

Appendix E

Value of Imputation Credits

- 1 Australia has a dividend imputation system of taxation rather than what is referred to as a “classical tax system”. Under a classical tax system a corporation pays tax on its profits. Then when it distributes profits to its shareholders, the resultant income to the shareholder is taxed a second time in the hands of the investor at his or her marginal tax rate. The intention of the dividend imputation system is to avoid this double taxation of corporate profits, at least for investors that are Australian resident taxpayers. The imputation system provides a credit for income tax paid at the corporate level, which can be passed to investors with dividends paid by the corporation. With the dividend imputation system corporate tax can be thought of as a withholding tax against tax at the individual level.
- 2 Dividends that are paid out of after-corporate-tax profits can be accompanied with a “franking” credit to the extent of the corporate tax paid. The franking credits can then be used as credits against the tax liability of the recipients at their relevant tax rates. So the income of the corporation is ultimately taxed at the tax rate of the investors who receive the dividends.
- 3 In WACC, quantification of the value of franking credits is represented by the parameter gamma (γ). If the franking credit does not have value to the investor that receives it, gamma is equal to zero. If the franking credit can be fully utilised as a credit against the investor’s tax liability, as in the example above, then the value of gamma is 1 (i.e., 100%). The value will be determined at the level of the investors that receive the credits and thus will be influenced by the tax circumstances of those investors. As the tax circumstances will differ across investors, the result will be a value of the franking credit between nil and full value.
- 4 The early literature on estimating the value of gamma generally found a value of about 0.5 when taking into consideration the fact that not all imputation credits generated were distributed.¹ Rather than focusing the plausible values on a smaller range, more recent research has tended to widen the range and uncertainty about the value of gamma. While one study will support a value of up to one, another will support a value of zero.² In the face of this ambiguity, the ACCC has continued with its gamma value of 0.50.

¹ For example, see N. Hathaway and R. Officer, “The Value of Imputation Credits,” manuscript, University of Melbourne, 1992.

² See S. Walker and G. Partington, “The Value of Dividends: Evidence from Cum-Dividend Trading in the Ex-Dividend Period,” *Accounting and Finance*, November 1999, pp 275-296, in support of a gamma near one and D. Cannavan, F. Finn and S. Gray, “The Value of Dividend Imputation Tax Credits in Australia,” *Journal of Financial Economics*, 2004, v 73(1), pp 167-197, and W. Lonergan, “The Disappearing Returns,” *JASSA*, Autumn 2001, pp 8-17, for a gamma near zero.

Identity of the marginal investor³

- 5 The gamma used in the WACC is generally derived empirically as an average over all the companies used in the study. Further, discussions of the gamma often focus on ownership of a company's shares. Nevertheless, it is the *marginal* rather than *average* value of gamma that is likely to be more appropriate for setting a forward-looking value consistent with the aims of the CAPM. This is because share prices are set by price setting (marginal) investors.
- 6 This set of investors may have little relationship to the shareholder mix of a company at a point in time. In light of the extent of foreign ownership of Australian companies and the relative size of the Australian market in global terms, for most publicly listed Australian companies, the marginal investor is likely to be an international investor.
- 7 Foreign shareholders owned 29% of the total equity on issue by Australian enterprise groups and 34% of corporate trading enterprises as of 30 June 2002.⁴ Non-resident investors own around 37.5% of the value of the Australian Stock Exchange, the largest single shareholder group by far.⁵
- 8 Foreign investors clearly exert substantial influence on Australian stock market prices.⁶ Indeed, once it is recognised that Australia is a net importer of capital and that Australian equities only represent approximately 1% of the global market, two conclusions follow:
- the levels of foreign ownership in Australian equity markets are significant and this can affect imputation assumptions since a foreign shareholder will at best experience considerable difficulty accessing imputation credits;⁷ and
 - international ownership levels are well below those assumed in fully integrated world sharemarkets.

³ See R. Bowman, C. Cliffe and F. Navissi ("Implications of Dividend Imputation for Equity Pricing in New Zealand," *New Zealand Economic Papers*, December 1992, pp 249-259) for a thorough discussion of the impact of a dividend imputation system on equity pricing and the role of the marginal investor.

⁴ Australian Bureau of Statistics, "Yearbook Australia 2003: International Accounts and Trade, Foreign Ownership in Australia," available at the website <http://www.abs.gov.au/Ausstats/abs@.nsf/Lookup/8A1FC4E7A3C2ECC8CA256CAE0016F277>.

⁵ Information provided by Australian Stock Exchange. Figures for 19 September 2001.

⁶ Recent research in New Zealand by C. Cliffe ("Ex-Dividend Day Pricing in the New Zealand Equity Market," PhD dissertation, 2002) investigates a number of issues including the identity of the marginal investors for listed New Zealand companies since the introduction of dividend imputation in 1988. The extent of foreign ownership in New Zealand is comparable to that in Australia. The dividend imputation system has changed over 14 years from one that did not permit streaming of imputation benefits to foreign shareholders to the point where foreign investors currently receive that benefit. Throughout this period, the marginal investors appear to have been non-resident investors.

⁷ In addition, recent tax changes require an investor to hold a stock for 45-days to be eligible for the franking credits. This effectively eliminated arbitraging and dividend stripping, resulting in the end of the secondary market for the credits and eroding the value of franking credits for both domestic and foreign investors. Accordingly, the only way that foreign investors could secure any benefit from imputation credits would be through practices of dubious legality – to the extent that such "black market" activities exist (by their nature they are not well known) they are likely to be accompanied by very high risk and transactions costs, which would seriously discount any such benefit derived.

- 9 Taken together, this suggests that an international investor, who cannot secure the benefit of imputation credits, sets the price for Australian securities. This is the case irrespective of the benefit that Australian investors can secure from imputation credits. The fact that Australians hold the bulk of securities is irrelevant here on account of the significance of international investment (all but the 1% of global investment attributed to Australia) and the impact it thereby exerts (evidenced by the material presence already in the Australian market) in price setting. These factors suggest that gamma may be near zero.⁸
- 10 Evidence that companies with substantial foreign ownership have a gamma of zero is not dissimilar to the outcome found in all competitive markets. For example, in any market, consumers pay for a product at the margin, irrespective of *their* valuation of the product. The difference between a consumer's valuation of a product (as determined by the demand curve) and the market price for the product (at the margin) is the well-known concept of consumer surplus.
- 11 This is precisely the outcome that is relevant in the context of the valuation of imputation credits. Whilst Australian taxpayers may gain the benefit of imputation, in the global market these benefits are simply not relevant to the valuation of Australian public companies. At the margin, the shareholders who set the price do not place a value on imputation credits. Australian shareholders receive a windfall gain by way of the tax system.
- 12 And it is in this context that imputation credits need to be considered – imputation (and by implication taxation) is but one of a host of factors that drive investment decisions. Other factors include diversification, opportunity, growth, synergistic benefits, etc.
- 13 If the dividend imputation system provides Australian resident investors a windfall gain, then we might expect to observe little or no overseas investment by these investors. The higher returns to Australians that result from the windfall gains would make domestic investment significantly more attractive than overseas investment. There does seem to be such an effect. Although there is substantial Australian investment abroad,⁹ it is far less than one might expect to observe given the integration of world equity markets. Australia constitutes only about one percent of world markets, but far less than ninety-nine percent of equity investments are offshore. This is referred to as “home bias”, and an obvious contributor to the existence of substantial home bias in Australia is the windfall gain from the dividend imputation system.

Recent changes to taxation law

- 14 To the extent that Australian domestic conditions are relevant to the setting of gamma, I believe that it is too early to assess whether changes to capital gains tax and the full flow through of imputation credits has had any impact on the valuation of gamma for regulatory purposes.

⁸ This is consistent with the recent study by Cannavan, Finn and Gray cited above, which shows that for companies with substantial foreign ownership, the market value of tax credits is close to zero.

⁹ For example, total Australian overseas investment recently amounted to over \$375 billion, approximately one half of the capitalisation of the Australian Stock Exchange.

- 15 There is good reason to suggest there would be little or no change to the valuation of imputation credits based upon the impact of the tax changes on the marginal (that is, foreign) investor. The tax law change will only impact gamma to the extent that the impacted investors play a part in the determination of equilibrium security prices, that is, they are marginal investors. As stated above, it is not likely to be the case that Australian tax residents are the marginal investors because of the extent of foreign ownership in Australia and the extent of foreign investment by Australians as well as relevant research in other countries. Tax and imputation considerations are but one factor influencing valuation decisions.
- 16 Associate Professor Lally has suggested to the ACCC that the appropriate value for gamma should be one based on his view that the model used to assess imputation credits does not accommodate market segmentation.¹⁰ His argument begins with the proposition that the Officer model for the assessment of imputation assumes a segmented market. Therefore, he asserts that the application of an international capital asset pricing model market has been rejected. He continues to reason that since markets are assumed segmented by the choice of models for estimating WACC, all analysis must be constrained to assuming that the marginal shareholder is an Australian taxpayer.
- 17 I reject his analysis.
- 18 In spite of any theories, it is an objective fact that the Australian sharemarket and the pricing of Australian securities occur in an international market. The Australian markets are not segmented. Theoretical assumptions cannot sweep this fact aside.
- 19 In my opinion, the appropriate approach to these issues is as follows:
- to ignore foreign investors is to ignore the realities of the Australian market environment so one must accept that investors operate in an integrated (i.e., not segmented) market;
 - this suggests that a version of the ICAPM should be used. However, current versions of the ICAPM do not provide an appropriate basis for the estimation of the cost of capital for regulatory purposes and are unlikely to do so for the foreseeable future.¹¹ Therefore, the Officer model is the best available proxy for the ICAPM. Use of the Officer model does not require that segmented markets are assumed; and
 - consistent with the assumption that investors operate in integrated markets, and consistent with the facts regarding the activities of foreign investors in the price setting process in Australia, the view of integrated markets should extend to the valuation of dividend imputation credits.

¹⁰ Lally, M., (2002), "The cost of capital under dividend imputation," a report prepared for the Australian Competition and Consumer Commission.

¹¹ For further analysis on this point see EnergyAustralia's submission to IPART's Discussion Paper DP56.

- 20 In a forum, Professor Officer (whose model was applied by Associate Professor Lally) suggested that there was no case to move away from current gamma settings at this time.¹²

Recommendation

- 21 An estimate of 0.50 or less for gamma is well established in Australian regulatory decision-making. However, a value of zero is consistent with recent empirical evidence and with the marginal shareholder being an international investor. In my opinion, evidence is accumulating in support of valuing gamma at (near) zero.
- 22 However, there is considerable uncertainty associated with the value of gamma. Therefore, considering all the evidence, I believe a gamma of 0.50 is still an acceptable position for the value of imputation credits for the three fiscal years in question.

¹² Key WACC Issues in the Regulation of Electricity and Gas, Transmission, an open forum sponsored by SPI PowerNet, ElectraNet SA and GasNet, Monday 24 June 2002.