever equity betas if it was known.

[35] CEG, *Forward Looking Estimates of the Equity Premium; For Regulated Businesses and the Market as a Whole; A Report for the JIA*, January 2009, footnote 17, p 23.



Source: Bloomberg, various dates.

89 Applying current estimates of gearing from latest balance sheet data has the effect of reducing the measured asset beta for any given/observed equity beta in a manner that may not be indicative of the long-term exposure to systematic risk. As such it further tends to bias observed asset betas for comparators downwards relative to likely forward-looking asset betas.

90 The AER in its recent final decision appears to accept that the "technology bubble" would distort estimates of equity beta away from the "true" beta and therefore "the period prior to the technology bubble may not provide a robust industry average of equity beta estimates."[36] However, the AER does not accept that "the 2002-2007 period will be unrepresentative of prevailing market conditions over the next ten years."[37] This period specifically relates to both the "resource boom" and the "sub-prime crisis".

91 In Telstra's view the AER is partially correct to suggest that both the resource boom and GFC will possibly recur over the forward period of relevance to capital providers and that therefore the factors that influenced betas over that 2002-2007 will re-occur. This is because history shows that both resource booms and financial crises do tend to occur on some kind of semi-regular basis. However, there is an element of uniqueness about the extent of both the recent resource boom and the GFC that suggests the acuteness of future resource booms and financial crises may not be as pronounced.

92 In the context of the resource boom a proximate cause was the rapid industrialisation of China and attendant aggressively heightened demand for resource inputs. Whilst China is recovering and again placing some upwards momentum on commodity prices the scale of demand boost and consequent commodity price inflation experienced over recent years is unlikely to be replicated. This is evidenced by the fact that the latest commodity price cycle is the most pronounced in Australia's history; which includes some significant earlier commodity price booms. Hence there is a component of the recent resource boom

[36] AER, *Final Decision, Electricity Transmission and Distribution Network Service Providers, Review of the Weighted Average Cost of Capital (WACC) Parameters*, May 2009, p 269.
[37] AER, *Final Decision, Electricity Transmission and Distribution Network Service Providers, Review of the Weighted Average Cost of Capital (WACC) Parameters*, May 2009, p 271.

which is replicable going forward and hence is relevant to educating forward-looking betas. But there is also a component (likely the major component) which is more structural in nature (linked to emergence of China) that is not replicable and which means that betas educated over the period 2002-2007 will understate forward-looking betas.

93 The GFC is the most acute financial crisis experienced arguably since the Great Depression. Although financial crises are likely to re-occur over the forward period of relevance to capital providers, they are unlikely to be as pronounced; as globally impacting; as disruptive to global debt markets; and as disruptive to global equity markets as the recent GFC. Hence there is a component of the recent GFC episode which is replicable going forward (ie a more "normal" financial crisis) and which is arguably relevant to educating forward-looking betas. But there is also a component which is more structural in nature (linked to the sub-prime underpinning and rapid internationalisation via securatisation) that is arguably not replicable and which again means that betas educated over the period 2002-2007 will understate forward-looking betas.

94 This does not mean that empirically estimated betas should specifically exclude the three periods (technology bubble, resource boom and GFC) over which distortion is likely. Although this would be ideal, it is unlikely to be practical given the long period which would need to be excluded. In Telstra's view there needs to be recognition of the clear downside distortion affecting empirically estimated betas when determining a value for the forward-looking beta.

95 Apart from these cyclical aspects to under-enumeration of beta various studies have shown that the traditional CAPM approach understates the required return to equity where the normal equity beta is less than one and overstates the required return to equity when the normal equity beta is above one.[38] This reflects the generally simplifying assumptions made in devising the traditional CAPM conclusions. CEG outline 2 options for addressing the bias in the traditional CAPM formula for the cost of equity.[39]

96 The first approach is to modify the traditional CAPM formula to increase the constant term (previously the risk free rate only) and to decrease the market risk premium to moderate the sensitivity of the cost of equity to the traditional equity beta. This formulation is known as the Black CAPM.[40] This re-positions the security market line away from the traditional CAPM construct to a line that more closely accords with empirically observed returns.[41] The gradient of the revised security market line in the Black CAPM is lower than that of the traditional CAPM and the intercept with the monthly return axis is higher reflecting Black's observation that firms with equity betas of zero earn on average more than the risk free rate. The impact of this amended CAPM is to increase the expected returns to equity of stocks with traditional betas less than one and to decrease the expected returns to equity of stocks with traditional betas greater than one.

97 CEG report empirical analysis that shows that the adjustment required is approximately the same as the MRP which results in the zero beta return being lifted by the MRP and the

[38] See CEG, *Estimation of, and Correction for, Biases Inherent in the Sharpe CAPM formula, A report for the Energy Networks Association Grid Australia and APIA,* 15 September 2008 for a comprehensive outline of issues.
[39] CEG, *Estimation of, and Correction for, Biases Inherent in the Sharpe CAPM Formula, A Report for the Energy Networks Association Grid Australia and APIA,* 15 September 2008, p 50-51.
[40] CEG, *Estimation of, and Correction for, Biases Inherent in the Sharpe CAPM Formula, A Report for the Energy Networks Association Grid Australia and APIA,* 15 September 2008, p 50.
[41] CEG, *Estimation of, and Correction for, Biases Inherent in the Sharpe CAPM Formula, A Report for the Energy Networks Association Grid Australia and APIA,* 15 September 2008, p 30-34.

MRP is reduced to zero.[42] The second adjustment suggests that there is no "significant relation between β_e and equity returns in the Australian market."[43] Applying a more conservative adjustment (5%)[44], the Commission's preferred estimate of the equity beta in its final decision (0.71)[45] and retaining the Commission's typical estimate of the MRP (6%)[46] implies that the mark-up above the risk free rate for equity would be 5.71% under the Black CAPM compared with 4.25% under the traditional CAPM. The implication of this is that traditional approaches to the estimation of the required return on equity likely understate the "true" cost of equity by a significant margin and applying the Commission's values for the other parameters potentially by 1.5% points.

98 The second approach suggested by CEG is to modify the equity beta applied in the traditional CAPM formula. This approach involves adjusting the equity beta by an amount so that the same cost of equity results as in the Black CAPM.[47] As CEG note, this modification results in the traditional equity beta being increased when it is observed to be below 1. As CEG also note, this construct gives the same estimates of the cost of equity as derived from the Black CAPM[48] but with all the adjustment effected via an altered beta. Adopting the parameter values recommended by the Commission in their draft decision (equity beta in its draft decision (0.71) and retaining the Commission's typical estimate of the MRP (6%) and combining with an adjustment of 5% (i.e. same as applied above in the Black CAPM) suggests that the equity beta relevant in the ULL context should be as high as 0.95.

99 The foregoing suggests that there is considerable risk that simplistic replication of a traditional approach to quantifying the appropriate equity beta could seriously and significantly under-value the "true" beta in the ULLS context. This predominantly reflects the cyclical aspects around the commodity boom which clearly downgrades the mechanical estimates of equity beta in a manner that is not typical or representative of the appropriate equity beta in a forward-looking sense. Furthermore, empirical research suggests that the traditional approach to estimating the equity beta overplays the sensitivity of equity returns to beta and under-recognises the return applicable to a zero beta stock. The result of this combination of "errors" is to understate the required return to equity of stocks with traditional observed betas less than 1.0.

100 The consequence of under-enumeration of beta is a considerable risk that the allowed returns based on the traditional approach will significantly understate the "true" required returns to equity resulting in an inability to recover prudently incurred costs and a disincentive towards further investment.

101 Telstra typically adopts the Blume adjusted equity beta rather than the raw equity beta. The Blume adjustment is routinely applied by Bloomberg (as well as other providers of beta data such as Merrill lynch and ValueLine).[49] The Blume-adjusted equity beta is a weighted average of the raw equity beta estimate (weight 0.67) and 1 (weight of 0.33) to

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[42] CEG, *Estimation of, and Correction for, Biases Inherent in the Sharpe CAPM Formula, A Report for the Energy Networks Association Grid Australia and APIA,* 15 September 2008, p 50.
[43] CEG, *Estimation of, and Correction for, Biases Inherent in the Sharpe CAPM Formula, A Report for the Energy Networks Association Grid Australia and APIA,* 15 September 2008, p 50.
[44] CEG, *Estimation of, and Correction for, Biases Inherent in the Sharpe CAPM Formula, A Report for the Energy Networks Association Grid Australia and APIA,* 15 September 2008, p 50-51.
[45] ACCC, *Assessment of Telstra's ULLS Band 2 Monthly Charge Undertaking: Final Decision*, April 2009, p 229.
[46] ACCC, *Assessment of Telstra's ULLS Band 2 Monthly Charge Undertaking: Final Decision*, April 2009, p 99-100.
[47] CEG provide the formula to adjust the equity beta at page 51.
[48] CEG, *Estimation of, and Correction for, Biases Inherent in the Sharpe CAPM formula, A report for the Energy Networks Association Grid Australia and APIA,* 15 September 2008, p 51.
[49] CEG, *Estimation of, and Correction for, Biases Inherent in the Sharpe CAPM formula, A report for the Energy Networks Association Grid Australia and APIA,* 15 September 2008, p 22.

account for observed tendency towards mean reversion over time (i.e. the mean beta for the overall market is 1).

102 The AER considered the appropriateness of the application of the Blume adjustment in the context of electricity and distribution network service providers. The AER focussed on the two rationales for the Blume adjustment which are summarised by the AER as[50]:

- To adjust for the expected changes in the true beta of a business towards the market average due to conscious management initiatives; or
- To adjust for the expected unwinding of estimation error

103 The AER rejected the first rationale for the Blume adjustment on the basis that in the electricity context "it is assumed that the business activities and gearing of a benchmark efficient NSP do not change. Specifically, a benchmark efficient NSP is assumed to only provide regulated electricity networks, and so the degree of systematic risk of its business activities is assumed not to change over time."[51]

104 The Commission has rejected the application of the Blume adjustment, stating that "the 2008 Undertaking relates to a stand-alone regulatory asset whose risk is not expected to change over time. There appears no basis to assume that the systematic risk of the ULLS service will revert towards the mean systematic risk of the market portfolio through time."[52]

105 In Telstra's view the Commission's perspective is incorrect because its conclusion that the risk associated with the CAN will not change over time is incorrect. The CAN provides the means with which telephony calls (including parts of some mobile calls), internet traffic and other services are provided between end users. The overall level of demand facing the CAN is very much dependent on demand for all of these services. This demand is subject to a great level of change as consumers' preferences and the competitive landscape change. For instance, structural shifts in Telstra's business mix that have occurred almost continuously over recent years would tend to increase Telstra's and the CAN-only provider's "true" asset beta. The critical factors relate to the continued increase in mobiles and broadband-related services in the overall Telstra business mix and attendant relative decline in fixed line services. Mobiles and broadband are more highly discretionary than other products in the Telstra suite so that as they have become relatively more important to Telstra's overall business they have heightened the average discretionary nature of Telstra's products/services in a manner consistent with a higher overall sensitivity to the economic cycle and consequently higher beta. These emerging businesses are vitally critical to the CAN which is used in the delivery of mobile (fixed-to-mobile and mobile-to-fixed) and broadband services. Over time, as these trends continue, mobiles and broadband are likely to become relatively more important for the CAN and hence to push the asset beta higher. Although most forward-looking investors would be aware of these trends and have expectations around their likely continuance they are unlikely to be adequately captured in historically focussed beta estimation, especially given the prevalence of other downward biases.

106 This expected continuing evolution in the systematic riskiness of the CAN also suggests that the argument applied by the AER to reject the first rationale in the electricity context does not translate to the ULL context. Electricity demand does not appear to be going

[50] AER, *Final Decision, Electricity Transmission and Distribution Network Service Providers, Review of the Weighted Average Cost of Capital (WACC) Parameters*, May 2009, p 304.
[51] AER, *Final Decision, Electricity Transmission and Distribution Network Service Providers, Review of the Weighted Average Cost of Capital (WACC) Parameters*, May 2009, p 304.
[52] ACCC, *Assessment of Telstra's ULLS Band 2 Monthly Charge Undertaking: Final Decision*, April 2009, p 228.

through the rapid change that is already in play in the telecoms sector and clearly impacting the mix of retail demand for services provided over the CAN in a way that heightens the overall exposure of the CAN to systematic risk.

107 The Commission also argue "that there is no reason to assume the systematic risk facing a regulated monopoly will revert towards the mean of the market."[53] In Telstra's view, the Commission do not establish that the CAN is a regulated monopoly, given the normal understanding of "regulated monopoly" (ie that the total returns, total revenue or prices are regulated). In fact, the Commission identifies readily available competitive networks (wireless and HFC) and then discusses technology risk without explaining the context, relevance or impact of "monopoly" on beta. In terms of their discussion of technology risk they articulate a possible situation where (in their view) systematic risk could be reduced. However, there are other plausible scenarios wherein systematic risk of the CAN increases due to effective bypass of the CAN via wireless and/or HFC technologies. Moreover, the real technology-driven trend for the CAN is the evolution of business mix towards more discretionary products/services which over time makes overall demand the CAN more sensitive to the economic cycle and heightens systematic risk and the CAN asset beta.

108 Telstra also considers that the second rationale for the Blume adjustment is reasonable given that direct estimation of historical data is likely to under-estimate the "true" forward-looking equity betas for the reasons discussed above (ie unimpacted by the resource boom and tendency for CAPM beta to generally understate true required return to equity). Raw equity beta estimates below the market average (i.e. below 1) are likely to be underestimated and estimates above the market average are likely to be overestimated. Given this, the Blume adjustment makes an adjustment to push the equity beta towards the more likely "market average" beta of 1 which, at least directionally offsets the error tendency outlined above.

109 Telstra also relies on an international benchmarking approach which involves estimating the asset beta of a range of partial analogues for a CAN-only provider, most of which are not listed on the Australian Stock Exchange but other exchanges. These estimates are also likely impacted by factors around the resource boom, the rise of China as a major global macro-economic player and the GFC. Given these factors have varying relevance to different countries the level of distortion to beta estimates is also likely to vary across countries.

110 Telstra considers that the Telstra-wide beta estimate and those of the various analogues provide a reasonable starting point from which to estimate the beta of the CAN-only provider. However, because Telstra and the various analogues provide products and services other than just those equivalent to the CAN-only provider, there needs to be some adjustment to the various telco-wide estimates to determine a beta for a CAN-only provider. Given the varying extent of products and services outside those of the CAN-only provider across the analogues (including Telstra) the extent of the adjustment to generate indicative CAN-only betas will vary.

111 Telstra accepts that this largely subjective adjustment is likely to be downward although the extent of adjustment may not be as pronounced as some expect.

112 The CAN is the central critical asset within Telstra and most products and services provided by Telstra will traverse the CAN or are in some manner dependent on the CAN. This suggests that the asset beta of the CAN may not be materially different to that of Telstra overall. Product specific betas (say for access, PSTN calls, mobile calls and broadband) are likely to be quite different reflecting in part their divergent underlying

[53] ACCC, *Assessment of Telstra's ULLS Band 2 Monthly Charge Undertaking: Final Decision*, April 2009, p 228.

discretionary natures, varying income elasticities and different operating leverage (mix of fixed versus variable expenses). However, the CAN is central in the provision of all of these and thus subject in varying degrees to the systematic riskiness of all these products.

113 The Commission has noted that "Telstra's CAN business is likely to bear lower systematic risk than Telstra's average business due to higher systematic risk business Telstra operates such as mobile communications."[54] This statement appears to consider that the mobiles business is completely independent and separate from the CAN business.

114 The Commission also noted that "Since 1999, the RBOC's have diversified their business interests and the Commission considers they are now less relevant as comparators." This is incorrect given the role that the CAN plays in transmitting mobile calls (eg mobile-to-fixed and mobile-to-mobile across some distance). Internet and broadband, which are quite discretionary and hence likely high systematic risk services, also are critically dependent on the CAN for service delivery. The diversification in the RBOC's noted by the Commission is broadly consistent with the diversification that has likely occurred at Telstra and is leveraged off and relevant to the CAN. Instead of the diversification of the RBOC's making them less appropriate analogues for the CAN-only provider, the diversification, because it is consistent with the CAN experience, makes the RBOC's more appropriate analogues. It also likely makes the broader telcos included in the peer set closer analogues for the CAN-only provider.

115 This point is perhaps best illustrated from the CAN-only providers' perspective. The CAN-only provider will need to deliver traffic associated with all types of communications services including PSTN calls, PSTN-to-mobile calls, IDD calls, components of some mobile calls, traffic related to internet/broadband as well as other communications. This means that the CAN-only provider is subject to the systematic risk of a wide range of products/services just as the full-service provider telcos in the analogue peer set.

116 Moreover, the extent of operating leverage of the CAN part of Telstra is likely to be much higher than the non-CAN part of Telstra (ie CAN-only part of Telstra has higher share of fixed in total costs than the non-CAN part of Telstra). This is because the CAN part of Telstra essentially bears the fixed and some operating costs associated with CAN provision while the non-CAN part of Telstra essentially bears the variable costs associated with retail service provision (for CAN-enabled services) as well as the fixed costs associated with other network components (non-CAN, mobiles). If demand was to decline the high operating leverage of the CAN would limit the extent of cost reduction achievable for the CAN-only provider whilst the non-CAN provider has more scope to reduce variable costs commensurate with the reduction in demand. As beta is related to net returns, this suggests that the CAN-only beta may not be as far below the telco-wide beta as some anticipate; and that the non-CAN beta may not be as far above.

B.7 Debt gearing

117 In the Annual Charges Consultation Paper, the Commission proposes a debt ratio of 60%. The Commission does not outline the basis on which it does so. Telstra understands from the draft pricing principles that the Commission has set a debt/equity ratio which is consistent with the target debt ratio of comparable companies that provides services over a fixed network and is in accordance with Telstra-wide historic book ratio.

118 Telstra submits that target market gearing should be used in the TSLRIC context (as in all valuation contexts). **Market** gearing is preferred (over book gearing) so as to reflect the true contemporary opportunity costs. **Target** gearing is preferred for two reasons. Firstly, the current gearing may not be typical or indicative of future gearing. This is

[54] ACCC, *Assessment of Telstra's ULLS Band 2 Monthly Charge Undertaking: Final Decision*, April 2009, p 224.

especially important in a capital intensive sector such as telecommunications where movements in gearing can be quite lumpy. Secondly, investors are interested in future returns after future debt servicing and hence are interested in future gearing. As noted previously, recent gyrations in equity markets are impacting estimated current gearing away from more typical or target levels. This has distorted the beta estimates but highlights the risk of following current gearing instead of target gearing.

119 The debt gearing Telstra recommends for the CAN-related assets is based on the Telstra-wide target market gearing. Telstra considers this to be a reliable broad indicator of likely gearing that would apply to the relevant CAN-related assets. There are no listed entities only providing services based on the CAN-related assets which could provide guidance about the typical or desired level of gearing for these assets or these businesses. Given this it seems sensible to use the Telstra-wide gearing as an initial benchmark and then modify as appropriate to as much as practicable reflect the context of the CAN-related assets.

120 The Commission has reiterated its long-held position is that book gearing around the time of Telstra's initial partial privatization is a relevant basis on which to determine the appropriate gearing for the combination of network assets and specific assets[55]. The continued adoption of book gearing in the context of determining the WACC is counter to the theory of corporate finance that underpins the determination of the WACC. Those underpinnings hinge on the symbiotic relationship between cash flows, the market value determined WACC and the market value of assets. More specifically, if the WACC is properly determined, it will ensure that the present value of the expected net cash flows derived from a set of assets equals the market value of those assets. However, even if the individual components of the WACC are properly assessed, using book values to then weight their combination into an overall WACC will violate this principle. It will, in other words, cause a divergence between the present value of the expected net cash flows derived from those assets and the assets' market value.

121 Telstra submits that this commingling of an approach to the WACC based on the Capital Asset Pricing Model with the application of weights for determining that WACC is unjustifiable in economic terms and arbitrary. Telstra is also concerned that this error is compounded by the Commission relying on gearing from around the time of Telstra's initial partial privatization back in 1997. This is a further departure from accepted finance theory in that it mixes estimates that are now nearly a decade old (i.e. the gearing structure) with estimates based on contemporary market conditions (ideally the other components in the WACC calculation). This is not a sound basis for calculating a contemporary WACC estimate.

122 The only justification for this position provided by the Commission (in the past) has been that "at privatisation, Telstra most closely resembled a pure PSTN provider"[56]. This may well be true but it ignores radical shifts that have occurred over the years since 1997 in a number of areas of relevance to the estimation of gearing for telecommunications companies generally; and which would impact the way in which a telco would consider gearing for the stand-alone declared provider of the CAN-related assets. These include:

1 A structural shift in interest rates over this period (and hence the market value of debt and equity);

2 Shifts and re-alignments in financial markets;

[55] ACCC, *Assessment of Telstra's ULLS Band 2 Monthly Charge Undertaking: Final Decision*, April 2009, p 232.
[56] ACCC, *Assessment of Telstra's PSTN and LCS Undertaking, Final Decision, Public Version*, November 2006, p 7.

3 The movements in Telstra's share price since initial listing late-1997 (and hence in the market value of equity);

4 The inflation of the dot-com "bubble" and its subsequent bursting;

5 Rapid technological advance in the telecommunications sector; and

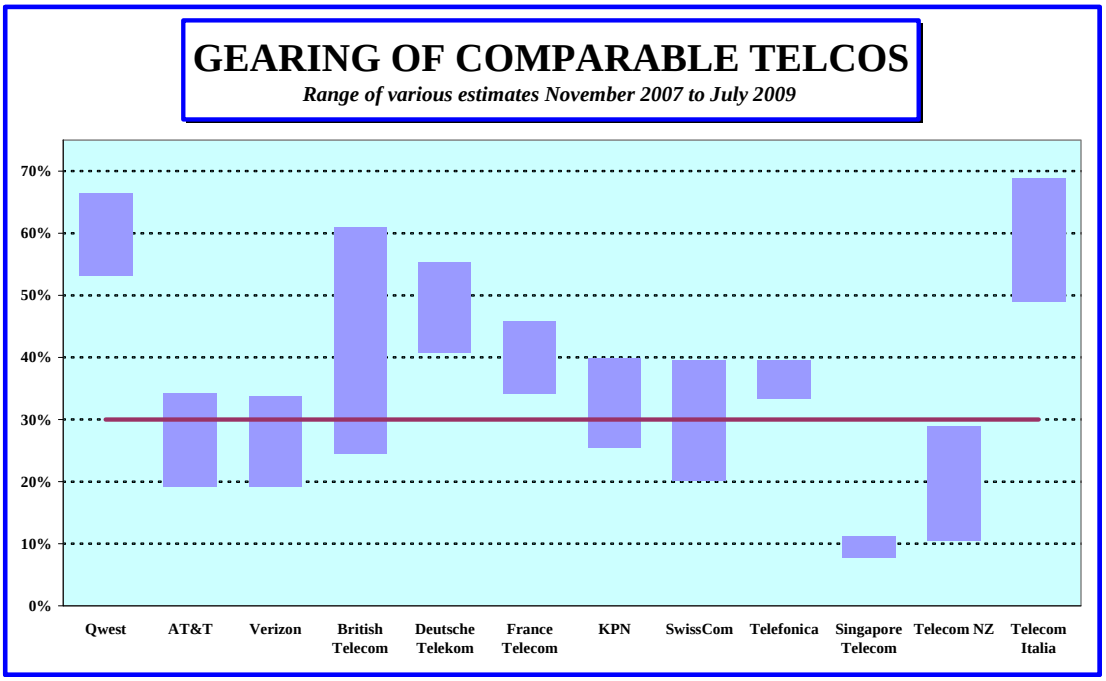
6 The increased competitiveness of the Australian telecommunications industry associated with the shift to open competition in mid-1997 (only months in advance of the initial partial privatization of Telstra).

123 It is likely that these factors too would influence the gearing of the stand-alone provider of the CAN-related assets (as they clearly have at the Telstra-wide level). Furthermore, these factors would not have affected gearing at the time of Telstra's initial partial privatisation. As a result, the Telstra gearing at the time of initial partial privatisation is unlikely to be a meaningful or reliable guide to the contemporary gearing at either the Telstra-wide level or for the CAN-related assets.

124 In November 2005 Telstra publicly announced that it was increasing its target book gearing ratio from a range between 45% to 55% debt to a range between 55% to 75% debt.[57] These targets relate to Telstra's net debt position and are presented in book terms because they were aimed at ratings agencies who because of their particular focus on debt tend to work in book gearing terms. For WACC calculations the gearing structure applied should be market based to ensure that opportunity costs are quantified in contemporary terms and on a target basis because equity investors are interested in likely returns over the medium-to-long term which are after future debt servicing. Consequently, the future direction of gearing is relevant for the future return to equity investors which is relevant for WACC. Applying an indicative contemporary share price for Telstra the target book gearing converts to an indicative target market gearing of between 20% debt and 40% debt. This technique is similar to that applied by Ovum to convert target book gearing as at 30 June 2007 based on Telstra's external guidance to an estimated target market gearing. Therefore, an indicative target market gearing for Telstra consistent with its market guidance on (book) gearing would be 30% debt.

125 Indicative gearing across a select group of comparable telcos is summarised in the chart below. The data was sourced from Bloomberg on 14 July 2009 and is based on book net debt and the market value of equity. It shows a wide range of gearing across the telcos ranging from a high of 68.9% debt (Telecom Italia) to a low of 11.8% debt (Singapore Telecom). The (simple) average across the peer set is 43.7% debt. The data suggests that market based gearing around 30% debt would be reasonably typical across comparable telcos and thus representative of possible gearing for a stand-alone CAN-only provider.

[57] Statement of **[start TC1 c-i-c]** [redacted] **[end TC1 c-i-c]** at [28]].**(Submission Supporting Document, Document 1.16)**



Source: Bloomberg, various dates

126 It should be noted that the estimated debt gearing of the telcos in the peer set has risen sharply over the recent year given the sharp decline in equity values. In the chart above the top-end of the range (for each telco) reflects the latest gearing estimate (accessed from Bloomberg on 14 July 2009) whilst the low-end of the range (for each telco) represents gearing estimated based on either data accessed in November 2007 or February 2008. As such these estimates are likely to be above their long-term optimal level and may not be indicative of the "true" optimal gearing from a forward-looking perspective. Telstra notes that even the low-end gearing estimates support the view that gearing for the CAN at around 30% debt would not be atypical or abnormal relative to other major telcos.

127 Note that changes in debt gearing do not materially impact WACC estimates (both "vanilla" and pre-tax) providing that the impact of changed gearing is accounted for in the estimate of the equity beta. In other words, increased (reduced) debt gearing increases (reduces) the extent of financial risk to which equity investors are exposed since any given level of investor return is less (more) likely to be met if debt is increased (reduced). This effect largely cancels out the weighting effect under which more (less) debt increase (reduces) the weight applied to lower cost debt and decreases (increases) the weight applied to higher cost equity. Over reasonable gearing ranges these effects largely offset and the resultant point estimates of the WACC are nor materially impacted by the gearing shift (especially relative to the estimation vagaries already inherent in the WACC).

128 The Commission argues that the debt gearing capability of the CAN is higher than for Telstra overall because "the CAN should be lower risk than Telstra's operation overall and should be able to service more debt in its efficient capital structure."[58] The Commission does not actually quantify this impact and explain how it is reflected in their final view on gearing. In Telstra's view quantifying this effect suffers from the same issue raised above in the context of the beta that the CAN is a pervasive and central asset for the broader commercial operations of Telstra. Given the centrality of the CAN to Telstra's broader operations (including critically mobiles and broadband) the riskiness of the CAN may not

[58] ACCC, *Assessment of Telstra's ULLS Band 2 Monthly Charge Undertaking: Final Decision*, April 2009, p 232.

be significantly different to that of Telstra and thus the optimal gearing difference may be quite minimal.

129 In any case, the Telstra-wide gearing which is clearly observable (in the sense that there is clear market guidance in book format) would seem the most appropriate gearing to apply, especially cognisant of the minimal impact on the ultimate WACC (assuming that the dual impact of gearing on WACC – via a gearing effect and a financial risk effect captured in the equity beta – is properly captured). Accordingly, and as set out in Table 1, Telstra considers that the debt/equity ratio used in the calculation of the WACC at 1 July 2009 should be 30/70.

B.8 Corporate Tax Rate

B.8.1 The Commission's preliminary view

130 In the draft Indicative Pricing Principles determination, the Commission proposes a tax rate of 24% on the basis that this is the effective tax rate and that use of a higher tax rate would overcompensate the present value of future tax liabilities.

B.8.2 The statutory corporate tax rate is the appropriate rate

131 Telstra's view is that the corporate tax rate relevant for WACC calculations is that which is likely to be indicative of the tax burden over the entire useful life of the relevant asset. This best matches the perspective of capital providers who are interested in likely returns over the assets entire useful life and with the application of the WACC in an annuity type construct. If some form of accelerated depreciation is allowable it results in an effective tax rate lower than the statutory tax rate in some span of early years followed by a period (towards the end of the assets useful life) where the effective tax rate is actually higher than the statutory rate as there is no depreciation to claim as a tax deduction once the asset becomes more depreciated (on an accelerated basis). On this basis, the average effective tax rate over the entire asset life (that is the tax rate relevant in WACC estimates) approaches the statutory corporate tax rate (although there is a timing advantage occasioned by accelerated depreciation which would result in some minor deviation between the effective and statutory rates).

132 Telstra considers that its approach to the corporate tax rate is consistent with the view of IRG cited by Ovum[59]. The IRG view is that any adjustment to the statutory corporate tax rate in a WACC-related context should only reflect factors that cause a permanent difference between the statutory and effective rates. Whilst accelerated depreciation results in a timing difference it does not generate a permanent difference and hence the statutory tax rate does not need adjustment under the logic that IRG articulate.

133 Telstra also considers that accelerated depreciation, the main potential driver of divergence between the statutory and effective rates is no longer relevant in TSLRIC costing contexts. Changes in tax law have virtually eliminated the potential for creating depreciation timing differences for assets purchased or constructed on or after 21 September 1999. In the context of CAN-related assets, Telstra considers that accelerated depreciation is not applicable as such is not available to forward-looking costs of CAN-related assets notionally constructed in the years relevant to the current costing exercise (2007-08 and into future).

[59] Ovum Consulting, *Review of the Economic Principles, Capital Cost and Expense Calculations of the Telstra Efficient Access Cost Model, A Report to the ACCC*, August 2008, p 34.

134 The Commission foreshadowed[60] that it would rely on an estimate of the effective tax rate cited from the 2006-07 budget papers[61] averaged with analysis from PWC covering ASX100 companies. It is clear in the budget papers that this estimate relates to the entire business sector whilst that of PWC apparently covers all (if not most) of companies listed on the ASX100. The coverage of these studies implies that the averaged effective tax rates may not be representative of the rate that would be relevant to a single asset in a TSLRIC context or other specific costing exercise. Specifically these estimates would:

- Comprise a mix of corporations with different profitability in any given year, some with no tax burden. This is not directly relevant to the costing of a single asset over its entire useful life (as is required in WACC context);

- Apply to a mix of assets of different ages some of which were constructed while accelerated depreciation was available whilst others may be applying diminishing value depreciation. All these assets will be at different points in their useful life and averaging across these rates at a point in time may not yield a robust estimate of the rate across the entire useful life of a single asset (as is required in WACC context);

- Be biased towards newer assets heightening the depreciation benefit. The bulk of this estimate is likely to be effected by relatively new assets since older assets may either be fully depreciated (in accelerated or diminishing value terms) or at points in their life cycle where the depreciation benefit was reduced. Since new assets benefit most from forms of accelerated depreciation this bias tends towards increasing the depreciation benefit and reducing the effective tax rate. As assets age across their useful life the benefit of depreciation is impacted. It is not appropriate (in a WACC context) to apply an average rate biased towards new assets.

135 Telstra does not consider that such highly averaged (across the whole economy or a large number of major corporates) estimates of the effective rate of corporate tax provide any meaningful guide to the average tax rate relevant to a single asset. Further, Telstra does not believe that a corporate tax rate calculated for a particular year, and obviously highly influenced by the amount of depreciation able to be effected in that year, is indicative of the effective tax rate over the useful life of an asset.

136 The Commission notes that although accelerated depreciation may have ceased, firms "could effectively take advantage of a form of accelerated depreciation through the use of the diminishing value depreciation method allowed by the Australian Tax Office."[62] However, it is not clear how the estimates that the Commission rely on above are influenced by assets still being depreciated at an accelerated rate versus those on diminishing value depreciation.

137 Telstra considers that there is a critical inconsistency between the approach to depreciation the Commission is advocating in the context of the calculation of the WACC (either accelerated or diminishing value) and the actual depreciation profile that results from application of the Commission's (tilted) annuity costing approach. Under a (tilted) annuity approach the implicit depreciation profile is normally back-loaded (that is, depreciation increases across the life of the asset) and the effective tax rate would likely be higher than the statutory tax rate. Consequently, the tax rate for application in the WACC is arguably factoring some variant of accelerated depreciation whilst it is applied to an asset valuation over time (in the annuity construct) under which depreciation is effectively aggressively back-dated.

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[60] ACCC, *Assessment of Telstra's ULLS Band 2 Monthly Charge Undertaking: Final Decision*, April 2009, p 235.
[61] House of representatives, *Budget Paper No 1, Budget Strategy and Outlook 2006-07, Statement 5: Revenue*, Box 5.2.
[62] ACCC, *Assessment of Telstra's ULLS Band 2 Monthly Charge Undertaking: Final Decision*, April 2009, p 236.

138 Furthermore, the application of the corporate tax rate in the re-levering and de-levering equations around beta also reinforces the view that the statutory tax rate is appropriate. Typically when de-levering observed equity betas the statutory tax rate is used. Telstra is not aware of any estimates of the asset beta that do not apply the statutory corporate tax rate in the de-levering process. This likely reflects the high informational demands involved in calculating the effective corporate tax rate. To ensure internal consistency across beta estimation it is imperative that the statutory corporate tax rate is also used in the re-levering process. To apply the statutory corporate tax rate in the beta de-levering process and then the guess-timated effective tax rate in the beta re-levering process is inconsistent with the GasNet principle and distorts the resultant asset/equity beta estimates.

B.9 Imputation

B.9.1 The Commission's preliminary view

139 In the draft Indicative Pricing Principles determination, the Commission proposes a gamma of 0.5, being a mid-point of a range for gamma of between 0 and 1.

140 Telstra makes two submissions in respect of the value of imputation credits. First, the imputation credit factor should be set to zero on the basis that the marginal investor is a foreign investor who cannot use imputation credits. Alternatively, the imputation credit factor should be set to 0.355.

141 Telstra acknowledges that regulatory decisions have previously adopted a value of 0.5 for the imputation credit factor. This value was chosen as the mid-point of the theoretical range of 0 to 1 given conceptual and empirical difficulties in deriving the appropriate value. However, there is now significant evidence which indicates that the imputation credit factor is well below 0.5.[63]

B.9.2 Appropriate investor perspective

142 The price at which a firm is able to raise capital is the price where the demand for capital equates with supply. That is, the market-clearing price determines the firm's cost of capital.[64] The market-clearing price is the price at which the marginal investor is willing to invest in the firm.

143 In the context of dividend imputation, the marginal investor is a foreign investor. This is because other things being equal, domestic investors will accept a lower return than foreign investors as domestic investors will receive value from imputation credits. Conversely, foreign investors, who cannot use imputation credits, will demand a higher return relative to domestic investors. As prices are set at the margin and foreign investors demand a higher return, foreign investors set the price of capital.

144 Since foreign investors derive no value from dividend imputation and foreign investors set the price of capital, the dividend imputation factor should be set to zero.

145 A system of dividend imputation was established in Australia from 1 July 1987. Until then Australia had a "classical" taxation system in which corporate profits were taxed twice - once as corporate profits and again in the hands of investors when distributed as dividends. Imputation was introduced to remedy this and to eliminate this double

[63] See, R Bowman, *Report on the Appropriate Weighted Average Cost of Capital for the Services Provided over the CAN*, May 2007, p 25, 69.
[64] R Bowman, *Report on the Appropriate Weighted Average Cost of Capital for the Services Provided over the CAN*, May 2007, p 27-28.

taxation - at least for some investors. The imputation system operates by including with dividends that are paid out of profit after tax (i.e. corporate tax has been paid) a franking credit which recipient investors utilise as a credit against their individual personal tax liability. This credit reduces the investor tax burden and effectively results in a single tax burden on corporate income commensurate with the applicable rate of investor tax. Australian resident taxpayers can now fully utilise received franking credits whereas non-resident investors/taxpayers are not able to redeem their franking credits and thus they have no value to non-resident investors.

146 Under a "vanilla" WACC approach all tax effects including the benefit of imputation are captured in the notional cash flows rather than the WACC and therefore the value of franking credits is only relevant in the equations for re-levering and de-levering beta estimates. Imputation is only relevant in the WACC calculations due to its inclusion in the Australian-specific re-levering equation to convert an asset beta to an equity beta. Imputation is also relevant when ensuring the access provider earns sufficient capital returns after payment of corporate tax (i.e. in the modelling to incorporate the tax burden into allowable revenue).

147 The valuation of gamma is now conventionally analysed as the product of access to imputation credits (F) proxied by a dividend payout ratio and the utilisation of these credits by equity investors in the reduction of their tax liability (θ). The Commission follows this approach and relies on the estimate of the appropriate payout ratio (0.71) from Hathaway and Officer[65] combined with estimates of θ ranging from a low of 0.57 based on a study by Beggs and Skeels (applying dividend drop-off to estimate θ)[66] to a high of 0.81 (applying taxation data to estimate θ) based on a study by Handley and Maheswaran[67]. This produces estimates of gamma ranging from 0.41 to 0.48 and (simple) averaging implies a value close to 0.5, the Commission adopted value for gamma. Importantly the study by Handley and Maheswaran considers redemption rates from taxation statistics and says nothing about the market based value of imputation credits.

148 Telstra's view remains that the value of imputation that is relevant in a WACC context is the value of imputation reflected in share prices. As a result the valuation of imputation should be referenced from the perspective of the marginal investor that essentially determines the market price for the relevant share. It is the valuation of imputation by the marginal investor that is relevant for quantifying gamma in a WACC-related context. The marginal investor for most (if not all) Australian listed entities is likely to be an international investor given their significant representation on share registers across Australia and the resultant implication that the domestic supply of capital (what domestic capital providers are prepared to provide by way of equity funds) is less than the domestic demand for capital (what domestic businesses need in terms of capital). On that basis, domestic listed entities need to attract overseas investors. Therefore, it is likely that the valuation of imputation by the marginal investor that establishes share prices is by an international investor that cannot utilise these imputation credits and therefore attaches no value to them. This does not mean that dividend imputation has no value to domestic shareholders – that is demonstrably incorrect. However, it does mean that the marginal investor determines the share price at which the relevant market clears and hence the value the market attributes to imputation. It also means that domestic shareholders, who would have been prepared to pay a higher amount for those shares (reflecting their personal valuation of imputation credits), enjoy some consumer surplus

[65] N Hathaway and R Officer, *The Value of Imputation Tax Credits, Update 2004*, November 2004.
[66] D Beggs and C L Skeels, *Market Arbitrage of Cash Dividends and Franking Credits*, The Economic Record, 82(258), September 2006.
[67] Cited in ACCC, *Assessment of Telstra's Unconditioned Local Loop Service Band 2 Monthly Charge Undertaking, Draft Decision, Public Version*, November 2008.

(i.e. have a higher personal valuation than that implied by the market clearing price). Similar consumer surplus is a component of most markets.

149 The Commission dismissed the marginal investor approach to valuing the imputation factor arguing that the "assumption under the CAPM is that all investors (in aggregate) determine the value of assets and imputation credits in the market. As such, no one investor or investor group is the marginal investor and the equilibrium value of imputation credits is determined via a weighted average of all investors in the relevant market."[68] Telstra accepts that an underpinning assumption of the CAPM is that all investors are price takers. Telstra takes this to mean that all investors will essentially pay the market clearing price despite their perhaps different perspectives on "fair" value and an appropriate price; and hence some investors will accrue consumer surplus (ie have a valuation higher than the market clearing price). Such consumer surplus occurs in most economic markets. This however does not preclude the possibility of an individual investor being the marginal investor.

150 The Commission claimed that franking credits have value to investors (including via off-market share buybacks) and that fact should be reflected in share prices supporting a value of gamma above zero. Telstra naturally accepts that franking credits have direct value to investors as it reduces their ultimate tax burden. However, in Telstra's view this is consistent with investor surplus analogous to the phenomenon of consumer surplus found in most effectively operating markets.

151 The critical issue is whether companies can afford to lower their dividends (or the total return to shareholders) as the positive valuation of franking credits would suggest. Companies with overseas domiciled marginal investors would find it difficult to reduce dividends (or total return to shareholders) without encountering a decline in their share price as the overseas investors do not gain value from imputation and hence imputation effects would not be capitalised into share prices. Thus evidence that domestic shareholders attribute value to imputations credits is not inconsistent with gamma equal to zero (not capitalised into share price because marginal investor does not value).

152 The Commission's preferred value of imputation implies that a significant upwards re-valuation of equities should have been likely around the time of the introduction of imputation at 1 July 1987. That is, that the reduction in return requirements (dividend and capital gains) as a part of the overall unchanged total return going forward (thereafter dividend, capital gain and imputation) would come from a reduction in investor tax (direct effect of imputation) should have significantly enhanced the attractiveness of equity investment for Australian investors. However, a study by Ickiewicz[69] found the somewhat surprising result that the introduction of dividend imputation in July 1987 had no discernible upwards effect on Australian share prices. Notably this was after controlling for movements in a number of other factors that normally influence share prices (such as movements in the US market, exchange rates, interest rates, commodity prices etc). The implication is that, at that time, investors did not value imputation despite the extensive public awareness campaign prior to and around its introduction. The AER does not accept that this analysis informs on the contemporary forward-looking view on imputation under the current (ie post July 2000) regime (after which imputation credits could generate negative tax liabilities)[70]. However, in Telstra's view it would be surprising if investors did not value imputation at that time (when the initial imputation regime was introduced) given the significant once-

[68] ACCC, *Assessment of Telstra's ULLS Band 2 Monthly Charge Undertaking: Final Decision*, April 2009, p 241.
[69] Cited in AER, *Final Decision, Electricity Transmission and Distribution Network Service Providers, Review of the Weighted Average Cost of Capital (WACC) Parameters*, May 2009, p 446.
[70] AER, *Final Decision, Electricity Transmission and Distribution Network Service Providers, Review of the Weighted Average Cost of Capital (WACC) Parameters*, May 2009, p 446.

off step-improvement in the attractiveness of equity investment, but subsequently suddenly realised the value of imputation.

153 The central finding of the Ickiewicz analysis (that the introduction of imputation did not impact share prices) is replicated around the time of the introduction of the Rebate Provision on July 2000. This provision allowed investors to generate a credit tax position based solely on imputation (previously imputation could only reduce a tax liability to $0, but could not generate a credit assessment) and, all other things being equal, could have had some positive valuation effect on share prices reflecting the heightened return now possible given the reduction in investor tax burden. In this context Ickiewicz again found no evidence of an imputation effect on share prices around July 2000[71].

154 The Commission rejected the views above and appeared to attribute low weighting to other relevant studies, instead focussing on two particular studies of θ to delineate a range of estimates for gamma. As noted above, the Commission relied on a study by Beggs and Skeels (applying dividend drop-off to estimate θ) and on a study by Handley and Maheswaran (relying taxation data to estimate θ).

155 Synergies Economic Consulting outline a number of concerns with the Beggs and Skeels methodology which raise some doubts about the reliability of the estimates and specifically whether the Commission should rely significantly on this particular study[72]. Synergies identified a high degree of multi-collinearity in that the Beggs and Skeels model included both dividends and the franking credit attached with the dividend as explanatory variables. Given the strong inter-relationship between dividends and franking credits (value of franking credit depends critically on dividend) these variables are not independent and hence caution is required in the interpretation of their results. There are also concerns about the interpretation of the Beggs and Skeels analysis in that the high estimates of θ are conditional on estimates that a dollar of cash dividend is valued at less than a dollar. SFG highlight an inconsistency with this finding relative to using the CAPM to estimate the cost of equity being conditional on a particular value of cash dividends ($1 value for $1 cash dividend)[73]. SFG also raise doubts about the implausibility of various aspects of the Beggs and Skeels findings notably that over a particular period (1 July 1999 to 30 June 2000 which they annotate as regime 6 meaning it had a constant tax regime over that period) they estimate the market value of one dollar of cash dividend to be $1.18[74].

156 NERA have outlined a number of concerns with the analysis of Handley and Maheswaran focussed on the usefulness of taxation statistics for the purpose of valuing θ[75]. According to the Monkhouse approach, θ is the value to investors of imputation credits redeemed. Taxation data only provides useful insight into the extent of imputation credits redeemed – not their value to investors - and the (taxation) redemption rate and market value are different concepts. Redemption rates based on Australian taxation data will arguably over-estimate θ because they rely disproportionately on data concerning domestic taxpayers and exclude overseas investors and domestic non-taxpayers. NERA argue that the weights attached to individual investors when estimating θ should be based on their wealth rather than their asset holdings. In NERA's view the simple weights distort θ higher – "If a wealth-weighted average were constructed rather than a simple average,

[71] Again as reported by JIA , N*etwork Industry Submission, AER Proposed Determination, Review of the Weighted Average Cost of Capital (WACC) Parameters for Electricity Ttransmission and Distributio*n, February 2009, page 154.
[72] Synergies Economic Consulting, *Peer Review of SFG Consulting Reports on Gamma*, p 33-34.
[73] SFG, *The Consistency of Estimates of the Value of Cash Dividends,* 1 February 2009.
[74] SFG, *The Value of Imputation Credits as Implied by the Methodology of Beggs and Skeels (2006),* 1 February 2009, p 3.
[75] NERA, *AER's Proposed WACC Statement – Gamma*, 30 January 2009.

the resulting estimate would be much lower because the wealth of foreign investors is substantially greater than that of domestic investors."[76] NERA also believe that redemption rates do not take into account the costs to investors of structuring portfolios to access imputation credits. NERA consider that the costs of lost diversification (Australian investors will likely hold a portfolio more weighted towards high yielding/high franking domestic equities than if more internationally diversified) needs to be factored into a quantification of θ if taxation redemption rates are to be useful. Without these corrections the estimates of Handley and Maheswaran will over-estimate the true value of θ and therefore cannot be used as a reliable indicator of the ceiling value for θ as the Commission has.

157 Telstra suggests that there are other empirical estimates of θ which could be used to inform on its appropriate value for defining gamma. Especially given the concerns raised about the robustness of the two studies over-weighted by the Commission in their deliberations. These other studies include:

1 A study by Cannavan, Finn & Gray[77] based on simultaneous security prices including derivatives covering a period from 1994 to 1999 which estimated θ at 0.00 post the 45 day rule (albeit 0.50 pre the 45 day rule).[78]

2 A study by SFG which firstly largely replicated the results of Beggs and Skeels (SFG estimate θ at 0.526 compared with Beggs and Skeels estimate of 0.572); then extended the period covered to include data up to September 2006 (reduced the estimate of θ to 0.37); and then removing outliers and a small number of unduly influential observations from the data set reduces the estimated value of θ to between 0.19 (same period as Beggs and Skeels covered) and 0.24 (over the extended period). [79]

3 A study by Hathaway and Officer which applied a dividend drop-off methodology to estimate θ at 0.5 covering the period from 1986 to 2004 and 0.6 covering the period from 2000 to 2004 (ie the period after the rebate provision)[80]. The Commission do not rely on these estimates of θ despite relying in part on the Hathaway & Officer estimates of F (the payout ratio component of gamma) from the same paper.

4 A study by the Allen Consulting Group (ACG) for the Essential Services Commission of South Australia (ESCOSA) from 2006 which has not apparently been made public[81]. The ACG dividend drop-off study was reported in the JIA submission to the AER[82]. This ACG study found that the value of θ was insignificantly different to zero in all but one year since 1997.

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[76] NERA, *AER's Proposed WACC Statement – Gamma*, 30 January 2009.
[77] Cited in AER, *Final Decision, Electricity Transmission and Distribution Network Service Providers, Review of the Weighted Average Cost of Capital (WACC) Parameters*, May 2009, p 446 onwards.
[78] Note the 45 day rule requires investors to hold the share for 45 days to enable use of any imputation credits attached with dividends.
[79] SFG, *The Value of Imputation Credits as Implied by the Methodology of Beggs and Skeels (2006)*, 1 February 2009.
[80] N Hathaway and R Officer, *The Value of Imputation Tax Credits – Update*, Capital Research Pty Ltd, November 2004, p 13, 24.
[81] Allen Consulting Group, *Preliminary Response to SFG Report on the Value of Distributed Imputation Credits, Report to ESCOSA*, 14 September 2006.
[82] JIA, *Network Industry Submission, AER Proposed Determination, Review of the Weighted Average Cost of Capital (WACC) Parameters for Electricity Transmission and Distribution*, February 2009, p146.

158 Telstra considers that, at the very least, this broader range of estimates of θ should have been more explicitly considered by the Commission given the concerns about the estimates they have relied on to determine a range, from which an average has been applied to determine gamma (given only one potential estimate of F appears to have been applied).

159 Telstra also considers that the practice of valuation experts (ie those that provide independent expert valuation advice) and corporate practice is relevant in understanding how imputation is dealt with in situations that have market relevance (ie potentially influence market valuations).

160 A comprehensive survey (356 corporates) of major non-finance corporates (all listed on the All ordinaries index) undertaken by Truong, Partington and Peat found a strong tendency to ignore the impact of imputation when undertaking internal evaluations in the context of capital budgeting. [83] On the question of whether any adjustment was made (to the discount rate, cashflow or any other adjustment) to reflect imputation 83% responded that they made no adjustment to any of the components of their valuation; 13% included an imputation factor of 0.5 or less; and 4% applied an imputation factor above 0.5. Reflecting these findings Truong et al conclude that "in general the companies have ignored the impact of imputation tax credits in the capital budgeting process."[84]

161 Various surveys of the treatment of imputation by independent experts in real-life valuation contexts (often prepared in the context of mergers, acquisitions and take-overs) consistently reveal that imputation is not generally relevant. Lonergan analysed 122 independent expert reports and found that only 6 made any adjustment to reflect the value of imputation.[85] KPMG essentially updated the Lonergan analysis examining 118 independent expert reports on takeovers occurring between 1 January 2000 and 30 June 2005[86]. They found that none of these independent expert reports made any adjustment (to discount rate, cashflow or elsewhere) to incorporate the value to investors of imputation.

162 Both the treatment of imputation within major corporates and by independent valuation experts occur in real, commercial situations. If a component of value was consistently ignored in these contexts there would be negative consequences – either corporates would undertake value destroying projects or not undertake value enhancing projects and there would be implications around the commercial worth of the independent advice. Over time, this would be remedied. Therefore, the fact that corporates and independent experts continue to ignore imputation and no-one has raised serious concerns with this suggests that no negative implications result from this. By extension this implies that the market must value imputation in line with the corporates and the independent experts.

163 Telstra does not rely extensively on the evidence that market practice of both corporates and valuation experts does not reflect imputation effects in their analyses. However, where regulatory outcomes (applying a recommended gamma of 0.5) are clearly inconsistent with pervasive market practice (gamma implicitly valued at 0.0) there needs to be a clear rationale for such divergence.

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[83] G Truong, G Partington and M Paet, *Cost of Capital Estimation & Capital Budgeting Practice in Australia*, Australian Journal of Management, June 2008, 33 (1), p 95-121.
[84] G Truong, G Partington and M Paet, *Cost of Capital Estimation & Capital Budgeting Practice in Australia*, Australian Journal of Management, June 2008, 33 (1), p 12-13.
[85] W Lonergan, *The Disappearing Returns: Why Imputation Has Not Reduced the Cost of Capital,* JASSA, Autumn 1, p 1-17.
[86] KPMG, *The Victorian Electricity Distribution Businesses Cost of Capital – Market Practice in Relation to Imputation Credits Victorian Electricity Distribution Price Review 2006-10*, August 2005.

B.9.3 Determining the market-based valuation of imputation credits

164 Alternatively, Telstra submits that 0.355 is a reasonable estimate of the market based valuation of imputation credits.

165 Telstra's estimate is based on the seminal work of Hathaway and Officer which found the imputation credit factor to be 0.355.[87] This figure was made up of two values: a distribution rate of 0.71 and an estimate of the market valuation of franking credits of 0.5 (note that the imputation credit factor is calculated by the product of utilisation rate (market value of the franking credits paid out) and payout ratio (the proportion of franking credits paid out)).[88]

166 The Commission has stated that the payout ratio should be one or close to one. However, there is no evidence that this is the case (cf study by widely accepted study by Hathaway and Officer above). The Commission has simply made an assumption which ignores a number of legal (eg restrictions on dividend streaming) and commercial (foreign investors, investor preferences for capital gains over dividends, the need to re-invest capital) restraints facing firms seeking to distribute credits.

167 The Commission has stated that it gave no weight to the Hathaway and Officer study because it included pre-2000 data, and accordingly did not accurately reflect the prevailing taxation environment.[89] Telstra submitted in the ACT proceedings that, in any event, Hathaway and Officer's results are consistent with studies endorsed by the Commission in the Final Decision.

168 The Commission gave "significant weight" to a study by Beggs & Skeels that suggested that the market based valuation of imputation credits over the period 2000-2004 was 0.572.[90] This figure should be interpreted with caution given the significant standard error accompanying the result. Assuming this value to be indicative of the market based value of imputation credits, it must be multiplied by the distribution rate to derive the imputation credit factor. Taking the distribution rate to be 0.71, the Beggs and Skeels study implies an imputation credit factor of 0.41. This figure is far closer to Telstra's estimate than the value suggested by the Commission.

169 It is important to consider that the task is to determine the market based valuation of dividends. The Commission also relied upon a study by Handley and Maheswaran which examined the rate at which franking credits are redeemed from the Australian Tax Office. This study found that the average redemption rate was 0.81 over the period 2001-2004.[91] However, at best this study can only provide a theoretical ceiling (assuming franking credits were fully valued) as to the value of imputation credits. The reality is that franking credits will be less than fully valued for a range of reasons including because foreign investors cannot use them and investors will have different preferences for capital gains rather than income. As redemption rates provide no insight into the market based valuation of imputation credits, little weight should be placed on the results of the study by Handley and Maheswaran.

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[87] N Hathaway and R Officer, *The value of imputation tax credits, Update 2004,* 2 November 2004.
[88] ACCC, *Assessment of Telstra's ULLS Band 2 Monthly Charge Undertaking: Final Decision*, April 2009, p 236.
[89] ACCC, *Assessment of Telstra's ULLS Band 2 Monthly Charge Undertaking: Final Decision*, April 2009, p 239.
[90] ACCC, *Assessment of Telstra's ULLS Band 2 Monthly Charge Undertaking: Final Decision*, April 2009, p 240.
[91] Cited in ACCC, *Assessment of Telstra's Unconditioned Local Loop Service Band 2 Monthly Charge Undertaking, Draft Decision, Public Version*, November 2008.

B.10 Equity Issuance Costs

170 In the Annual Charges Consultation Paper, the Commission does not factor in equity issuance costs. This is inappropriate and the Commission should include the equity issuance cost in its calculation of WACC.

171 Similar to debt, a company will incur significant costs to raise equity finance. These costs relate to the preparation of financial information and documentation required for an equity issue and for underwriter fees. A new entrant would incur these costs and under a TSLRIC framework they are legitimately incurred expenses that need to be recouped through some mechanism, either via explicit recognition in the cost of equity component of WACC or as a cash flow expense in both cases reflecting the annualised extent of these predominantly once-off costs.

172 In Telstra's view the legitimate costs involved with equity issuance should be estimated, converted to an annualised rate of return and included in the cost of equity capital. This mimics the approach recommended for debt issuance costs (which Telstra recommends should be incorporated into the cost of debt).

173 In its Final Decision on GasNet the Commission[92] decided to include an allowance for equity issuance costs but as a cost cash flow. If appropriately quantified Telstra is indifferent between recovering these costs as a specific cash flow or as a margin on the WACC, so long as they are recovered.

174 Telstra has previously relied on the analysis detailed in a widely cited paper on issuance costs which presents empirical analysis that shows that the cost of raising equity reflects scale economies (similar to the situation for debt raising).[93] Based on this study (see table 2 of the cited report) and given the approximate value of the CAN-related assets and the equity gearing recommended the amount of equity relevant for the CAN-related assets suggests that the once off costs would amount to either 5.72% (assuming an initial public offering) or 3.25% (assuming a secondary equity offering) of the amount of equity raised. These costs associated with equity raising are essentially once-off costs that need to be annualised over some span of years.

175 More recent information on the costs associated with raising equity capital specifically in the context of Telstra were revealed by the Auditor-General's examination of the costs involved in the disposal of the Commonwealth Government's three partial privatisations of Telstra.[94] The Auditor-General found equity issuance costs representing 1.9% of gross proceeds in the first tranche sale around November 1997; 1.1% of gross proceeds in the second tranche sale around October 1999; and 1.3% of gross proceeds in the third and final tranche sale around November 2006. These estimates likely reflect a more contemporary, Australian-specific estimate of the costs involved in equity issuance. However, given they relate to consecutive partial privatisations in a continuing context they likely understate the costs likely incurred by a stand-alone CAN-provider in a single equity issuance effort. As such they are likely useful in delineating the low-end of the reasonable spectrum of these costs. Nevertheless, Telstra considers that there should be a strong preference to utilise real-world, Telstra-specific data where possible and sensibly practical. In this case Telstra recommends the adoption of the Auditor-General's estimate of the likely costs involved in equity issuance as its point estimate.

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[92] ACCC, *Final Decision GasNet Australia Access Arrangement Revisions for the Principal Transmission System*, November 2002.
[93] I Lee, S Lochhead, J Ritter and Q Zhao, *The Costs of Raising Capital*, Journal of Financial Research, Spring 1996, p 59 – 74, table 2.
[94] Auditor-General, *Third Tranche Sale of Telstra Shares, Audit Report No. 43, 2007-08 Performance Audit*, June 2008.

176 There is debate around whether equity issuance costs should be annualised over the useful life of the relevant assets or into perpetuity. Telstra recognises that equity may well be perpetual but the ability to fund these costs will depend on cash flows generated by the assets and will disappear once the assets are no longer useful. On this basis Telstra advocates annualisation over a forward period matching to some extent the useful life of the assets for which the equity funds were raised (i.e. matched to the useful life of the CAN-related assets in this context). If this were not the case and equity issuance costs were annualised into perpetuity there would be a period beyond the useful life of the relevant assets in which there were no assets available to fund the issuance costs. Either that or the funding would need to be sourced from alternate assets thus distorting their price. Therefore Telstra annualises these costs over a period of 35 years based on the expected useful life of the CAN-related assets. After annualisation (over 35 years) this implies an add-on to the cost of equity of around 11 basis points (compared with the previously recommended value of between 27 and 47 basis points).

C TELSTRA'S PROPOSED WACC

177 The table below summarises Telstra's recommended point estimates of the WACC as at 30 June 2009.

Table 1: Telstra's proposed WACC parameters and WACC

Nominal Risk Free Interest Rate (Rf)	5.610%
Debt Risk Premium	3.36%
Debt Issuance Costs Annualised	0.15%
Cost of Debt	9.12%
Market Risk Premium	7.5%
Statutory Corporate Tax Rate	30%
Value of Imputation Credits (G)	0%
Debt Funding Proportion (D/V)	30%
Equity Proportion (E/V)	70%
Debt Beta (Bd)	0.00
Asset Beta (Ba)	0.725
Equity Beta (Be)	1.028
Equity Issuance Cost Annualised	0.11%
Nominal Post Tax Cost of Equity (Re)	13.43%
Plain Vanilla WACC = Re(E/V) + Rd(D/V)	12.14%
Pre-Tax Nominal WACC (Imputation Adjusted)	16.17%