FUNDING AUSTRALIA’S FUTURE

DIVIDEND IMPUTATION AND THE AUSTRALIAN FINANCIAL SYSTEM: WHAT HAVE BEEN THE CONSEQUENCES?

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Funding Australia’s Future

The Australian Centre for Financial Studies (ACFS) instigated the Funding Australia’s Future project in 2012 to undertake a stocktake of the Australian financial system and analyse its role in facilitating economic growth within the wider economy.

In an economy which has enjoyed 24 years of consecutive economic growth and shown a resilience through the Global Financial Crisis (GFC) which was the envy of many nations, the financial sector has played a strong and pivotal role. The past decade, however, has been one of significant change. The growth of the superannuation sector, the impact of the GFC, and the subsequent wave of global re-regulation have had a profound effect on patterns of financing, financial sector structure, and attitudes towards financial sector regulation. Identifying the extent to which these changes are transitory or likely to be more permanent is crucial to understanding how financing patterns and the financial sector will develop over the next decade or so.

Stage Three of Funding Australia’s Future explores three specific challenges to the financial sector highlighted by the Financial System Inquiry, Tax System Review and Intergenerational Report. While diverse, each of these topics has a bearing on the future of the financial system and its role serving the economy.

In undertaking this analysis, ACFS has worked with a group of financial sector stakeholders comprising Accenture, the Association of Superannuation Funds of Australia, Challenger Limited, IBM, Industry Super Australia, National Australia Bank, Self managed Super Fund Association and Vanguard Investments, as well as the Treasury.

This paper is one of three in Stage Three, which include:

1. Dividend imputation and the Australian financial system: What have been the consequences?
   Professor Kevin Davis, University of Melbourne and Australian Centre for Financial Studies

2. Big and better data, innovation and the financial sector
   Dr Ian Oppermann, CSIRO

3. Financial issues in retirement
   Professor Deborah Ralston, Monash University

All Funding Australia’s Future papers can be accessed through the Funding Australia’s Future website: www.fundingaustraliasfuture.com
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Executive summary

Dividend imputation was introduced in Australia in 1987. Despite many theoretical and empirical studies, there is little consensus on its effects on the cost of equity capital, share prices, or investment – due primarily to different views on the consequences of international integration on equity pricing. In contrast, there appears to be general agreement on the effects on corporate leverage and dividend policy, and asset allocation strategies of investors, even though many of these effects hinge upon how international integration affects the cost of equity capital. The objective of this paper is to outline these effects, drawing on and critically reviewing the existing literature to assess what conclusions can be drawn, and causes of disagreement, on imputation’s effects on the Australian Financial System.

It is concluded that imputation has provided significant benefits to the Australian economy through effects on corporate behaviour, particularly through inducing lower leverage and higher dividend payout rates, with positive implications for financial stability and market discipline of companies. Whether it has stimulated domestic physical investment is unclear – this depends upon what counterfactual tax system and rates are assumed and upon whether international integration has prevented any reduction in the cost of equity capital to Australian companies. It has had positive effects on the growth rate of the Australian equity market, relative to debt markets – reflecting both supply and demand influences. It only involves discriminatory favourable tax treatment of domestic equity investments relative to fixed interest investments (including bank deposits) if it is the case that international integration prevents any effect on the cost of equity for Australian firms. (Otherwise, an alternative classical tax system would lead to higher cash returns on equities). Shifting to a classical tax system with a company tax rate which generated equivalent government tax revenue would be likely to have distributional consequences which can be argued to be adverse to low tax-rate investors, and could have significant one-off stock price effects with consequences for capital gains and losses for investors.

Because of imputation, Australia’s overall (company plus investor) tax rate on company income distributed as dividends, is lower than that in many other Organisation for Economic Co-operation and Development (OECD) countries, despite an apparently high corporate tax rate.1

On balance, the case for shifting away from an imputation system is not strong, given the beneficial effects it has on corporate financial policies.

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1 Australia is 9th highest when the top marginal personal tax rate is used in the calculation, but would, because of the effect of tax credits, have a significantly lower ranking if the average marginal tax rate of shareholders were used in the calculation.
1. Introduction

The objective of this paper is to assess the way in which the dividend imputation tax system introduced in 1987 has affected patterns of finance and the development of Australian financial markets. That, of course, raises the difficult question of what counter-factual situation to assume, and the assumption made here is that a ‘classical’ style of tax system would have continued to operate.\(^2\) Also relevant, however, is the fact that taxation of capital gains was introduced at around the same time (1985) and this (and subsequent modification to its structure) is also relevant to subsequent financial sector developments.

While the primary focus of this paper is upon dividend imputation’s implications for financial sector structure and activities, these are heavily dependent upon the consequences of imputation for the cost of capital for Australian companies – a topic on which there is substantial debate and disagreement. Consequently, after a brief overview of the history of, and motives for, dividend imputation, the cost of capital issues are reviewed before turning to an analysis of how imputation has affected users of, and the development of, Australian financial markets.

Fundamental to the analysis of this paper is the differential tax treatment of domestic and foreign investors in domestic equities which occurs under the dividend imputation tax system – because of the inability of foreign investors to use franking (tax) credits. That difference can be ‘framed’ or described in two different ways. One description is that imputation involves a subsidy to domestic investors in domestic equities (because foreign investors, unable to use tax credits, remain effectively subject to a classical tax treatment). The alternative description is that imputation removes the distortionary tax on use of a company structure which occurs under a classical tax system’s ‘double taxation’ of dividends, but that this is only to the benefit of Australian companies and investors. Both descriptions are equivalent, and while the term ‘subsidy’ will be used in this paper, it should be remember that it is actually a removal of a distortionary tax which is only to the benefit of domestic investors.

The approach adopted in the paper is to develop a wide range of hypotheses or predictions about imputation’s effects and indicate what alternative views about the relative roles of international and domestic investors imply for those hypotheses. Where available, relevant evidence is presented but, given the generally inconclusive nature of the evidence, the reader is invited to draw their own conclusions on a number of issues – or preferably to undertake the research needed to properly test those hypotheses.

Overall, the conclusion drawn by this author is that imputation provides significant benefits to the Australian economy and financial system by reducing the distortions otherwise created by company tax. Replacing imputation with some variant of the classical tax system would reduce those benefits and involve potentially significant disruption to financial markets and equity prices (through effects on domestic and investor demand). Reducing the company tax rate within the imputation system would appear likely to provide most benefit to foreign investors and foreign companies operating in

\(^2\) An alternative counterfactual could be the case of no corporate tax but (a) that is of limited practical relevance, and (b) imputation under the assumption of full payout of corporate earnings to shareholders who can all use the tax credits is essentially equivalent to no corporate tax. Many of the interesting, unresolved, issues discussed subsequently stem from the violation of some feature of this assumption.
Dividend imputation and the Australian financial system

Australia, at some cost to government tax revenue. Such action would need to be premised on a careful analysis of the benefits to Australian residents from increased foreign investment, rather than on an incorrect perception that Australia’s overall tax rate on company income (taking into account the offsetting effect of imputation) is too high by global standards.

Imputation does, however, in a global setting appear to reduce the incentive for Australian companies to expand offshore rather than domestically (because dividends sourced from foreign income are subject to ‘double taxation’ of foreign company tax and Australian tax on the resulting dividends paid to shareholders). Even if, as per one extreme position (which assumes international investors create one global market for equity), there is no difference in the cost of equity capital for domestic versus offshore expansion, Australian managers may prefer domestic expansion because of the lower overall tax on earnings distributed to their Australian shareholders. Possible tax disincentives to offshore expansion warrant further investigation (but ideally in the context of a broader review of factors relevant to such decisions).

2. History and motivation

The imputation system for taxation of dividend income of company shareholders was introduced into Australia in July 1987 following a Tax Summit and Treasury White Paper and discussion in the Campbell Inquiry. At the time, integration of the personal and corporate tax systems, such as achieved by imputation, was a popular concept internationally – with a significant number of countries having some type of imputation system. Since then, imputation has fallen out of favour internationally with many countries finding other ways to reduce the ‘double taxation’ of dividends which occurs under a ‘classical’ tax system and which imputation sought to prevent. Alternative approaches include concessional personal tax rates on dividend income or lower company tax rates on distributed profits (relative to retained profits). Australia and New Zealand are now alone among OECD economies in having this form of integrated tax system, and the Henry Tax Review recommended a longer term shift to an alternative system for Australia (Henry 2009).

One consequence of imputation (and other approaches aimed at reducing ‘double taxation’) is to reduce the overall (personal plus company) tax rate on company income distributed as dividends. Table 1 shows that, among OECD countries, Australia currently has the 9th highest overall tax rate – when calculated using the top marginal personal tax rate. New Zealand, not shown, is 30th with a rate of 33 per cent (table 1). That ranking partly reflects the high top marginal personal tax rate on

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3 Domestic investors would receive higher cash dividends and lower franking credits, with their after tax returns unaffected if companies responded by increasing dividends by an amount equal to the reduction in company tax paid.

4 The Campbell Inquiry pointed to classical tax systems involving distortions of flows of funds (including retarding growth of new equity markets), higher corporate leverage, and distributional inequities (which, in part reflected the effect of low dividend payout ratios in a situation in which there was (then) no capital gains tax. The Inquiry did not, however, recommend dividend imputation, but instead preferred a gradual transition to ‘full integration’ whereby shareholders would be imputed with their share of company income and receive corresponding tax credits, regardless of whether company income was distributed as dividends or retained (Campbell 1979).

5 Major subsequent changes are outlined in Appendix 1.

6 Ernst and Young (2002) provides an overview of that development.
dividends used in the calculation (Australia ranks third on that score), and does not reflect the extent to which equity investors are lower tax rate individuals or institutions (such as pension funds). Use of a lower investor tax rate for all countries (such as the 15 per cent applicable to Australian superannuation funds) would likely markedly reduce Australia’s relative overall tax rate because of the effect of the imputation system leading to refunds of company tax paid for such investors.

Although reliable estimates of the average marginal tax rate of equity investors in different countries are not readily available, the importance of low tax rate superannuation funds as investors suggests that Australia’s overall tax rate on company income is not high by international standards.

Table 1: OECD ranking of dividend tax rates (2015)

<table>
<thead>
<tr>
<th>Overall statutory tax rates on dividend income</th>
<th>Overall (personal + corporate) tax rate on company income*</th>
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<tbody>
<tr>
<td>France</td>
<td>64.4</td>
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<tr>
<td>United States</td>
<td>57.6</td>
</tr>
<tr>
<td>Ireland</td>
<td>57.1</td>
</tr>
<tr>
<td>Denmark</td>
<td>55.6</td>
</tr>
<tr>
<td>Canada</td>
<td>51.2</td>
</tr>
<tr>
<td>Korea</td>
<td>51.0</td>
</tr>
<tr>
<td>Portugal</td>
<td>50.7</td>
</tr>
<tr>
<td>Belgium</td>
<td>50.5</td>
</tr>
<tr>
<td>Australia</td>
<td>49.0</td>
</tr>
<tr>
<td>Germany</td>
<td>48.6</td>
</tr>
<tr>
<td>Israel</td>
<td>48.6</td>
</tr>
<tr>
<td>Norway</td>
<td>46.7</td>
</tr>
<tr>
<td>Italy</td>
<td>46.4</td>
</tr>
<tr>
<td>Japan</td>
<td>45.9</td>
</tr>
<tr>
<td>Sweden</td>
<td>45.4</td>
</tr>
<tr>
<td>Spain</td>
<td>45.3</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>45.1</td>
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Note: *Calculated at top personal tax rate and allowing for imputation and other concessions.
Source: OECD 2015a.

Figure 1 illustrates the differences between the classical tax system and the imputation tax system. A key feature (and benefit) is that, if all investors are domestic taxpayers, there is no tax incentive to corporate leverage under imputation (since overall government tax share of corporate income is unaffected by the amount of interest paid). Imputation also reduces government tax revenue compared to a classical system with the same corporate and personal tax rates (and corporate leverage), with the implication that removal of imputation could be revenue-neutral with some set of lower corporate and/or personal tax rates (considered in section 9).

Introduction of imputation in Australia was preceded in 1985 by the introduction of capital gains tax which, like imputation, has undergone several changes to its structure since. Because this creates another twist in the taxation of shareholder returns from corporate income (and asset returns more

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7 This conclusion of a zero ‘interest tax shield’ assumes 100 per cent distribution of after tax earnings as franked dividends to residents able to use the tax credits.
generally), it cannot be ignored in discussion of imputation effects. In particular, some (high marginal tax rate) investors may prefer corporate retention of earnings to generate concessionally taxed long term capital gains rather than payment of franked dividends.\(^8\) This is particularly relevant in the case of privately or foreign owned companies.

Also relevant has been the 1991 Superannuation Guarantee legislation introducing compulsory, concessionally taxed, superannuation from July 1992 which has led to significant growth in the role of low, or zero, taxed superannuation funds as a major group of shareholders in Australian companies and recipients of dividends. In contrast, much discussion of imputation when it was first introduced was focused on shareholders being on high marginal tax rates – and included arguments for aligning the top marginal personal tax rate with the corporate tax rate. Indeed, the company tax rate was raised from 47 to 49 per cent at that time to create such an alignment, before being reduced to 39 per cent shortly after.

Legislation in 2002 allowed for the rebate of unused franking credits to Australian resident recipients, which has significant consequences for future government revenue following 2006 legislation removing tax on earnings of superannuation funds in pension mode. More generally, there are a range of special features of the tax system (such as various allowances for depreciation, research and development (R&D) expenditure and so forth) which interact with imputation to produce outcomes different to those expected under a classical tax system.\(^9\)

Imputation has also required several legislative changes to prevent ‘trading’ in franking credits from investors (such as foreigners) to whom they are of no value, to other investors who can use them to reduce other Australian tax liabilities. Those legislative changes include, as well as prohibiting direct sale of franking credits, the introduction of the 45 day holding rule (for eligibility to use franking credits) and prohibitions on techniques such as equity swaps, trading cum-div in the ex-div period and so forth, aimed at gaining value from otherwise unused franking credits.

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\(^8\) This is the case for resident shareholders on high marginal personal tax rates. Foreign investors should be indifferent, but withholding tax arrangements may influence preferences.

\(^9\) In the extreme case where a 100 per cent payout policy ‘washes out’ corporate tax, incentives such as these based on reducing corporate tax payments have zero effect.
Figure 1: Imputation and classical tax systems compared

Source: Author’s illustration.

Figure 2 shows the growth in franked dividends from Australian companies relative to the stagnation in unfranked dividends. Since the latter reflect dividend distributions out of income on which Australian tax has not been paid, lack of growth reflects limited growth in overseas income of Australian companies, and a tendency for companies unable to frank dividends to retain earnings instead of paying dividends. 10 Also shown in Figure 2 is the growth of company franking account balances which have remained around twice the annual franked dividend payment rate indicating, on average, a less than 100 per cent payout of earnings which could potentially be distributed as franked dividends.

Figure 2: Franked dividend growth from Australian companies ($ billion)

Note: Franking account balance data not available prior to 1995-96.
Source: ATO 2015a.

10 Companies are also required to frank dividends if able to do so (such that payment of unfranked dividends out of earnings not subject to Australian company tax requires first paying sufficient franked dividends to exhaust the franking account balance).
The relationship between the growth of franked relative to unfranked dividends over time is seen more directly in Figure 3 which shows that the average franking percentage has climbed from around 70 per cent after the introduction of imputation to around 90 per cent in recent years.

**Figure 3: Dividend franking rate**

Notes: The dividend franking rate is calculated as the ratio of franked dividends to total dividends paid. The large drop in 1998-98 was due to a large increase in unfranked dividends, attributable to the proposed legislation removing the inter-company dividend rebate.

Source: ATO 2015.

3. International complications

Ever-increasing global integration of both real and financial markets creates particular complications for both the operation of, and understanding the effects of, Australia’s dividend imputation tax system. Some such complications arise regardless of the type of tax system operating in other countries, because companies and their shareholders can be subject to different national tax jurisdictions. A range of international tax treaties and agreements operate (not necessarily well) to prevent double corporate taxation of income paid to or received from foreign counterparties and to determine the allocation of tax revenue from income generated in one country between its government and those with jurisdiction over foreign counterparties.¹¹ Of particular note, Australia has negotiated specific tax treaties with New Zealand enabling companies from both countries to provide imputation credits from operations in the other host country to shareholders in that country (but not enabling mutual recognition by tax authorities of franking credits generated from tax paid in the other country).

One factor which creates particular complications from the imputation system is that it can be seen as a subsidy to domestic investors in shares of Australian taxpaying companies. Or as outlined earlier, it can be equivalently described as removal, to the benefit of Australian investors, of the classical tax system ‘double taxation of dividends’ distortion against use of company structures. Domestic investors are able to use the tax (franking) credits which accompany dividend payments to offset their individual tax liabilities (both from dividend and other income). In contrast, foreign investors

¹¹ Rather than the possibility of double taxation, a more significant issue for national governments is the use of global corporate structures and transfer pricing arrangements which enable companies to shift profits to low-tax jurisdictions to minimize tax paid in both host countries and in total.
are unable to use those tax credits, since they are not recognised by tax authorities in foreign jurisdictions. Whether foreign investors are able to generate value from franking credits by finding ways around Australian government regulations designed to prevent trading or sale of those credits is an empirical question. Appendix 3 provides some examples of mechanisms which have been used in attempts to create value for foreign recipients of franking credits.

Legislation was passed in 1999 (retrospective to 1997) aimed at preventing transactions (such as equity swaps or securities lending) which enabled foreign investors to effectively sell franking credits. The introduction of the 45 day holding period requirement in 2000 was also aimed at limiting trading strategies whereby share ownership could be acquired by domestic residents for a short time around the ex-div date enabling them to receive the franking credits. Foreign shareholders could be expected to indirectly obtain the benefits of franking credits via competition for short term ownership by domestic investors pushing up the stock price prior to the ex-div date (when foreigners would sell) and reducing it after the ex-div date (when foreigners would repurchase).

Further legislation was required in 2014 when it was realised that ‘dividend washing’ strategies were effectively enabling foreign investors to capture value from franking credits (although the focus was on domestic investors receiving two sets of dividends from such a strategy). In such strategies, an investor would sell (off-market, as allowed by the Australian Securities Exchange (ASX)) a stock ‘cum-div’ after the ex-div date and could repurchase it immediately on market as an ‘ex-div’ stock. If, for example, both transactions were with the same domestic investor, the price differential would (depending on demand and supply) reflect some proportion of the value of the franking credits to the domestic investor – with this strategy effectively transferring the residual value to the foreign investor. While foreign investors could have achieved a similar outcome by selling prior to the ex-div date and repurchasing after that date, the dividend washing strategy removed most of the risk in the alternative strategy from uncertainty about the share-price dividend drop-off on the ex-div date.

If foreign investors cannot extract value from franking credits, imputation involves a tax subsidy to domestic, but not foreign, investors. A significant issue which then arises is the effect this has on the relative role of domestic and foreign investors in the determination of Australian equity prices. This is a highly controversial issue, which receives most attention in the debate over the value of imputation credits and the cost of equity capital for Australian companies. Understanding of that debate is crucial for assessing broader aspects of the effect of imputation on Australian financial markets.

4. Cost of capital

Much of the effort of researchers has essentially gone into identifying the ultimate beneficiaries of the favourable treatment which imputation provides to Australian investors in Australian companies (relative to the tax treatment of international investors), given that capital is globally mobile and Australia is a relatively small open economy. As in any market, the ultimate incidence of a subsidy (or tax) depends on supply and demand conditions and price adjustments. The direct recipients of the subsidy (domestic investors in this case) will be willing to pay a higher price for shares paying

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12 The rationale for this allowance of cum-div trading after the ex-div date is due to the requirement for settlement of exercised option contracts by physical delivery of stock rather than cash settlement.
franked dividends, but the effect on the equilibrium price depends on supply conditions. A perfectly elastic supply would, for example, lead to no change in price (whereas a fixed supply would lead to a price increase equal to the size of the subsidy – if the recipients’ demand was sufficient to exhaust supply). In the case of equity (asset) markets, there may be elastic supply through: short selling by non-recipients of the subsidy; longer run elasticity via new issues of equity; or domestic demand may not exhaust supply due, for example, to existence of alternative (foreign) equity assets which offer alternative diversification benefits which offset their less favourable tax treatment.

There are two polar extremes which can be considered, with the counterfactual situation being one in which Australia, like foreign jurisdictions, operated a classical tax system in which there was double taxation of dividends for paid to both domestic and foreign investors. Differences in international corporate tax rates create complications for empirically discriminating between the relative importance of the two alternatives. The polar extremes can be summarised as follows, and are illustrated in Box 1:

- **Full international integration**: the domestic price of equities is not affected by imputation due to international arbitrage and price setting in global markets. Consequently, there is no beneficial effect on the cost of equity for Australian firms (as would occur if the marginal price-setting investors were willing to pay a higher equity price for an unchanged pre-company-tax cash flow). The tax subsidy (relative to operation of a classical tax system with double taxation of dividends) accrues as a benefit to Australian investors. The argument is based on the view that foreign investors are the marginal, price setting, investors in an integrated world financial system. Willingness of domestic investors to pay higher prices than they would for an equivalent foreign company (for which double taxation of dividends occurs) due to the tax subsidy of imputation credits would be counteracted by foreigners short selling Australian shares to finance purchases of otherwise equivalent cheaper foreign shares. Or, as Sorensen and Johnson (2010) argue, increased domestic investor demand would simply see a shift in composition of domestic equity holdings away from foreign investors with no change in the internationally fixed required rate of return. Under this view, the introduction or removal of imputation would have no effect on domestic share prices (although in practice, the effects could be confounded by the impact of resulting portfolio adjustments on the exchange rate).

- **Domestic segmentation**: international arbitrage of the tax subsidy effect is not possible, such that the domestic equity price is higher by the amount of the subsidy (due to domestic investor demand), the cost of equity for Australian-tax-paying firms is reduced and Australian investors receive no benefit from the tax subsidy. The tax benefit is offset by Australian investors paying higher prices for Australian stocks paying a given expected cash flow dividend than they would pay for foreign stocks with the same expected cash flow but less tax advantageous treatment.

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13 Empirical studies of the value of franking credits typically do not consider the characteristics of foreign tax systems, but simply assume that a degree of international integration will lead to foreign investors (to whom imputation credits have no value) having a role in the determination of Australian stock prices.
Under this view at the introduction of imputation, existing holders would have received a one-off benefit from an increase in share prices, and its removal would cause a drop in share prices. In practice, such share price effects at around the time of introduction of imputation would have been confounded by the prior introduction of capital gains tax (with grandfathering of existing holdings) and changes to levels of corporate and personal tax rates.

**Box 1: The cost of capital implications: an illustration**

The alternatives are best explained by considering an unlevered company (or project) which will generate a risky net cash flow in perpetuity of expected value $X. The after company tax (t\(_c\)) expected value is $X(1-t\(_c\)) per annum to which, under a classical tax system, investors (globally) would apply a discount rate of r. That discount rate, r, is the required rate of return before (that is, out of which) individual (investor level) taxes are paid. The share price would then be \( S = \frac{X(1-t\(_c\))}{r} \), and this is also the price of a foreign company with identical characteristics.

One extreme position, **domestic segmentation**, is that that Australian share prices are sufficiently higher under imputation than would otherwise be the case because an Australian investor will be willing to pay \( S^* = \frac{X}{r} \). Investor taxable income is ‘grossed up’ to X with some part of the tax liable paid via ‘withholding’ of investor tax liabilities through payment of corporate tax. \( S^* \) will be the market price, higher relative to an equivalent company overseas \( (S^* > S) \), and this disparity is not undone by arbitrage actions of foreign and/ or domestic investors. In this scenario, imputation reduces the cost of capital for Australian companies investing in (domestic) projects subject to Australian tax, relative to that overseas. A project with expected net cash flow before tax of $X p.a., would be viable if the investment required \( (I) \) is less than \( S^* = \frac{X}{r} \) (that is, \( I < \frac{X}{r} \)), whereas under the classical tax system (and overseas) viability requires \( I < S \) (that is, \( I < \frac{X(1-t\(_c\))}{r} \)).

The alternative extreme position, **international integration**, is that with global capital mobility, the Australian share price cannot differ from that overseas due to arbitrage. For foreign investors in Australian shares, there are no tax credits received, and thus the Australian and foreign share are essentially identical. Short selling of Australian shares, if their price is higher, and purchasing of otherwise equivalent foreign shares will occur to drive the Australian share price to equality with the foreign share price. In this case, the cost of capital for Australian companies is not lowered by dividend imputation. Rather, Australian investors receive returns higher than required to make them willing holders of Australian shares. Their preferences play no role in asset price determination or corporate financial policy (which is driven by international investor preferences), but will be reflected in their asset portfolio composition.

Figure 4 puts these alternative views into a simple supply-demand framework commonly used by economists. Before the introduction of imputation, the equilibrium rate of return is determined by

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14 Officer (1988, 1994) was among the first to point out the complications surrounding the appropriate definition of the cost of capital under an imputation system and the necessity of ensuring that consistency was maintained between the cost of capital concept and ‘cash flow’ concepts used.

15 Students of the history of economic thought familiar with the ‘Cambridge Controversies’ may note the inherent circularity problems with this framework. The demand for equities is for a nominal value of equities
the infinitely elastic supply of international equities at the global rate of return $r_{int}$. With domestic demand given by the $D_0$ schedule, domestic residents hold $D_0$ equities. Any deviation of the domestic rate of return (and equity price) from the international level is prevented by arbitrage activities. Introduction of imputation shifts the domestic demand curve outwards to the $D_1$ schedule, reflecting the tax subsidy provided to domestic investors in domestic equity. Proponents of the international integration hypothesis argue that this simply increases the relative holdings of domestic investors to $D_1^{int}$ with no change in domestic rate of return due to arbitrage.

Proponents of the Domestic segmentation hypothesis note that at $D_1^{int}$ domestic investors are willing to accept a lower rate of return (that is, pay a higher price for a larger holding of equities) and ask the question, how can the arbitrage, which is assumed to prevent this from occurring, actually occur. Short selling of higher priced domestic equities requires borrowing of equities – and securities lending arrangements require the borrower to repay any dividend plus the cash equivalent of franking credits which occur over the period of the transaction. As Box 2 illustrates, this prevents profitable arbitrage, such that the new equilibrium involves a lower domestic rate of return (higher equity price) and, in this simple framework, domestic residents holding the entire stock of domestic equities.

Figure 4: Imputation and required returns in an international economy

Source: Author's illustration.

Reality is, almost certainly, somewhere between these polar extremes, due to a range of factors such as:

(not a physical quantity) and that nominal value depends upon the price of equities which is inversely related to the rate of return. For the purposes of a simple exposition of the underlying argument, we ignore (as do other participants in this debate) this complication.
• international differences in tax rates and types of tax systems
• withholding tax and other arrangements for taxation of income of foreign investors
• impediments to and risks associated with ‘arbitrage’ strategies
• an increase over time in the supply of Australian equities in response to any lower cost of equity capital
• portfolio diversification of both international and domestic investors meaning that relative tax disadvantages or advantages of investing in Australian equities may be offset to some degree by risk diversification benefits
• the realities of investment strategies needing to take account of dividend payments occurring at discrete (six monthly) intervals and returns for holding periods between those dates taking the form of capital gains with different tax consequences.

4.1 Consequences of alternative assumptions

Table 2 summarises some of the consequences of the polar extreme models identified earlier which are labelled, for ease of exposition, segmented and integrated capital markets. Note, however, that this involves a number of assumptions including: a fixed supply of financial assets, equal corporate and personal tax rates internationally and so forth. Adjustments over time in asset supplies and so forth in response to differentials in rates of return are relevant to assessing the effects of differences in international tax regimes.

Recognising that reality is unlikely to reflect either of these two extreme models, the empirical question becomes whether the available evidence aligns closer to one than the other. In Table 2 an attempt is made to answer that question by highlighting (in bold) the model which, in this author’s assessment, derives more support from the evidence on the specific issue under consideration. It is readily apparent that there is little consistency, implying the need for a degree of agnosticism (and for much further research).

Table 2: Implications of alternative assumptions

<table>
<thead>
<tr>
<th></th>
<th>Segmented markets</th>
<th>Integrated markets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic v International share price of equivalent corporate-taxed income stream</td>
<td>Higher</td>
<td>Equal</td>
</tr>
<tr>
<td>Cost of equity for equivalent domestic v foreign tax-paying project</td>
<td>Lower</td>
<td>Equal</td>
</tr>
<tr>
<td>After all-tax rate of return to domestic investor in domestic v foreign equity</td>
<td>Equal</td>
<td>Higher</td>
</tr>
<tr>
<td>‘Home bias’ of domestic equity investors due to tax induced return differences</td>
<td>High</td>
<td>Exists</td>
</tr>
<tr>
<td>Tax bias towards corporate leverage</td>
<td>None or Little</td>
<td>Exists</td>
</tr>
<tr>
<td>Tax bias towards high dividend payout</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Tax bias for domestic companies towards domestic rather than foreign investment</td>
<td>High</td>
<td>None</td>
</tr>
<tr>
<td>Tax disadvantage for foreign company equity finance of domestic tax-paying projects</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Reduction in use of on-market share repurchases</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
Reduced value of tax concessions such as R&D allowances for domestic companies | Yes | No
Greater incentive for small, private, businesses to incorporate | Yes | n/a
Greater willingness of government to allow stapled security structures | Yes | n/a
Discrimination against mutual/cooperative structures | Possibly | n/a

Source: Author’s estimates.

It is useful to ask, within the context of the simple example of Box 2, whether the arbitrage activities envisaged to keep the domestic and foreign share prices equal are feasible. Arguably they are not, because a short sale of Australian shares requires the foreigner to borrow shares under a security lending agreement. That agreement will specify that the borrower will need to compensate the lender for any dividends paid, plus the cash equivalent of attached franking credits, over the term of the agreement. There is also a market determined non-zero fee for borrowing stock. Box 2 illustrates that this implies that simple profitable risk free arbitrage strategies are not possible.

**Box 2: Arbitraging imputation – not so simple**

This simple example assumes a domestic and foreign stock both paying a perpetual stream of expected cash dividends of $X(1-t_c)$ per period (where $t_c$ is the corporate tax rate). However the domestic stock also pays franking credits of $Xt_c$, which are valued only by domestic investors who thus value the stock at $S^*=X/r$ at the start of the period and at $X(1+r)/r$ just prior to end-of-period receipt of a dividend.\(^{(a)}\) Foreign stocks are valued at $S=X(1-t_c)/r$ at the start of the period and $X(1-t_c)(1+r)/r$ just prior to receipt of an dividend.

Assume a foreign investor attempts to arbitrage the share price difference between $S^*$ and $S$ just prior to the dividend receipt (given both have equal cash flow dividends) by borrowing and short selling $(1-t_c)$ domestic shares and buying one foreign share. That involves a zero cash flow at date ‘t-’ (cum div) as shown in the table below. At date ‘t+’ (start of the next period, when the share has gone ex-div) the investor must buy $(1-t_c)$ domestic shares for $(1-t_c)X/r$ to close the short position and can sell one foreign share for $(1-t_c)X/r$.

The investor receives a cash dividend of $X(1-t_c)$ on the foreign share and must pay cash dividend to the lender of the $(1-t_c)$ domestic shares of $X(1-t_c)$ per share or $X(1-t_c)^2$ in total, suggesting an arbitrage profit of $X(1-t_c)$. However, the investor must also pay a cash amount to the lender of shares equivalent to the franking credits of $Xt_c$ per share or $(1-t_c)Xt_c$ in total for the $(1-t_c)$ shares borrowed. Consequently there is no arbitrage profit as shown in the table below.

<table>
<thead>
<tr>
<th>Action</th>
<th>Date ‘t-’ (cum div)</th>
<th>Date ‘t+’ (ex div)</th>
<th>Share price component</th>
<th>Dividend component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borrow $(1-t_c)$ domestic shares</td>
<td></td>
<td></td>
<td></td>
<td>$-X(1-t_c)^2-(1-t_c)Xt_c = -(1-t_c)X$</td>
</tr>
<tr>
<td>Short sell $(1-t_c)$ domestic shares</td>
<td>$(1-t_c)(1+r)X/r$</td>
<td>$(1-t_c)X/r$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buy 1 foreign share</td>
<td>$-(1+r)X(1-t_c)/r$</td>
<td>$-(1-t_c)X/r$</td>
<td></td>
<td>$+X(1-t_c)$</td>
</tr>
<tr>
<td>Outcome</td>
<td>0</td>
<td>0</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>
(a) $X/r$ is the value of an annuity of $X$ commencing in 1 period at a discount rate of $r$, while $X(1+r)/r$ is the value of an annuity of $X$ commencing now at a discount rate of $r$. This specification assumes that the ex-div date share price drop-off will equal the grossed-up value of the dividend, which would be the no-arbitrage drop-off if domestic investors are the price-setting marginal investors. The example thus shows that foreign investors are not able to make arbitrage profits when this is the case.

The world is obviously much more complex than this simple illustration, and (for example) the stock of Australian equities cannot be assumed exogenous. To the extent that a lower cost of capital prevails, an expansion of investment into lower return projects (albeit ones viable and socially value adding in the absence of company tax distortions)\(^\text{16}\) would expand the supply of Australian equities. Similarly, if a tax bias towards debt finance is removed by imputation, the supply of Australian equities would also be increased, relative to debt in the financing of companies and projects – and changing the systematic risk characteristics of equities. Other features of the Australian and international tax systems also need to be taken into account – including treatment of capital gains and withholding tax arrangements.

The empirical research addressing this question of the impact of imputation on the cost of equity capital has focused on identifying the ‘value of franking credits’, often referred to as ‘gamma’ ($\gamma$) following use of this nomenclature by Officer (1988) in his pioneering research. Box 3 includes more discussion of the interpretation of gamma. The alternative extremes correspond to $\gamma = 1$, where share prices fully reflect the effect of tax differences and the cost of equity capital is correspondingly lowered, and $\gamma = 0$ where international arbitrage prevents any such effect. A range of alternative approaches to estimating $\gamma$ exist (and are outlined in Appendix 4) and a number of alternative ways of incorporating $\gamma$ (that is, the effects of imputation) into cost of capital estimation and project evaluation have also been developed.

There is ongoing debate on the appropriate value of $\gamma$, observed most pointedly in debates over access pricing determinations by regulators such as the Australian Energy Regulator, Australian Competition and Consumer Commission, Independent Pricing And Regulatory Tribunal and so forth, where the cost of capital is a key ingredient in the determination of overall costs and allowable prices. Over time, in response to evidence and views of ‘experts’ the value chosen for $\gamma$ has varied, but has typically been in the order of 0.5. Recently, there has been a tendency for the value proposed to be lower, on the basis of a range of studies using a variety of methods which appear to suggest a lower value is appropriate.

While the debate over the value of $\gamma$ may appear to be somewhat esoteric and peripheral to the question of the effect of imputation on the financial sector, it is a fundamental influence. Positions taken on a range of potential effects (such as shown in Table 2) need to be consistent with the view taken on to what extent the potential effects of imputation are wiped out by international arbitrage.

Because the arbitrage argument implies no scope for foreign investors to undo the effects of imputation, the question of the role of foreign investors in offsetting the effect of imputation on

\(^{16}\) Private decision makers do not, in considering the worth of a project, ascribe value to that part of cash flows generated which accrue to the government via tax payments.
domestic share prices relative to overseas equivalents (and thus cost of capital implications) must be approached in a different manner. At the theoretical level, emphasis has been given to equilibrium market outcomes when foreign and domestic investors adopt utility maximizing portfolio allocations reflecting risk, expected return and tax considerations. Thus diversification of risk provides one reason for foreign investors purchasing domestic stocks – even if imputation worsens the expected return-risk characteristics for them relative to domestic investors. This is reflected in debate over the appropriate asset pricing model (such as the CAPM) to use when dividend imputation operates in a small economy in a global financial market.

4.2 The CAPM under imputation and international financial integration

Various researchers have developed variants of the CAPM (or other asset pricing) models incorporating imputation in which expected returns on domestic securities are related to the risk free rate, expected market returns, the stock’s systematic risk, and tax factors. Such models have been developed under assumptions of a purely domestic financial market (for example, Monkhouse (1993), Lally and Van Zijl (2003)) and an integrated world financial market (Wood 1997).

One consequence of such models is that the expected (required) return on a risky asset will depend, to some extent upon the average value placed upon attached imputation credits. That average value depends upon some (complicated) weighted average of the value of imputation credits to the different types of investors relevant to the model. The resulting imputation adjusted CAPM is of a form such as:

\[ r_i = r_f + \beta_i (R_m - r_f) - \gamma f_i \]  

where \( r_i \) is the required ‘cash’ return (for example a cash dividend), \( r_f \) is the risk free rate, \( \beta_i \) is the ‘franking credit yield’ on stock \( i \), \( R_m = r_m + \Upsilon f_m \) is the expected ‘grossed up’ return on the market portfolio (including the market wide average value of the franking credit yield on the market (\( \Upsilon f_m \)) as well as the cash return \( (r_m) \)). The franking credit yield is the amount of franking credits (and imputed income) received as a proportion of the share price.

Box 3: Interpreting gamma

Officer’s original use of the term gamma was in the context of implications of imputation for the weighted average cost of capital (WACC) for companies, and based on an assumption of a company with a level of expected earnings which were constant in perpetuity and following a 100 per cent dividend payout policy (Officer 1998). In that case \( \Upsilon \) is both the valuation of franking credits generated by the company (from tax payments) and the value of franking credits received by shareholders. In practice, most companies do not follow a 100 per cent payout policy.

This has led analysts to interpret \( \Upsilon \) as the value of franking credits generated by the company and decompose it into two components by noting that the value of franking credits (\( \Upsilon \)) generated equals the proportion of franking credits distributed (\( F \) – the distribution ratio) multiplied by the value of franking credits used by investors (denoted as theta (\( \Theta \))). Thus \( \Upsilon = F \Theta \). This approach assumes that retention of undistributed franking credits by a company does not add value to investors (by the positive franking account balance not being reflected in a higher stock price).
Such a model predicts that the required cash return (before personal tax) on stocks paying franked dividends will be less than that on otherwise equivalent stocks paying unfranked dividends by some amount dependent on $Y$ and the franking credit yield. Because such models are one-period models they are not well suited to deal with the implications of some part of returns taking the form of capital gains (which are also subject to special tax rules), although Lally and Van Zijl (2003) do develop such a model. But even in that case, the one period structure of the model does not allow for the effects of trading strategies of different types of investors over time (such as around the ex-dividend date).

Since foreign investors place no value on imputation credits, this type of model predicts that if they are significant (price setting) investors (as typically assumed by those who focus on internationally integrated markets) the value of $Y$ will be close to zero. The model by Wood (2007), summarized in Box 4 provides one example, although Wood shows that this can lead to a variety of formulations of the CAPM where the ‘market return’ used (based alternatively on the global market, the domestic market, or stocks held by domestic investors) affects the value of $Y$ associated with that model. Because diversification drives the model (and results), one consequence is that the value of $Y$ can differ between stocks. Notably, where the ‘market return’ is on the portfolio of stocks (including foreign stocks – and thus not the domestic market portfolio) held by domestic investors the implied value of $Y$ is unity.

**Box 4: Wood’s model of imputation in a global world**

Wood develops a simplified version of the Monkhouse (1993) CAPM model in which there are only domestic and foreign investors and where domestic stocks offer tax credits available only to domestic investors. Because it is a one-period model, it cannot deal with the complexity of trading strategies by investors to generate returns in a preferred form of dividends or capital gains. Wood recognises that foreign short sellers are required to make up both dividends and tax credits on securities they have borrowed to undertake short sales. Because it also assumes that all (foreign and domestic) investors have identical views on expected returns and risk, it cannot lead to outcomes where, for example, some foreigners hold domestic stocks at high prices (pushed up by domestic investors) because they have expectations of higher returns.

In Wood’s model there are three possible outcomes regarding positions of foreign investors in any domestic stock. If they are short the domestic stock, the full value of imputation credits is capitalised into the price (they are able to buy more units of foreign stock with the short sale proceeds such that dividends on those stock are sufficient to meet short sale payment obligations of cash dividends plus tax credits on borrowed domestic stock). If they do not hold the stock, the valuation of imputation credits will be somewhere between the share of domestic stocks held by domestic investors and full valuation. If they do hold the stock, the valuation of tax credits will be zero (the price will not be higher than that of an equivalent foreign stock – that is, with the same risk relative to the global market portfolio), but domestic investors could be expected to tilt their portfolios towards holding such stock. But if required stock returns are measured against a ‘market portfolio’ of stocks held by domestic investors, then the resulting CAPM involves relating fully grossed up stock returns to a grossed up market return.

Such theorising leaves open the possibility that the effect of foreign investors on Australian stock prices and required returns is to mute the effect of imputation on required returns and thus the cost of capital for Australian firms. One extreme (Y=0) is that imputation does not affect the cost of capital, with Australian investors capturing the tax subsidy via higher than required after-tax returns. The other extreme (Y=1) suggests that the cost of capital is reduced (with Australian firms capturing the tax subsidy), because investors bid up stock prices relative to international equivalents. However, such broad conclusions are difficult to draw, because the CAPM is only a model of relative returns on risky assets, with the expected return on the market portfolio (relative to the risk free interest rate) determined exogenously to the model. But to the extent that the market risk premium, after personal (investor) level tax was unaffected by imputation, the required cash return on the domestic asset market should have fallen by the value of the imputation credit yield, confirming that broad conclusion.17 Box 5 discusses in more detail.

Box 5: Dividend imputation and the market risk premium

The uncertainty over the market valuation of franking credits (Y) creates complexities in specifying the appropriate market risk premium (MRP) value for use in the CAPM. The MRP is an exogenous input into the model reflecting how investor risk aversion affects the required return for investing in assets with systematic (market) risk. It is thus a forward looking expected return measure, usually estimated by reference to the average actual returns observed over some historical period (generally dominated by the pre-imputation period, such that it involves only ‘cash’ returns).

It is a reasonable assumption that the introduction of imputation did not affect investor risk aversion and thus the after-investor-level-tax premium placed on systematic risk. Unfortunately, since the value of imputation credits is relevant to that premium, the issue arises of how the MRP is to be defined to take into account valuation of imputation credits, and how its numerical value under such a definition might differ from that observed prior to the introduction of imputation.

Taking the term Yf in equation 1 to the left hand side generates a CAPM relationship of:

\[ R_i = r_f + \beta_i (R_m - r_f) \]  

in which \( R_i \), \( R_m \) are returns ‘grossed up’ by the value of franking credit yields (Officer 1994). If \( Y = 0 \), this is the usual CAPM and the individual equity required return and MRP involved ignore franking credits. The MRP measured this way would not be expected to have changed due to the introduction of imputation. However, if \( Y = 1 \), the individual equity returns and the market portfolio component of the MRP are ‘fully grossed up’ by their respective franking yields. With no change in the after-investor-level-tax premium required, this implies that the grossed up MRP in equation (2) should equal the pre-imputation MRP – or equivalently that the MRP measured ignoring franking credits (the ‘traditional’ measure based on cash dividends and capital gains) will have fallen by the franking credit yield. Obviously, if \( 0 < Y < 1 \), the reduction in the MRP measured ignoring franking credits will have been smaller.

17 One consequence, however, is differential effects of the introduction of imputation on returns for low v high beta stocks (which Faff, Hillier and Wood (2000) appear to find).
Brailsford, Handley et al. (2008) and Brailsford, Handley et al. (2012) present estimates of the actual MRP pre and post the introduction of imputation using various assumptions about the value of franking credits. They calculate the MRP (arithmetic mean relative to bonds) for 1883-1987 that is, prior to imputation) to be 6.4 per cent per annum. For the period 1988-2010 (post imputation) the MRP is 5 per cent (assuming $\gamma = 0$, that is, ignoring franking credits), 5.9 per cent (assuming $\gamma = 0.5$), or 6.8 per cent (assuming $\gamma = 1$). While there are many possible explanations for the different figures pre and post introduction of imputation, these numbers are not inconsistent with an assumption that $\gamma$ lies in the range 0.5 to 1. Hathaway (2005) estimates that around 53 basis points per annum should be added to the cash based ($\gamma = 0$) MRP average, which Brailsford et al (2008) estimate at 5.1 per cent per annum for the period 1998-2005, to reflect the value of franking credits. This implies a value for $\gamma$ of somewhat below 0.5 (although Hathaway also argues that an appropriate figure for the MRP is in the order of 4.5 per cent per annum).

Gray and Hall (2006) implicitly considered this issue of the MRP under imputation by asking the question of whether the common regulatory assumption of using a figure of 6 per cent for the partially grossed up premium in conjunction with a value for $\gamma = 0.5$ was consistent with the pre-imputation MRP figure and observed dividend payout yields. Their conclusion that it required an unrealistic assumption of high dividend yields, unless $\gamma = 0$ was challenged by Truong and Partington (2008) and Lally (2008). Their response is at Gray and Hall (2008).

4.2 Empirical estimation of the value of franking credits

There have been a large number of empirical research studies attempting to determine the value of $\gamma$ to resolve the question of imputation’s effect on the cost of capital. There has also been a plethora of consultant reports on the topic (drawing on those studies) particularly as inputs to access pricing determinations by regulators, where the cost of capital is an important component of allowable costs.

The empirical research studies are briefly summarized in Appendix 4. There is a wide range of results depending upon the approach used and the time period examined (with legislative changes affecting use of franking credits being relevant in this regard). While there is no consensus from those studies, the majority of results tend to put the value of $\gamma$ in the lower half of the feasible range of zero to one. But assessment of those studies requires recognition that none of them is immune from criticisms that (a) they have not been able to impose the ceteris paribus conditions required to draw the strong conclusions often made about the value of franking credits, and (b) none of them is really able to deal with the fact that trading by international and domestic investors occurs over time (rather than at discrete points in time). It could be expected that this will occur in such a way as to maximize the value to be derived from stock price movements reflecting, among other things, time till next ex-div date and resulting distribution of franking credits.

Appendix 4 provides a brief overview of the characteristics of, and results from, the various studies.
5. Imputation and financial behaviour of end-users of financial markets

To assess the impact of imputation on Australia’s financial markets it is necessary to identify how it has affected the financing decisions of companies and the financial investment decisions of investors. These affect the demand for and supply of various types of financial assets, and thus influence the development of financial markets and roles of financial intermediaries. Also relevant in this regard is the effect of imputation on trading behaviour in financial markets. Effects on operational decisions of companies, such as the choice between domestic versus offshore expansion, are also relevant since these can affect the ability to pay franked dividends and thus affect investor demand for a company’s shares.

5.1 Household (individual) investors

Households allocate savings to financial and real assets (such as real estate), including in some cases building-up of equity in unincorporated owner-businesses. For a growing number, this includes investments made from savings placed into Self Managed Superannuation Funds (SMSFs).

The effects of dividend imputation on household portfolio allocation operate through its effect on the relative after-tax yields of different asset classes, interacting with other features of the tax system such as tax treatment of capital gains.

It is generally recognised that investors suffer a ‘home bias’ involving greater allocations of funds to securities issued by entities which are located in geographical proximity and/or within the same national jurisdiction. In the latter case, concerns about sovereign or other legal risks are relevant, but in both cases information availability and/or behavioural arguments can be advanced to help explain this phenomenon.

Dividend imputation provides an additional reason for a possible ‘home bias’ in equity portfolio allocations by Australian investors. Dividends from foreign companies (or Australian companies with income from offshore) are subject to double taxation (at the company level and at the investor level). While portfolio diversification provides one motive for investment in international equities, higher expected returns are required to offset the tax benefits of imputation.

Hypothesis: Domestic retail investors are biased towards investment in franked dividend paying equities relative to other (including foreign) equities and fixed interest investments.

International integration assumption: Expected to occur, with domestic equity prices and pre-tax corporate yield unaffected and tax subsidy (a higher after-all-tax rate of return) accrues to investors.

Domestic segmentation assumption: Expected to strongly occur with domestic demand leading to higher relative price of domestic equities such that no effect on expected after-all-tax rate of return to domestic investors (who hold entire stock of domestic equities).

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18 Some sections of the following discussion are taken from (Davis 2013).
The effect of the tax system on after tax returns of different investment classes has been examined in a number of places including, recently, the Financial System Inquiry Interim Report (Treasury 2014). Figure 5, taken from that report demonstrates how the combined effects of imputation and capital gains tax concessions increase the relative after tax returns on domestic equity investment compared to fixed interest investments such as bank deposits (or debt instruments). Such a ‘tax wedge’ effect also works to the advantage of domestic equity over investment housing (with the differential between the two reflecting franking credits – since both face the same capital gains tax consequences).

Figure 5 assumes, for simplicity, that all investments considered have the same pre-tax rate of return. Since risky assets, such as equities, typically have higher expected returns, the franking credit yield and thus the tax wedges could be expected to be even more favourable to equities over fixed interest and investment housing.

However, in assessing the actual effect of imputation, it is crucial to recognise that the existence of imputation may affect pre-tax yields on equities relative to fixed interest investments (as outlined earlier). If imputation credits are fully valued, pre-tax cash returns on domestic equities are reduced as a result of imputation. In that case, comparison of tax wedges on current pre-tax yields, without taking into account the effect of imputation on those pre-tax yields, misses part of the story and distorts interpretation. Alternatively, if franking credits are not valued, then relative pre-tax yields are not affected by imputation and the comparison of tax wedges is appropriate. Then, the tax subsidy from imputation is received by domestic equity investors, and biases their investment behaviour away from fixed interest to domestic equities.

**Figure 1: Tax wedges for different asset classes**

One way of attempting to examine the effect of imputation on household financial investment decisions is to examine how the sector’s portfolio allocation between equities and fixed interest type investments has changed since the introduction of imputation. Figure 6 provides such information in the form of the ratio of equities to fixed interest holdings. Because equity investments are measured at market value, much of the variation in the ratio reflects variability in share prices, particularly the peak in 2007-08. However, over the longer term, there is no apparent trend evident since 1998 (just after the start of imputation and the start of the availability of this data series).
Figure 6 shows households’ direct holdings of financial assets excluding amounts held in superannuation accounts. To the extent that households take into account the composition of investments made by superannuation funds on their behalf, the direct figures thus do not tell the complete story, which also requires examining the effect of imputation on superannuation fund investments (made on behalf of households).

**Figure 2: Household sector financial asset allocation**

![Figure 2: Household sector financial asset allocation](image)

*Note: Ratio of shares and other equity over (currency and deposits plus securities other than shares plus loans and placements).*

*Source: ABS 2015a.*

Figure 7 provides some perspective on the bias towards stocks paying franked versus unfranked dividends. The bias is clearly large, although there is some overstatement since that data does not take into account investments in non-dividend paying shares held in prospect of capital gains, nor the tendency for lower dividend yields on stocks paying unfranked dividends.

**Figure 3: Individuals – dividend receipts ($ billion)**

![Figure 3: Individuals – dividend receipts ($ billion)](image)

*Source: ATO 2015b.*

**5.2 Superannuation fund investment behaviour**
There has been much discussion about the impact of dividend imputation on superannuation fund investment behaviour, including potential bias of portfolios towards investment in Australian equities paying franked dividends.

**Hypothesis:** *Australian institutional investors such as superannuation funds are biased towards domestic (versus foreign) equities due to imputation, and towards franked dividend paying equities.*

**International integration hypothesis:** This will occur because similar domestic and foreign stocks will offer equal expected cash returns, but domestic investors in domestic stocks will receive the benefit of the tax subsidy from imputation credits.

**Domestic segmentation hypothesis:** This will strongly occur, and domestic investor demand will lead to higher prices for domestic stocks relative to similar foreign stocks such that the expected (pre-investor –tax) cash returns on domestic stocks are lower but this is offset by the receipt of franking credits.

The bias towards franked dividend-paying stocks has been considered by Jun et al (2011) who find that ‘Institutional funds have a higher ownership in stocks which carry full imputation tax credits compared to stocks which have partial, or zero, imputation tax credits’. They explain relatively low holding of high dividend yield stocks by suggesting that such yields are viewed as unsustainable. While supportive of the hypothesis, it should be noted that their sample appears to be comprised of fund managers and pooled superannuation trusts, who may have specific mandates from ultimate beneficiaries (such as superannuation funds) who have allocated a specific portion of their portfolio through that mandate to be invested in particular types of equities (such as franked dividend paying stocks). In that regard, it may not provide guidance on the overall portfolio preferences of the ultimate beneficiaries.

Table 3 provides data on the composition of superannuation fund dividend receipts, and on the total composition of franked versus unfranked dividends paid by Australian companies. Comparing the composition of receipts by the Australian Prudential Regulation Authority (APRA) regulated superannuation funds to that paid by Australian companies (in the last rows of the table); there is no clear evidence of a bias towards franked dividend paying stocks. The comparison also ignores holdings of stocks not paying dividends. This most likely reflects the diversification of large superannuation fund holdings across the whole universe of listed stocks (although the data for dividends paid also reflects unlisted and private companies). There is perhaps some tendency for SMSFs to be underweight companies paying unfranked dividends (although to the extent that returns from such companies are derived more from capital gains, even that conclusion can be questioned).
Table 3: Superannuation fund dividend receipts ($ million)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>APRA Funds</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unfranked dividend amount</td>
<td>435</td>
<td>388</td>
<td>416</td>
<td>627</td>
<td>713</td>
<td>647</td>
</tr>
<tr>
<td>Franked dividend amount</td>
<td>2965</td>
<td>3026</td>
<td>2602</td>
<td>6220</td>
<td>4433</td>
<td>5060</td>
</tr>
<tr>
<td>Dividend franking credit</td>
<td>1247</td>
<td>1276</td>
<td>1104</td>
<td>2659</td>
<td>1886</td>
<td>2156</td>
</tr>
<tr>
<td>Trust distributions franked amount</td>
<td>2695</td>
<td>2319</td>
<td>2330</td>
<td>2803</td>
<td>2459</td>
<td>2590</td>
</tr>
<tr>
<td>Trust distributions franking credit</td>
<td>1485</td>
<td>1887</td>
<td>1275</td>
<td>1506</td>
<td>1381</td>
<td>1433</td>
</tr>
<tr>
<td><strong>SMSF</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMSF-unfranked dividend amount</td>
<td>310</td>
<td>332</td>
<td>426</td>
<td>581</td>
<td>550</td>
<td>403</td>
</tr>
<tr>
<td>SMSF-franked dividend amount</td>
<td>3708</td>
<td>4021</td>
<td>3743</td>
<td>6461</td>
<td>5142</td>
<td>4093</td>
</tr>
<tr>
<td>SMSF-franking credits</td>
<td>1586</td>
<td>1721</td>
<td>1602</td>
<td>2766</td>
<td>2200</td>
<td>1748</td>
</tr>
<tr>
<td><strong>SMSF-Credit: refundable franking credits</strong></td>
<td>1876</td>
<td>1990</td>
<td>1878</td>
<td>3096</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td><strong>Unfranked/Franked Dividends</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Paid by Australian companies</td>
<td>0.11</td>
<td>0.09</td>
<td>0.11</td>
<td>0.22</td>
<td>0.10</td>
<td>0.12</td>
</tr>
<tr>
<td>SMSFs - receipts</td>
<td>0.08</td>
<td>0.08</td>
<td>0.11</td>
<td>0.09</td>
<td>0.11</td>
<td>0.10</td>
</tr>
<tr>
<td>Super funds - receipts</td>
<td>0.15</td>
<td>0.13</td>
<td>0.16</td>
<td>0.10</td>
<td>0.16</td>
<td>0.13</td>
</tr>
</tbody>
</table>

Sources: ATO Taxation statistics 2012–13

Table 4 shows the asset allocation of the largest (approximately) 250 superannuation funds, with around 50 per cent allocation to equities and around half of that allocation to Australian equities (not all paying franked dividends).

Table 4: Large superannuation fund asset allocation (%)

<table>
<thead>
<tr>
<th>Proportion of investments</th>
<th>Mar 2014</th>
<th>Mar 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Fixed income</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td>Australian listed equity</td>
<td>25</td>
<td>24</td>
</tr>
<tr>
<td>International listed equity</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td>Unlisted equity</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Property</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Commodities</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total investments</strong></td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: APRA 2015.

It is instructive to compare this asset allocation with that found elsewhere. Mercer (2013) presents asset allocation data for large defined benefit pension funds in Canada for 2010 and 2013. For funds exceeding CDN $2 billion, 48 per cent of assets are allocated to equities and one third of this is domestic equity. Smaller funds have over 40 per cent of total equity holdings in domestic equity.
The Financial Services Council (2014) presents data for asset allocation of major pension funds in Europe, where the more common defined benefit structure leads to a larger allocation to fixed interest, and where membership of the European Union (EU) and closer economic integration blurs somewhat the distinction between domestic and foreign equities. Allocations for European countries and others in that report are shown in Table 5.

### Table 5: Pension fund equity allocation: international comparisons (%)

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage in domestic equity</th>
<th>Percentage in foreign equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>France</td>
<td>17</td>
<td>12</td>
</tr>
<tr>
<td>Germany</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Netherlands</td>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>Switzerland</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>UK</td>
<td>14</td>
<td>25</td>
</tr>
<tr>
<td>Chile</td>
<td>17.5</td>
<td>25</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>35</td>
<td>30</td>
</tr>
<tr>
<td>Japan</td>
<td>15.8</td>
<td>16</td>
</tr>
</tbody>
</table>

*Note: in some cases these figures exclude mutual fund investments which may involve indirect equity holdings.*

*Source: (FSC 2014).*

There are a wide range of institutional and country specific factors which influence pension fund asset allocation (many outlined in the FSC report), but it is apparent that Australian pension funds are relatively highly invested in equities and domestic equities in particular by international standards. Assessing how much of that is due to dividend imputation and how much to other factors is not possible, but the effect of imputation appears to be more in the nature of tilting portfolio weightings somewhat rather than a dramatic shift.

### 5.2 International investors

Foreign investment in Australian equity can take the form of direct or portfolio investment with the former involving ownership and control of a (generally non-listed) company or subsidiary. The existence of the imputation tax system is irrelevant to such foreign direct investment (FDI) decisions – unless it leads to a lower cost of equity capital for Australian owned competitors (sufficient to outweigh any operational efficiencies advantages of the potential foreign competitor). In some (perhaps many) areas of interest for FDI (such as mining), there may be little such competitive disadvantage effect. In such cases, long initial periods of non-taxpaying status due to significant time lags between incurrence of initial capital or operating costs and revenues imply significant discounting of the value of long-distant future franking credits (and more focus possibly on returns in the form of capital gains).

**Hypothesis:** Dividend Imputation does not affect foreign incentives for direct investment (through establishment of subsidiaries and so forth) in Australia.

**International integration hypothesis:** This applies because the cost of equity capital for domestic projects is unaffected by imputation.

**Domestic segmentation hypothesis:** There will be reduced incentive because of a lower cost of
equity capital for domestic competitors, except for projects where returns are primarily by way of capital gains.

Figure 8 provides some international comparisons on inward FDI, showing Australia’s relatively high level (with the consequence of a significant number of Australian domiciled companies which are foreign owned. (In examining Figure 8 the expectation that countries in the EU would have larger foreign ownership should be noted). Figure 9 shows the net stock of inward FDI, which reinforces the point, but also reflects the fact that Australia’s level of outward foreign direct investment is relatively low. While the Group of 7 countries are net providers of FDI, Australia is one of the largest net receivers. The role of the dividend imputation tax system in this regard is considered in Section 7).

Figure 4: World rankings – inward foreign direct investment

Table 6: International comparisons of net stock of inward foreign direct investment (USD million)

<table>
<thead>
<tr>
<th>Largest net recipients</th>
<th>Group of 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>Canada</td>
</tr>
<tr>
<td>Brazil</td>
<td>Italy</td>
</tr>
<tr>
<td>Mexico</td>
<td>Germany</td>
</tr>
<tr>
<td>Australia</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>Indonesia</td>
<td>France</td>
</tr>
<tr>
<td>Poland</td>
<td>Japan</td>
</tr>
<tr>
<td>Turkey</td>
<td>United States</td>
</tr>
<tr>
<td>Czech Republic</td>
<td></td>
</tr>
<tr>
<td>Russia</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td></td>
</tr>
</tbody>
</table>

Source: OECD 2015b.

The situation with regard to portfolio investment in Australian equities is quite different.

Foreign investors are not able to utilise franking credits distributed with dividends to reduce tax obligations, such that their investments in Australian equities are subject to classical style tax treatment of ‘double taxation’ of dividends, according to the features of the tax system in their
home country. This should make them indifferent between Australian and foreign stocks offering similar risky expected future cash flows – if the prices of each are equal, and withholding tax does not introduce distortions. If domestic investors have bid Australian franked-dividend paying stock prices higher due to the imputation tax benefits, foreign investors will be generally unwilling to invest in such stocks. The exceptions are: (a) if such Australian stocks offer sufficient diversification benefits to offset the lower expected after-tax yields to foreign investors, or (b) portfolio trading strategies enable such investors to capture returns from such Australian stocks in the form of capital gains yielding similar returns to investments in foreign stocks.

**Hypothesis: Dividend Imputation reduces the extent of foreign portfolio investment in domestic equities.**

**International integration hypothesis:** This will not occur because similar domestic and foreign stocks will offer equal expected cash rates of return (with imputation credits received by foreign investors wasted).

**Domestic segmentation hypothesis:** This will occur, because higher prices for domestic stocks relative to similar foreign stocks mean that expected (pre-investor-tax) cash returns on domestic stocks are lower (with this offset for domestic investors by the receipt of franking credits).

Because of the use of nominee companies for public recording of shareholdings in listed companies by institutional investors, it is not possible to get good information on foreign ownership of Australian listed companies. Mishra and Ratti (2014) use aggregate cross border portfolio investment flows and find from a cross country study ‘that an increase in the degree of dividend imputation (and reduction in the extent of double taxation) significantly reduces foreign investment’.

### 5.3 Corporate financial behaviour

By (at least partially) removing the interest tax shield for corporate debt, imputation has reduced incentives to leverage by Australian firms and thus can be expected to have increased the relative stock of corporate equity relative to corporate borrowings and debt.

**Hypothesis: Dividend Imputation causes Australian companies to adopt lower leverage, and this effect is more pronounced as (a) the shareholder base is more domestic (b) operations are more domestic (c) projects are more likely to become taxpaying more rapidly. Note: these effects reflect the tax bias towards debt in other jurisdictions, versus the absence of such a bias under imputation.**

**International integration hypothesis:** This will not occur if managers focus solely on maximisation of corporate value because valuation of both domestic and foreign companies will reflect cash flows after company tax available to shareholders and creditors, with no account taken of loss of franking credits from the reduction in company tax paid with increased leverage. However, if managers also attribute value to franking credits distributed to domestic investors, the incentive to leverage will be reduced.

**Domestic segmentation hypothesis:** This will occur, because of the absence of an interest-tax shield under imputation.
One complication in examining corporate leverage relates to whether book or market values are the preferred indicator. Finance theory suggests that capital structure decisions are made with reference to market value amounts, since it is upon these that investor required returns are based. Fan, Titman et al. (2012) provide cross-country comparisons of corporate leverage by (larger) listed non-financial companies – as shown in Figure 9. Based on the median value, Australian companies have low leverage relative to those in other major countries.19

**Figure 9: International leverage comparisons**

Notes: Figure 9 plots the median leverage ratio across 39 countries. The leverage ratio is measured as total debt over the market value of the firm. Total debt is defined to be the book value of current and long-term interest-bearing debt. Market value of the firm is defined to be the market value of common equity plus book value of preferred stock plus total debt.


The average change in leverage since 1988 of non-financial private corporations (using the market value of equity) is shown in Figure 10, where a ‘net leverage’ figure is also shown by adjusting for corporate holdings of financial assets. The decline in leverage prior to the GFC was at a time of (generally) increasing market values of equity, but it should not be seen as purely a valuation effect. Rather, it can be interpreted as a response to the introduction of the dividend imputation tax system in 1987 which largely removed tax incentives for use of debt relative to equity by Australian owned companies.

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19 Alcock et al, (2012) find that for 976 firm-year observations of ASX firms between 1989 and 2006, the median leverage ratio (measured as debt/(debt+ equity market value) was 0.18.
Further evidence consistent with imputation leading to increased use of equity financing is provided in international comparisons by Melia, Docherty et al. (2015). They find that between 1976 and 2010, the average annual change in shares on issue in Australia was 19 per cent compared to 4 per cent in the United States and that the annual change in Australia increased from an average of 11 per cent prior to imputation to 21 per cent after.

Figure 11 shows the ratio of share issues to total new liabilities for the corporate sector. From the mid 1990s until mid 2000s, share issues (listed and unlisted) were around half of total new external liabilities. These (Australian Bureau of Statistics) figures become distorted in the mid 2000s due to such transactions as a transfer of domicile of NewsCorp in December 2004 and a global restructuring of another major company in June 2005. Nevertheless, it is apparent that Australian companies have in aggregate made significant use of new equity raisings relative to debt since the introduction of imputation, with external equity raisings supplemented by retained earnings.

**Figure 1: Australian corporate financing**

*Note: A moving average is used to smooth out the effects of one-off transactions.*

*Source: ABS 2015.*
5.4 Dividend behaviour

Shareholders (with some exceptions discussed below) gain no value from undistributed franking credits until they are received by them and usable for offsetting tax liabilities. Hence there is time value associated with earlier receipt, and thus an incentive for companies to distribute franking credits by payment of dividends. In contrast, shareholders in companies unable to frank dividend payments (due, for example to accumulated tax losses) may be tax advantaged by retention of earnings and investment thereof which lead to higher share price and concessionally taxed long term capital gains rather than payment of dividends which incur current tax liability for the shareholder.

Shareholders on high marginal tax rates may prefer earnings retention which generates long term concessionally taxed capital gains.\textsuperscript{20} For this reason, private companies controlled by high tax rate owners may adopt a low dividend payout strategy.

Foreign shareholders who receive no value from imputation credits may prefer the company to retain earnings and provide returns through concessionally taxed capital gains rather than dividends.

Undistributed franking credits may be capitalised into a company’s share price, although the capitalisation factor is unknown and would depend upon market expectations of when such credits might be distributed and usable by shareholders.

\textbf{Hypothesis:} Dividend imputation leads to a higher dividend payout ratio by Australian tax-paying public companies (and is accompanied by greater use of dividend reinvestment schemes).

\textbf{International integration hypothesis:} This will not occur, because distribution of franking credits does not affect corporate valuation, unless international investors prefer cash dividends to earnings retention and subsequent capital gains.

\textbf{Domestic segmentation hypothesis:} This will occur, because corporate valuation will be higher if after-company-tax earnings are distributed as franked dividends rather than retained and reinvested.

The increased incentive to high dividend payouts also has consequences for higher new share issuance, often through dividend reinvestment schemes, to replace funds distributed to shareholders.\textsuperscript{21} Various studies have examined, and found, positive correlation between use of dividend reinvestment schemes and franked dividend payout ratios of Australian companies. Abraham et al (2015) find support for the hypothesis that financial firms paying franked dividends are more likely to use dividend reinvestment schemes, but no evidence in the case of non-financial firms. They do find that use of reinvestment schemes increased following the changes in 2000 which enabled investors to receive tax rebates for unused franking credits.

---

\textsuperscript{20} Retention of $1 of earnings after tax enables reinvestment of that amount leading to long term concessionally taxed capital gains. Payout as franked dividend generates an immediate tax liability and thus less available for reinvestment for high tax rate shareholders.

\textsuperscript{21} A consequence is that share prices will grow more slowly (due to less retained earnings), and companies will tend to have more shares on issue at lower share prices than would otherwise be the case.
Lee (2010) examines whether managers cater to retail shareholders who are assumed to desire dividends, by investigating the link between dividend size (dividends relative to assets or sales) and proportion of retail investors on the share register. Lee finds that there is a positive relationship and that dividend size is larger when dividends are franked.

Australian companies will have less incentive to distribute free cash flow to shareholders by way of share repurchases instead of dividends than is the case in other jurisdictions. However, where tax arrangements provide the opportunity to distribute franking credits as part of a buyback to those who value them most, use of buybacks can be anticipated.

High dividend payout ratios are one mechanism for reducing owner-manager agency problems, by reducing the free cash flow available to managers and requiring use of external funding to finance investments. While use of external funding can be argued to involve more transactions cost relative to internal funding, dividend reinvestment schemes can be used as can private placements.

Soon after the introduction of imputation there were a number of studies demonstrating that dividend payout ratios of Australian listed companies had increase in response (Nicol 1991; Pattenden and Twite 2008; Callen, Morling et al. 1992). Bellamy and Gray (2004) examined dividend levels post 1987 relative to pre 1987 and found a significant increase for companies able to pay franked dividends (relative to those paying unfranked dividends). There was a significant increase in the use of dividend reinvestment schemes by companies paying franked dividends. Lowe and Shuetrim (1992) find that the average dividend payout ratio increased from 47 per cent in 1988 to 76 per cent in 1990 – but note that other relevant tax changes included introduction of capital gains tax in 1985 and taxation of superannuation funds at 15 per cent. Using a longer data period, 1982-1997, Pattenden and Twite (2004) also find increases in dividend payout rates related to available franking credits and increased use of dividend reinvestment schemes.

Foreign tax credit arrangements mean that no Australian company tax is generally levied on foreign taxed income repatriated by an overseas subsidiary to its Australian parent. However, dividends distributed to shareholders arising from that income will be unfranked and thus subject to tax at the investor level. Since this is essentially equivalent to a classical income tax system for this type of income, the usual corporate preference for earnings retention and generation of returns to shareholders in the form of preferentially-taxed long term capital gains arises. One consequence, noted by the Board of Taxation (2003) was the tendency for companies with foreign source income to retain such funds offshore to finance further expansion.

**Hypothesis:** Australian companies with substantial foreign source income will tend to have a higher level of earnings retention and lower dividend payout ratios.

**International integration hypothesis:** This will occur because of the general shareholder preference under a classical tax system for earnings retention.

**Domestic segmentation hypothesis:** This will occur, because the imputation system affects a smaller part of the company’s activities than for purely domestic companies.

Henry (2011) finds that for his sample of companies in the ASX 300, the mean (median) distribution rate (dividends/earnings) between 1992 and 2008 was 68.4 per cent (63.2 per cent) with
corresponding figures for total payout rates (including share repurchases) of 77.1 per cent (66.4 per cent). He interprets the relatively small difference in these figures as evidence that Australian companies have not substituted share repurchases for dividends, but used them occasionally as a supplement way of providing returns to shareholders. He also finds a mean (median) franking rate of dividends of 82.1 per cent (100 per cent) demonstrating the relative importance of franked versus unfranked dividends. He finds more concentration of domestic institutional ownership in companies paying franked versus those paying unfranked dividends, with the reverse situation for foreign ownership (that is, fewer cases where foreign owners have a significant shareholding when considering companies paying franked dividends).

Jarnecic and Liu (2011) also provide data on dividend characteristics by ASX 200 companies. They find that the average semi-annual (cash) dividend yield (as a percentage of the last price on the ex-div day) is 2.3 per cent with 50 per cent of cases lying between 1.46 per cent and 2.84 per cent. The average franking percentage was 66 per cent with over half of companies paying fully franked dividends. Abnormal returns from buying before the dividend announcement and holding for 46 days (to benefit from franking credits received) before selling generated significant abnormal returns (relative to changes in the ASX 200 Index) of 4.07 per cent for stocks paying fully franked dividends. This was higher than the abnormal returns of 2.85 per cent in the case of unfranked dividends (which were still significantly positive and reflect the result found in other studies of an average drop-off ratio (dividends/ex-day price change) of less than unity).

For a proprietor with a marginal tax rate above the company tax rate, tax savings can be achieved by retention and reinvestment of earnings within the corporate form relative to the case in unincorporated structures. Undistributed profits can be subsequently distributed as franked dividends when the owner is perhaps retired and on a lower marginal tax rate, or recouped from ultimate sale of the business for capital gains (which will generally receive preferential tax treatment under special concessions for small business).

**Hypothesis:** Small companies with concentrated ownership by high personal tax rate individuals will have less incentive towards high dividend payout ratios, because of shareholder tax preference for capital gains when corporate tax rate below personal tax rate.

**International integration hypothesis:** This will occur because international investors play no direct role in determining the value or financial management of such companies.

**Domestic segmentation hypothesis:** This will occur.

Table 7 provides some evidence in support of this hypothesis, although because it is aggregate data (by company type and size) it is at best indicative. Micro and small private companies have franking account balances which are higher relative to taxable income than large and very large public companies, which is consistent with the former’s accumulation of franking credits rather than paying out of franked dividends. They also have substantially lower ratios of franked dividends paid relative to net tax obligations which is consistent with that hypothesis. So also is the lower ratio of franked dividend payments relative to the franking account balance. However, because of the aggregation across firms, time lags in dividend payments, and other factors such as companies being temporarily
in a size class due to atypically good or poor performance in that year, the evidence is at best indicative.

Table 7: Franked dividend payout indicators

<table>
<thead>
<tr>
<th>Company type, and size (by total income)</th>
<th>Franking account balance/ income</th>
<th>Franked dividends paid/ net tax</th>
<th>Franked dividends/ franking account balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Loss/nil</td>
<td>0.65</td>
<td>1.11</td>
<td>0.50</td>
</tr>
<tr>
<td>b. Micro ($1-2 mill)</td>
<td>1.66</td>
<td>1.27</td>
<td>0.20</td>
</tr>
<tr>
<td>c. Small ($2-10 mill)</td>
<td>1.01</td>
<td>1.12</td>
<td>0.28</td>
</tr>
<tr>
<td>d. Medium ($10-100 mill)</td>
<td>0.98</td>
<td>1.23</td>
<td>0.31</td>
</tr>
<tr>
<td>e. Large ($100-250 mill)</td>
<td>1.20</td>
<td>1.11</td>
<td>0.25</td>
</tr>
<tr>
<td>f. Very large (&gt;250 mill)</td>
<td>0.99</td>
<td>1.52</td>
<td>0.39</td>
</tr>
<tr>
<td>Public</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Loss/nil</td>
<td>0.74</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>b. Micro</td>
<td>2.17</td>
<td>1.34</td>
<td>0.22</td>
</tr>
<tr>
<td>c. Small</td>
<td>1.14</td>
<td>1.11</td>
<td>0.27</td>
</tr>
<tr>
<td>d. Medium</td>
<td>0.96</td>
<td>1.51</td>
<td>0.40</td>
</tr>
<tr>
<td>e. Large</td>
<td>0.89</td>
<td>1.78</td>
<td>0.48</td>
</tr>
<tr>
<td>f. Very large</td>
<td>0.61</td>
<td>1.54</td>
<td>0.65</td>
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<tr>
<td>Other (eg cooperatives)</td>
<td>1.39</td>
<td>0.44</td>
<td>0.08</td>
</tr>
<tr>
<td>Non-resident</td>
<td>0.10</td>
<td>1.42</td>
<td>4.16</td>
</tr>
</tbody>
</table>


On-market share buybacks were facilitated by legislative change in 1989 (and facilitated by further changes in 1995), but have not been used extensively by Australian companies relative to use overseas. Companies with surplus cash may prefer to use that cash to repurchase shares (subject to legislative restrictions) thereby supporting the share price, rather than paying dividends if this is to the benefit of shareholders.

**Hypothesis:** Dividend imputation reduces the use of on-market share repurchases as an alternative to dividends as a means of providing cash to shareholders.

**International integration hypothesis:** This will not occur because of the general shareholder preference under a classical tax system for returns in the form of capital gains rather than dividends.

**Domestic segmentation hypothesis:** This will occur because domestic investors value the franking credits attached to dividends in preference to the capital gains resulting from higher stock prices due to the repurchase.

Mitchell and Dharmawan (2007) note that ‘the relative frequency in terms of number of companies or dollar value of on-market buy-backs in Australia is nowhere near the levels experienced in the US’ over their time period of study of 1996-2001. While Mitchell and Dharmawan investigate a number of reasons for incentives to use buybacks, this lower use is consistent with the hypothesis that dividend imputation removes the incentive for their use which occurs under a classical tax system.
Under the classical tax system, share buybacks may have positive effects on the company’s share price and thus involve higher, but concessionally, taxed capital gains for shareholders on realisation, but the cash outflow from the company does not involve the double taxation involved with payment of dividends.

As well as there being no impetus from avoiding double taxation of dividends in Australia, another disincentive arises from the rules applied by the ATO to franking account balances when an on market buyback occurs. If some portion of the payment for the shares is debited to retained earnings, rather than to the share capital account, that part of the purchase price is deemed, for the purposes of debiting the franking account balance, to be a franked dividend – even though for the on-market sellers of the shares, the receipt is a capital item.\(^{22}\) This thus involves wasting franking credits which could otherwise be distributed to shareholders.

**Hypothesis:** Companies will seek to return unused franking credits to domestic investors (rather than to foreign investors) by use of mechanisms such as off-market share buybacks.

**International integration hypothesis:** This will occur because some domestic investors will be willing to sell stock back to the company at a below market price to obtain the resulting franking credits included in the consideration, to the benefit of non-participants.

**Domestic segmentation hypothesis:** This will occur because some domestic investors will be willing to sell stock back to the company at a below market price to obtain the resulting franking credits included in the consideration, to the benefit of non-participants.

Brown and Davis (2012) document the use of off-market buybacks by Australian companies. While relatively small in number, they have been significant in scale – far greater in dollar value than on-market buybacks. The incentive for their use has been the opportunity for companies with surplus cash and unused franking credits to target distribution of those franking credits to domestic investors. This arises because tax legislation allows the purchase price paid by the company to be divided into return of capital and franked dividend components (with the latter generally being the dominant component). Consequently, participants are deemed to have a low selling price and obtain capital gains tax benefits, but the high franked dividend component means that low tax rate domestic investors dominate the tender process and are willing to accept a price for shares below the current market price. Even though the Australian Taxation Office (ATO) is able to impose an additional debit to the company’s franking account balance (based on the proportion of foreign shareholders on the register) to reflect this implicit ‘streaming’ of franking credits to domestic investors, it does not appear to have done so to date.

The ability of the company to buy back shares at a sub-market price adds value overall for its shareholders. ATO restrictions on the maximum discount in the buyback (to 14 per cent of the pre-buyback price) which is typically binding and leading to significantly lower discount than an equilibrium arbitrage outcome would apply (Brown and Davis, 2012) and scaling back of successful

offers, do however distort the distribution of benefits towards participants and away from non-participants.

5.5 Security design – preference shares

**Hypothesis:** *Dividend Imputation leads to greater use of preference shares rather than debt securities as the basis for construction of hybrid securities.*

**International integration hypothesis:** This will occur because some domestic investors will be willing to purchase preference shares offering franked dividends at a lower cash yield than for debt, and which offsets the effect of the lower corporate tax arising if a debt issue is made.

**Domestic segmentation hypothesis:** This will occur because there is no tax bias against preference shares.

One consequence of imputation has been a greater willingness of Australian companies to use preference share finance as an alternative to debt finance than is found overseas – where classical tax systems lead to double taxation of preference share dividends. Consequently, there has been significant use of preference share structures in the design of hybrid securities in Australia (and accounting and tax complexities associated with classification of such securities).

As at March 2014 the ASX market capitalisation of the 37 hybrid preference shares on issue was just under $30 billion versus $1.4 billion for the 13 convertible notes. While small relative to overall equity market capitalisation of $1,716 billion, the size of the hybrid preference share market was not markedly different to that of the Australian corporate bond market.

**Hypothesis:** *Use of preference shares which pay franked dividends enables Australian companies to better target the distribution of tax credits to Australian investors and reduce ‘wastage’ of such credits.*

**International integration hypothesis:** This will occur because some domestic investors will be willing to purchase preference shares offering franked dividends at a lower yield than for debt, and which offsets the effect of the lower corporate tax arising if a debt issue is made.

**Domestic segmentation hypothesis:** This will not occur because companies able to pay franked dividends will have only domestic investors as ordinary shareholders.

There has been substantial use of hybrid preference share instruments by Australian banks, partly reflecting the ability to include funds raised from such issues as part of regulatory capital. Such securities have been generally designed to offer a quarterly floating rate franked dividend at some margin over the 90 day bank bill swap reference rate (BBSW). The dividend is typically expressed as a cash amount of \((BBSW + \text{margin}) \times (1 - \text{tax rate})\) where ‘tax rate’ is the company tax rate applicable in franking the dividend. The grossed up dividend is thus \((BBSW + \text{margin})\) such that the after personal tax return for domestic investors is \((BBSW + \text{margin}) \times (1 - t)\) where ‘t’ is the investors personal tax rate, and provision is made for the cash amount to be increased pro-rata if the issuer is unable to frank the dividend.
Such a structure (offering a lower cash return than other similar securities) is clearly unattractive to foreign investors who are unable to use the franking credits. Consequently, the target investor base has been domestic investors, including retail investors, who fully value the franking credits. In this way, available franking credits not needed to frank normal levels of ordinary dividends, can be distributed in the most cost effective way – reflected in the margin over the BBSW offered (compared to that which would be required to issue similar hybrid securities to wholesale foreign investors).23

**Hypothesis:** Dividend imputation reduces corporate tax aggressiveness.

**International integration hypothesis:** This will not occur because the market value of the company is determined by the cash-flow after corporate tax.

**Domestic segmentation hypothesis:** This will occur for purely domestic companies because the market value of the company is not affected by the amount of Australian company tax paid, but will not occur for international activities where reduced foreign company tax creates value for investors.

23 Ikin and Tran (2013) find that companies paying franked dividends are less likely to undertake aggressive tax minimisation strategies, including in periods when a forthcoming reduction in the corporate tax rate is to occur. However, (Balachandran et al. 2013) find that companies used accounting accruals at around the time of imputation introduction to defer income in years prior to reductions in personal tax rates when distribution of dividends and franking credits will have greater value.

### 5.6 Corporate valuation

Much of the empirical research, listed in Appendix 4, has been directly or indirectly focused on the effect of imputation on the valuation of equity in Australian companies – albeit often indirectly through attempts to estimate the value of ‘gamma’.

**Hypothesis:** The dividend imputation system lowers the cost of capital for Australian companies investing in projects subject to Australian company tax. The cost of capital considered here is that applicable to project cash flows before company tax.

**International integration hypothesis:** This will not occur because the cost of capital is determined by international investors for whom imputation is irrelevant.

**Domestic segmentation hypothesis:** This will occur, because domestic stock prices reflect domestic investors’ higher valuation (than that of international investors) of projects with cash flows generating imputation credits.

The empirical evidence provides conflicting results. The majority of studies examining share price movements around ex-div dates, determinants of risk-adjusted rates of return on equities, and

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23 Because many of these issues have ‘bail-in’ conditions involved, it is not straightforward to compare the offered yield with other securities on issue. There have also been concerns expressed over whether retail investors understand the implications of the bail-in conditions.
comparisons of prices of assets differing only in entitlements to franked dividends, tend to find values of gamma of less than 0.5. But a number of other studies imply values greater than 0.5. All approaches require a number of assumptions to be made which can be challenged (and are in sometimes heated debates).

The consensus, if there is one, is that there is some, but incomplete, effect of imputation in lowering the cost of equity capital for Australian-tax-paying projects and companies. Access pricing regulators have generally adopted such a position.

**Hypothesis:** Listed companies which provide returns to shareholders more in the form of franked dividends than capital gains will be valued more highly than otherwise equivalent companies.

**International integration hypothesis:** This will not occur because franking of dividends does not affect the share price, and international investors prefer capital gains to dividends.

**Domestic segmentation hypothesis:** This will occur because domestic investors such as superannuation funds place higher valuation on franked dividends than capital gains.

Siau et al. (2015) is one of the few studies which has directly examined this hypothesis. To do so it is necessary to make assumptions about expected future cash (and imputation credit) flows available to investors and appropriate discount rates. They find little evidence to support the hypothesis.

**Hypothesis:** The market valuation of companies will reflect their available stock of retained franking account credits.

**International integration hypothesis:** This will not occur because stock prices are determined by international investors to whom franking credits are of no value.

**Domestic segmentation hypothesis:** There will be an effect due to expectation of ultimate distribution of franked dividends, but the valuation effect may be slight due to the time lags involved and consequent discounting.

There appears to be no studies which have been able to provide evidence on this matter, and researchers typically ascribe zero effect of unused franking credits on a company’s share price.

6. **Financial market development**

6.1 **Corporate debt markets**

Imputation interacts with other features of the tax system to influence the structure of Australian debt markets. While corporates have little or no tax incentives to used debt financing, this is not the case for households or individuals with regard to mortgage debt. The incentive is clearest in the case of financing investment properties where capital gains tax concessions and tax deductible debt financing interact to provide opportunities for (risky) tax arbitrage. In the case of owner-occupied properties, tax incentives from non-taxation of imputed rental income and capital gains, work to increase demand for mortgage finance even though interest payments are not tax-deductible.

There is thus a situation in which, for a given demand for debt by investors to be met by the market, there is a tax bias towards debt supply by households in the form of mortgage instruments. However,
except where mortgages are securitised, those debt claims are not available to investors – except indirectly through holding of bank deposits. With a limited supply of corporate debt claims (and until recently government debt) available to meet institutional investor demand, one consequence has been the growth of the Kangaroo bond market.24

Hypothesis: Dividend imputation, by removing the tax bias towards debt, impedes the development of the domestic bond market

International integration hypothesis: This is not the case, because leverage adds value by reducing company tax paid, although use of preference shares to direct franking credits to domestic investors at lower rates of cash return can add value and reduce need to issue debt.

Domestic segmentation hypothesis: This is the case, because leverage does not add value and thus reduces corporate use of debt.

That outcome involves the apparently paradoxical situation where those Australian corporates that do issue debt tend to do so in foreign markets (often hedging currency risk involved). Deeper bond markets overseas for issuers of less than AA rating have made this more attractive for Australian companies. In contrast, overseas (typically sovereign or multinational) issuers have been attracted by the lower spreads on AA or AAA debt which need to be paid in the Australian market.25

6.2 Equity markets

Hypothesis: Dividend Imputation encourages the growth of the domestic equity market

International integration hypothesis: This will not occur because there is no reduction in the cost of equity capital, which would increase investment, nor a reduction in the incentive to leverage to finance activities.

Domestic segmentation hypothesis: This will occur because there is no tax disincentive to use of equity rather than debt finance, and a lower cost of equity capital.

One consequence of corporate willingness to use equity financing is the consequences for the size of the local stock market. Australia’s stock market is large by international standards. Figure 13 illustrates based on market capitalization/GDP. The ASX is the 7th largest exchange internationally measured by market capitalization and 5th largest measured by free-float market capitalization.

24 This is despite Australia’s current account deficit requiring net borrowing from overseas – although some part of Kangaroo issuance is purchased by foreign investors.
25 And their desire to hedge the resulting AUD exposure back into foreign currencies facilitates a market in such hedging instruments where Australian corporates are on the other side of the market.
6.3 Stock trading behaviour

It would be expected that investors to whom franking credits are valuable would adopt trading strategies to capture franked dividends, while those to whom they are of no value would look to capture returns as capital gains when stocks are cum-div and their prices higher due to demand from the former group of investors.

Hypothesis: Foreign investors are more likely to buy franked dividend paying shares when they have gone ex-div due to a preference for capital gains.

Hypothesis: Domestic investors on low tax rates are more likely to buy franked dividend paying shares when they are cum-div due to a preference for franking credits.

International integration hypothesis: Foreign investors will prefer to purchase ex-div and domestic investors cum-div, and the ex-day price drop off will reflect the size of the cash dividend and influence of trading strategies.

Domestic segmentation hypothesis: Foreign investors will prefer to purchase ex-div and domestic investors cum-div, and the ex-day price drop off will reflect the size of the grossed up dividend and influence of trading strategies.

The reality is more complicated than this simple expectation, because expected returns from alternative strategies depend upon expectations of such effects as the size of the stock price fall when it goes ex-div. The results of the available empirical studies appear to confirm that it is difficult to identify consistent trading strategies of types of investors, although some effect on trading volumes and trade aggressiveness around ex-div dates has been identified.

The discrete nature of dividends (paid half yearly) means that investors may be able to enhance portfolio returns by trading activity, even if they have no special information advantage, by timing of trades which lead to substitutions between dividends and capital gains/losses with differential tax consequences. For example, selling a stock cum-div and repurchasing it ex-div when the price has fallen involves forgoing the dividend for a net cash gain (before tax) of the difference between the
cum- and ex-div prices. Then, a hypothetical foreign investor for whom franking credits are of no value, and who can avoid capital gains tax, would find it worthwhile selling a stock cum-div and repurchasing it ex-div if $D(1 - t_p) < \Delta P$, where $D$ is the dividend, $t_p$ is the investor withholding tax, and $\Delta P$ is the ex-day price drop. If $t_p = 0.15$, for example, the strategy is beneficial if the drop-off rate $\Delta P/D$ exceeds 0.85. While it would be expected that domestic investors would be likely cum-div purchasers of franked dividend paying stocks, there are circumstances where they too could benefit from the same strategy. While the strategy might crystallise capital gains (from the act of sale) there may be situations where the investor can offset those gains against other realised losses in the portfolio. If so, and no capital gains tax results, an investor holding a stock about to pay a franked dividend would compare the after tax dividend amount $(D(1 - t_p) / (1 - t_c))$ with the drop off $\Delta P$. If the investor thought the ex div day drop-off as a proportion of the dividend would exceed $(1 - t_p) / (1 - t_c)$ an expected tax arbitrage benefit occurs by selling and repurchasing. For a superannuation fund where $t_p = 0.15$, this implies that an expected drop off rate of over 1.2 for a franked dividend would justify such a strategy.

These hypothetical examples, which ignore transactions costs (and capital gains tax), illustrate that trading strategies around ex-div dates are likely to be highly conditional on the specific circumstances (and expectations about ex-div drop off rates) of investors. Further, because those trading strategies will interact to determine the ex-div price drop-off, the ability to extract the valuation of franking credits, and longer run consequences for corporate cost of capital, from dividend drop off rates is highly problematic.

The dependence of trading strategies on expectations about price movements when stocks go ex-div is one of the implications of the results found by Ainsworth et al. (2015), where the wholesale mutual funds in their sample (which covers the period 1995 to 2001) are (surprisingly) sellers of franked dividend stocks prior to the ex-div date. Such trading behaviour is also more prevalent in stocks which have had a prior recent price run-up. They suggest that individual investors may be the counterparties seeking to capture the franked dividends.

Ainsworth and Ang (2014) note that as the ex-div date approaches, the difference in tax treatment associated with dividends to different investors could be expected to lead to more aggressive trading. For example, low domestic tax rate investors wishing to capture a franked dividend are more likely to place market orders, rather than limit bid orders, or lower bid orders. This is less likely to occur where dividends are unfranked. They do find evidence of greater order aggressiveness before the ex-div date compared to earlier dates for franked dividend-paying stocks.

Chu and Partington (2008) find changes in the value of imputation credits near ex-div dates consistent with prices being set at those times by short term investor trading strategies, whereas higher valuations at other times are consistent with longer term investors being the price setting investors.

Jarnecic and Liu (2011) examine the profitability of trading behaviour around ex-div dates, from 2000-2011, assuming a 46 day holding period to ensure ability of the investor to use franking credits attached to the dividend. On average the strategy of buying prior to the ex-div date and selling 46
days later generated abnormal returns (relative to ASX 200 Index movements) with the degree of franking having a positive effect on the abnormal return.

7. Real effects

71. Corporate operational decisions

Profits from international operations of an Australian company will be subject to corporate tax in the host country and generally (because of international tax treaties) not subject to Australian company tax. Consequently, such operations are effectively taxed under a classical tax system, generating no imputation credits and involving double taxation of dividends if profits are distributed as dividends. Under the international integration hypothesis, this (with one important caveat) should not bias decisions of companies regarding offshore versus onshore expansion, because the cost of capital is determined by investors in international markets to whom imputation credits are irrelevant.

The caveat is that company management, recognising that domestic investments generate a tax subsidy to domestic investors, may cater to the interests of domestic rather than foreign shareholders. They would then focus on domestic expansion even though the cost of capital is no lower than for overseas expansion. While, at the company level, the net present values (NPVs) of domestic and foreign expansion may be equal, the tax subsidy which domestic investors receive from franking credits makes domestic expansion preferable for them. If management prioritises the interests of domestic shareholders over shareholders in general, it will focus more on domestic expansion. This is not to the disadvantage of international shareholders (the domestic shareholder benefit associated with domestic expansion is a transfer from government) unless inferior domestic expansion options are pursued. To the extent that domestic shareholders dominate the share registry and exert influence through ‘voice’ (voting and influence activities), catering to domestic shareholder interests may not be unexpected.

Alternatively, (under the domestic segmentation hypothesis) if imputation credits are valued in the market pricing of company shares, Australian companies will face a lower cost of capital for domestic rather than overseas projects, and have incentives to pursue domestic expansion.

Hypothesis: Australian companies have an incentive to undertake domestic rather than foreign projects either because of a lower cost of capital, or because of a preference to cater to the interests of domestic investors.

International integration hypothesis: This will not occur because the cost of capital is not affected by imputation and is the same for both foreign and domestic activities (but may occur if managers take into account the tax credit benefits flowing to domestic investors in decision making).

Domestic segmentation hypothesis: This will occur because the cost of capital is lower for domestic projects than for overseas projects.

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26 And then, international investors would mark the company share price down creating disincentives for management to pursue this route.
To the extent that catering behaviour occurs, it could be expected to generate an outcome in which companies with large domestic shareholder base focus more on domestic rather than overseas expansion.

**Hypothesis:** Companies where domestic shareholders are a large proportion of the shareholder register can be expected to focus more on domestic rather than overseas expansion.

Testing this hypothesis is potentially confounded by reverse causation whereby domestic investors are attracted to companies which have a larger focus on domestic activities.

In 2003, the Board of Taxation concluded that ‘current bias in the imputation system towards domestic investment by Australian firms impedes the ability of Australian companies to attract equity capital for offshore expansion’ (Board of Taxation 2003). Such a view appears to be aligned to the domestic segmentation hypothesis

**Hypothesis:** In making investment decisions, Australian companies incorporate the value of franking credits into the analysis.

**International integration hypothesis:** This will not occur because the cost of capital is not affected by imputation and franking credits have no value.

**Domestic segmentation hypothesis:** This will occur because the cost of capital is lowered by the existence of franking credits.

Despite the importance of this issue, there is limited evidence available. Truong, Partington et al. (2008) undertook a survey of corporate finance officers of ASX listed companies. Seventy-seven companies responded to the question of whether imputation credits were taken into account in project evaluation and only 17 per cent indicated that they did. Reasons for not doing so included difficulty (around half) and a range of other reasons – some of which implied that imputation affected the cost of capital and others which implied the opposite. Access pricing regulators have applied investment and pricing models which assume that the value of franking credits is incorporated into investment decisions. Of course, to the extent that domestic companies prefer to undertake domestic projects rather than otherwise equivalent overseas projects, the effect of franking credits is being taken into account implicitly. The effect of imputation can also affect decisions indirectly through the value assumed for the market risk premium.

**Hypothesis:** Foreign companies are at a competitive disadvantage operating in Australia due to the lower cost of capital for Australia-owned companies.

**International integration hypothesis:** This is not the case because the cost of capital is not affected by imputation and is the same for both foreign and domestic companies operating in Australia.

**Domestic segmentation hypothesis:** This is the case because the cost of capital is lower for domestic companies undertaking domestic projects than for overseas companies due to imputation.

### 7.2 Concessional tax schemes
In many countries, Australia included, governments at various times provide tax concessions for particular corporate expenses with the view of inducing increases in such expenditures. Common examples include allowance of more than 100 per cent of R&D expenditure as a tax deduction, and accelerated depreciation allowances. However, under an imputation tax system, these tax concessions imply that the reduction in corporate tax paid also leads to a reduction in franking credits available for distribution with dividends. For companies with a 100 per cent payout ratio and a solely domestic shareholder register, the concessions are completely offset by imputation, with the total tax paid (at corporate and shareholder levels) on the company’s income unaffected. The intended incentives do not materialise. For companies with foreign shareholders, or not distributing 100 per cent of earnings, or with income streams which lead to some part of dividends being unfranked, the offset is less than complete, and some incentive remains to undertake the relevant expenditures.

**Hypothesis:** Dividend imputation means that the effects of concessional government schemes such as R&D credits, accelerated depreciation and so forth, which reduce company tax, have most benefit for companies with foreign investors or foreign source income, or private companies with high personal tax rate shareholders (for whom retention of earnings and capital gains is preferred to payment of franked dividends).

**International integration hypothesis:** This is not the case because all companies benefit from reductions in corporate tax paid.

**Domestic segmentation hypothesis:** This is the case because reduced corporate tax payments do not add value to investors other than high tax rate shareholders who may benefit from higher retention of earnings and subsequent capital gains.

Cleaveland (2006) has examined the effect of the introduction of imputation on corporate R&D expenditure in Australia (and New Zealand). Australia allowed a 150 per cent tax deduction for R&D expenditure prior to and after the introduction of imputation. R&D expenditure fell following the introduction of imputation, which Cleaveland attributes to increased tension in the trade-off between dividend payout and R&D expenditure. Benge (1998) provides a theoretical analysis and numerical results which highlight the differential impact of such tax concessions on incorporated versus unincorporated businesses. Thomson (2010), using individual company data from 1989-2006, although not explicitly focusing on imputation, finds no evidence that tax policy affects R&D expenditure – which is consistent with tax incentives being ‘washed out’ by imputation, but is also consistent with other explanations.

**8. Organisational design**

**8.1 Impacts for small business and private companies**

**Hypothesis:** Imputation increases the incentive for small business to be organised in the corporate form rather than as partnerships or proprietorship.

**International integration hypothesis:** This has no relevant implications for small business.

**Domestic segmentation hypothesis:** This is the case because imputation means there is no tax
penalty for adopting the corporate form (and potential benefits from the ability to defer and reduce personal tax by earnings retention and subsequent realisation of capital gains.

An often neglected aspect of dividend imputation is its consequences for small businesses (typically defined as those with less than 20 employees who may choose to operate as a private unlisted company or as an unincorporated enterprise (such as a sole proprietor or partnership or trust structure). As at 2011, there were over 2 million such enterprises employing almost half of the labour force, of which approximately one third were companies (Connolly et al. 2012). There is a relatively large use of the limited liability corporate form for small business in Australia, with around six new limited liability firms per 1,000 of working age population registered each year compared with an OECD average of around four (World Bank 2015). Over time the proportion of small businesses adopting a corporate structure has increased, which (Connolly et al. 2012) attribute to ‘the legal protection of limited liability and the lower tax rate on corporate profits relative to the marginal rate of personal income tax’. Shifts in the sectoral composition of small business and in average size, which can both affect preferred legal structure are also relevant, but the role of the introduction of imputation is also worth considering. Even if the proprietor’s tax rate equals the company tax rate, the absence of double taxation of dividends under imputation removes that tax bias against adopting the corporate form (although others may remain – such as the absence of concessional treatment of long term capital gains on asset sales by companies). For a proprietor with a marginal tax rate above the company tax rate, tax savings can be achieved by retention and reinvestment of earnings within the corporate form relative to the case in unincorporated structures. Undistributed profits can be subsequently distributed as franked dividends when the owner is perhaps retired and on a lower marginal tax rate, or recouped from ultimate sale of the business for capital gains (which will generally receive preferential tax treatment under special concessions for small business).

Table 8 provides data on the changing composition of legal structures of business enterprises (both large and small) over recent years. While there are a range of other factors which may explain the shift towards incorporation, that change is consistent with attractiveness of that form under imputation for small business owners. There is a plethora of special tax arrangements for small business (including the ability to hold business properties in self managed super funds) which makes the situation extremely complex. However, it would appear that the significant gap between the corporate tax rate and the top marginal tax rate provides incentives for high income small business owners to arbitrage the tax system.
Table 8: Business legal structure changes (2010-2014)

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<td>Total partnerships</td>
<td>354,336</td>
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<td>15,497</td>
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</table>

Source: ABS 2015b.

8.2 Stapled security structures

Hypothesis: Dividend imputation has led to government tolerance of the use of stapled security structures for business operations in Australia (even though they permit tax arbitrage when foreign investors are involved).

International integration hypothesis: This will not occur because a reduction in company tax is only partially ‘washed out’ due to the participation of foreign investors in such structures – unless withholding tax on trust distributions offsets the reduction of company tax receipts.

Domestic segmentation hypothesis: This will occur because company tax is ‘washed out’ under imputation and thus there is no tax revenue cost from businesses operating under a trust structure.

Australia is one of a very few countries which allows the issue of ‘stapled securities’ (Davis 2014). These involve the stapling together of units in a managed investment scheme (trust) with shares in an operating business. Well over half of Australian real estate investment trusts and Infrastructure funds listed on the ASX have such a form, and stapled securities account for around 8-10 per cent of ASX market capitalisation. Such a structure significantly reduces the company tax paid on the joint operations relative to the case where a pure company structure is used. This can be achieved by, for example, the trust being the owner of physical assets which it leases to the operating company, such that the profit of the company is reduced, company tax is reduced, and overall profits from the joint operations flow through to investors via the trust (and are thus not taxed within the trust).

Because of dividend imputation, there is little cost to government tax revenue from allowing such a structure if all investors in stapled securities are domestic residents.27 But in that case of no foreign investors, there is little tax arbitrage benefit (except that there is concessional long term capital gains tax on asset disposals for trusts but not for companies). However, by avoiding corporate tax, and because withholding tax on distributions to foreign investors from Managed Investment Trusts is less than the corporate tax rate, there are tax arbitrage benefits relative to a company structure when foreign investors are involved.

27 In that case company tax is ‘washed out’ by the offsetting reductions in personal tax from franking credit receipt.
8.3 Mutual versus joint-stock form

Hypothesis: Imputation discriminates against mutual and cooperative business structures, which cannot distribute franking credits, when member or owners have an average tax rate less than the corporate tax rate.

International integration hypothesis: There is no effect on the cost of capital from imputation and thus no disadvantage to the mutual or cooperative form, but the tax subsidy (and higher return) benefitting domestic shareholders of a company is not available to owners of the mutual or cooperative.

Domestic segmentation hypothesis: The mutual or cooperative form will have a higher cost of capital if its members are on lower tax rates than the company tax rate.

Under current Australian legislation, mutual and cooperative businesses are treated as companies for tax purposes and subject to company tax with associated generation of franking credits. Where they are structured with member or owners each having one non-tradeable share, there is no simple mechanism to pay dividends and distribute franking credits to member or owners. Rather, franking credits are ‘trapped’ within the organisation (along with the retained earnings). This can involve a competitive disadvantage relative to joint stock companies with a separate shareholder base. For those latter companies, the income stream generated by operations is, if distributed to domestic shareholders as franked dividends, ultimately only taxed at the tax rate of the investor. However, for mutuals, the income stream is taxed at the corporate tax rate. Consequently, if members of mutuals and cooperatives have, on average, personal tax rates lower than the corporate tax rate, the income stream of the mutual is taxed overall at a higher rate than joint stock company competitors, creating a competitive disadvantage.

In the case of Australian credit unions, ACFS (2014) has estimated that the average tax rate of members is in the order of 20 per cent, implying that the imposition of the corporate tax rate of 30 per cent involves a significant tax competitive disadvantage and inequity of treatment for member or owners of such organisations.

9. Government finances

One effect of dividend imputation is to cause government tax revenue to be lower than it would be under a classical tax system which has the same company and personal tax rates. This is because investor use of franking credits reduces personal tax paid on receipt of dividends which ‘washes out’ the company tax paid in generating those franking credits. For example, $100 of company income taxed at the company level at a rate of 30 per cent with the remaining $70 distributed as a franked dividend to a shareholder on a 30 per cent tax rate will lead to no tax paid by the shareholder, such that total tax paid is $30. In contrast, under a classical tax system, the shareholder would pay additional tax of $21 (a 30 per cent tax rate on the $70 received) generating total tax paid of $51.

Consequently, Dividend imputation reduces government tax revenue relative to a classical tax system with the same corporate and personal tax rates.
How substantial this effect is depends upon a number of factors. One is the extent to which imputation credits are paid out or retained within the company (although that may involve deferral of the tax offset, to when dividends are ultimately paid, rather than wastage of those credits). A second factor is the extent to which franked dividends are paid to foreign shareholders unable to use the credits which are thus wasted. A third factor is the distribution by tax rate of domestic shareholders - with dividend payments to low tax rate shareholders having greater depressing effects on government tax revenue than payments to higher tax rate shareholders. Where, for example, dividends are paid to superannuation funds or charities with tax rates of 15 per cent or zero, the overall tax rate paid on the underlying corporate income is correspondingly 15 or 0 per cent.

Hypothesis: Dividend imputation and low or zero tax rates for major investor groups (such as superannuation funds and charities) cannibalise government tax revenue.

The extent of which government tax revenue is affected by the composition of domestic investors by tax bracket is hard to quantify, but the growth of superannuation funds as custodians of household wealth could be expected to have had increasing effect in cannibalising tax revenue. However, it appears that this is yet to become a major issue. Table 9 suggests that while the share of total franked dividends received by super funds (including SMSFs) is increasing over time, it is currently only around 12 per cent of the total.

Table 9: Super fund share of franked dividends ($ billion)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Super funds: franked dividend receipts</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>15</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Total franked dividends paid</td>
<td>85</td>
<td>94</td>
<td>83</td>
<td>103</td>
<td>117</td>
<td>101</td>
</tr>
</tbody>
</table>

Sources: ATO Taxation statistics 2012–13

The tax bracket distribution of shareholders (together with the extent of undistributed franking credits and foreign shareholders) are the critical parameters in assessing the interrelationship between Australian tax rates and those which would apply under a classical tax system. Simplistic comparisons of the headline Australian company tax rate of 30 per cent and those in other countries ignore the fact that some proportion of that company tax is washed out by payment of franked dividends and the use of franking credits to reduce investor-level taxes. A correct comparison involves examining the overall total tax levied on corporate income. Since this depends also upon the structure of personal taxes, an alternative method of comparison which avoids that complication is to ask what rate of company tax under a classical tax system would generate the same level of tax revenue for the Australian government.

Hypothesis: Replacement of imputation by a classical tax system with a corporate tax rate of between 15 to 20 per cent would keep government tax revenue unchanged.

Undertaking such a hypothetical comparison requires making numerous assumptions – such as assuming that there are no changes in investor behaviour or company financial policies regarding capital structure or dividend policy. For example, companies could respond by higher retention of
earnings, generating higher capital gains subject to concessional tax rates to the benefit of high tax rate investors, or using higher leverage and reducing corporate tax payments. The box below explains how an estimate can be made by summing company tax payments and investor tax payments under the two systems. Under a lower classical company tax rate: actual company tax payments are lower; tax payments by investors who were unable to use franking credits are higher because of higher dividend receipts (from higher after tax company income); tax payments of investors who were able to use franking credits are higher because of higher dividend receipts and loss of tax credits.

Assuming that the average tax rate of investors able to use franking credits is 0.3, that average withholding tax on foreign investors unable to use franking credits is 0.1, that 70 per cent of after tax earnings are paid out as franked dividends, and 80 per cent of franking credits are used, the revenue neutral classical corporate tax rate is slightly above 15 per cent. Assuming 60 per cent of franking credits are used pushes that rate up to around 20 per cent.

Other authors have derived alternative estimates. For example Gruen (2006) provides an estimate of 19 per cent. Clearly, the figure derived will depend upon assumptions used. For example, it could alternatively be assumed that companies would keep the level of cash dividend constant, implying higher retained earnings and either higher physical investment with capital gains consequences or less use of debt financing.

**Box 5: Estimating the classical corporate tax rate for tax revenue equivalence**

Replacement of the imputation system with a classical tax system with a corporate tax rate of $t_c^c$ would affect tax revenue in the following way, assuming companies did not change dividend payout ratios and other features of corporate financial and investor behaviour were unchanged. Company level tax payments per dollar of pre-tax earnings change from $t_c$ to $t_c^c$, where $t_c$ is the company tax rate under the imputation system. The constant proportion $F$ of after tax earnings (given by $(1 - t_c)$ or $(1 - t_c^c)$) is distributed and generates tax consequences at the investor level. The proportion $(1 - \theta)$, that is, the amount $F(1 - t_c) (1 - \theta)$ when the company tax rate is $t_c$, goes to investors for whom franking credits are unusable and if their personal (or withholding) tax rate is $t_f$ they pay tax of $F(1 - t_c)(1 - \theta) (t_f)$ under the imputation system and $F(1 - t_c^c)(1 - \theta)(t_f)$ under the classical system. The proportion $\theta$, that is the amount of $\theta F(1 - t_c)$ when the company tax rate is $t_c$, goes to investors able to use franking credits, with average tax rate of $t_p$ and they pay tax of $\theta F(t_d - t_c)$ under the imputation system or $\theta F(1-t_c^c)(t_p)$ under the classical system.

Equating the sum of company and investor tax payments under the two systems gives:

$$t_c + \theta F(t_p - t_c) + (1 - \theta)F(1 - t_c)t_f = t_c^c + \theta F(1 - t_c^c)(t_p) + (1 - \theta)F(1 - t_c^c)t_f$$

This relationship can be solved for $t_c^c$ for various assumptions about the other parameters. Using $t_c = 0.3$, $F = 0.7$, $\theta = 0.8$, $t_p = 0.3$, $t_f = 0.1$ as illustrative examples, $t_c^c = 0.156$ is the company tax rate under a classical tax system which generates equivalent total tax revenue. Results for different values of $t_p$ and $t_f$ are shown below.

| $t_p$ | 0.3 | 0.2 | 0.4 | 0.4 | 0.1 |
Hypothesis: A classical tax system with lower company tax rate which raised equivalent total tax revenue would have a larger absolute (dollar) but equal proportional effect on returns to low-tax-rate investors versus high-tax-rate investors.

Switching to an alternative tax system would generate a range of behavioural reactions including investor portfolio allocations (and firm dividend policies). However, it appears likely that, ignoring such effects, such a change would favour higher-tax-rate investors relative to lower-tax-rate investors (such as superannuation funds) as Table 10 illustrates. Consider the initial situation in which a company generating $100 of pre tax income follows a policy of fully paying out after tax earnings as franked dividends. The net amount received after tax by investors on 15 and 50 per cent tax rates are respectively $85 and $50. Assume introduction of a classical tax system with a company tax rate of 20 per cent. Then $80 of after-tax income is distributed as unfranked dividends which after investor tax payments at 15 or 50 per cent leaves $68 and $40 respectively. This is a drop of 20 per cent in after tax income for both, but with the dollar amount of the drop being $17 for low-tax-rate investors versus $10 for high-tax-rate investors.

Table 10: Distributional effects for domestic investors in high payout, franked dividend stocks of switch to classical system

<table>
<thead>
<tr>
<th></th>
<th>Imputation system, 30% company tax rate</th>
<th>Classical System, 20% company tax rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Personal tax rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 per cent</td>
<td>50 per cent</td>
</tr>
<tr>
<td>(i) Pre-tax company income</td>
<td>$100</td>
<td>$100</td>
</tr>
<tr>
<td>(ii) Company tax</td>
<td>$30</td>
<td>$30</td>
</tr>
<tr>
<td>(iii) Cash dividend</td>
<td>$70</td>
<td>$70</td>
</tr>
<tr>
<td>(iv) Tax credits</td>
<td>$30</td>
<td>$30</td>
</tr>
<tr>
<td>(v) Taxable income</td>
<td>$100</td>
<td>$100</td>
</tr>
<tr>
<td>(vi) Tax payable after credits</td>
<td>-$15</td>
<td>$20</td>
</tr>
<tr>
<td>(vii) After tax income (= (iii) – (vi))</td>
<td>$85</td>
<td>$50</td>
</tr>
<tr>
<td>$ change: classical → imputation</td>
<td>-$17</td>
<td>-$10</td>
</tr>
<tr>
<td>% change: classical → imputation</td>
<td>-20 %</td>
<td>-20 %</td>
</tr>
</tbody>
</table>

Source: Author’s calculations.

Note this comparison assumes a 100 per cent payout rate and 100 per cent usage of franking credits. The calculation of the revenue neutral classical tax equivalent in Box 5 allows for less than full distribution and usage, with after-tax benefits to investors arising from the effect of a lower company tax rate through those channels.
Potentially of greater importance is the one-off consequences for equity prices (and capital gains or losses for investors) of a change in the tax regime.

**Hypothesis:** A switch to a revenue neutral classical tax regime would have significant effects on domestic stock prices.

**International integration hypothesis:** The lower company tax rate (and thus higher after company-tax cash flows) would tend to lead to an increase in prices of stocks driven by demand by international investors.

**Domestic segmentation hypothesis:** Equity prices of stocks with high payout ratios of franked dividends would be likely to fall, as domestic investors no longer bid prices up relative to overseas stocks.

**Hypothesis:** Imputation requires a larger range of ‘anti-avoidance’ provisions than does a classical tax system.

Provisions related to trading of imputation credits and/or of shares to change entitlements to credits have been necessary. These include the 45 day rule – that investors must hold an unhedged position in the stock around the ex-div date for at least 45 days to be eligible to use any franking credits received.

In contrast, prior to the introduction of imputation, Taxation Act 1936 (Cth) div 7a operated to require private companies to payout some minimum part of earnings to prevent deferral of additional personal taxation. When first introduced, imputation involved equality of the corporate tax rate with the top marginal personal tax rate, and thus no tax incentive not to distribute earnings. Since then, the lower corporate tax rate has meant that such incentives now exist Board of Taxation (2012).

10. **Conclusion**

While simple economic models can generate unambiguous predictions about the consequences of the dividend imputation tax system, reality is sufficiently complex and different from the assumptions of such models to make unqualified adherence to such predictions highly problematic. Moreover, the inability to adequately control for confounding effects (and identify an appropriate counterfactual) means that conclusions drawn from empirical evidence used to test the alternative models can be easily questioned by those holding alternative a priori views.

Thus, for example, while studies of the effect of imputation on the cost of equity capital for domestic projects (which attempt to estimate the value of ‘gamma’) on balance suggest relatively limited effect, corporate financial policies and investor behaviour suggest a significant role for imputation.

On balance, the effect of imputation in removing biases to corporate financial behaviour which arise under a classical tax system’s ‘double taxation of dividends’ suggest that it has merit. While other ways of reducing such biases do exist (such as applying lower tax rates on dividend income of
investors) it is not apparent that the disruption which would be caused by any such change has merit. Probably of more significance in the context of overall tax reform would be removal of the distortions created by the concessional treatment of capital gains.
### APPENDIX 1: Timeline of dividend imputation in Australia

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985, July</td>
<td>Tax Summit, discussion of possible introduction of imputation</td>
</tr>
<tr>
<td>1985, September 19</td>
<td>Capital Gains Tax (of real capital gains) introduced</td>
</tr>
<tr>
<td>1987</td>
<td>Introduction of Imputation System, alignment of company and top personal tax rates</td>
</tr>
<tr>
<td>1988, July 1</td>
<td>Taxation of, and thus eligibility to use franking credits for, Superannuation funds and friendly societies introduced.</td>
</tr>
<tr>
<td>1990, July 1</td>
<td>Dividend streaming via multiple share classes prohibited</td>
</tr>
<tr>
<td>1990</td>
<td>Company tax rate reduced from 49 per cent to 39 per cent</td>
</tr>
<tr>
<td>1991, August 1</td>
<td>Mutual life assurance companies excluded from use of franking credits</td>
</tr>
<tr>
<td>1993</td>
<td>Company tax rate reduced to 33 per cent</td>
</tr>
<tr>
<td>1994</td>
<td>Company tax rate reduced to 36 per cent</td>
</tr>
<tr>
<td>1995</td>
<td>Company tax rate increased to 36 per cent</td>
</tr>
<tr>
<td>1999</td>
<td>Announced in 1997 (and retrospective to 1997), prohibition on trading (selling) of franking credits by foreign investors, such as via a securities loan</td>
</tr>
<tr>
<td>1999</td>
<td>Removal of accelerated depreciation</td>
</tr>
<tr>
<td>1999 July 1</td>
<td>Capital gains tax reduced by replacement of taxation of real capital gains by inclusion of only half of nominal capital gains in taxable income.</td>
</tr>
<tr>
<td>1999</td>
<td>Review of Business Taxation</td>
</tr>
<tr>
<td>2000</td>
<td>Holding period rule introduced – investor required to hold shares for at least 45 days (not counting days of purchase or sale) to be eligible to receive franking credits. Individual (but not SMSF) investors with franking credits of less than $5,000 are exempt from this requirement. Investor must have a minimum 30 per cent level of ownership risk (ie limit on hedging via use of derivatives.</td>
</tr>
<tr>
<td>2000</td>
<td>Company tax rate reduced to 34 per cent</td>
</tr>
<tr>
<td>2000, July 1</td>
<td>Refund of unused franking credits introduced</td>
</tr>
<tr>
<td>2001</td>
<td>Company tax rate reduced to 30 per cent</td>
</tr>
<tr>
<td>2002</td>
<td>Prohibition on Dividend Streaming</td>
</tr>
<tr>
<td>2003, April 1</td>
<td>New Zealand companies who pay Australian tax, also became eligible to choose to use the Australian imputation system.</td>
</tr>
<tr>
<td>2003 October 1</td>
<td>Australian franking credits could be attached to distributions by NZ companies. These rules are known as trans-Tasman imputation (TTI).</td>
</tr>
<tr>
<td>2014</td>
<td>Prevention of ‘dividend washing’ strategies involving trading cum-div in the ex-div period</td>
</tr>
</tbody>
</table>
APPENDIX 2: Recommendations of the Henry Tax Review

The Henry Review (2009) noted the international trend away from dividend imputation and replacement in many cases with other methods (such as lower tax rates on dividends) of providing shareholder tax relief. It noted that the consequences of imputation on corporate real and financial decision making were dependent upon whether the cost of capital for Australian companies is determined by domestic factors or global financial markets. Its review of available empirical studies on the value of imputation credits suggested that there is a ‘real but muted effect on the cost of capital for listed companies’. The review suggested that imputation could have ‘integrity benefits’ in that companies would have fewer incentives for corporate tax avoidance since this would reduce franking credits available for distribution to Australian shareholders.

It noted potential biases arising from the lack of tax credits available on foreign source income. These included a domestic real investment bias for Australian companies and an increased home bias of equity investors. But the existence and extent of these biases was seen to depend upon whether domestic or global factors were the main determinant of the local cost of capital, and on the size of corporate taxes in foreign jurisdictions. The potential for firm location decisions (domestic versus foreign) to be affected by differential tax regimes, as the relative importance of foreign shareholders and foreign income increases, was also noted (although the precise role of imputation in this was not clearly spelt out). The need for significant and complex anti-avoidance regulations (which do not work perfectly – particularly in the case of dual-listed companies) to limit foreign investors benefitting from receipt of imputation credits was seen as a cost of the imputation system.

The import of recommendations (numbers 37-40) were essentially to retain imputation in the short term (and limit tax credits to Australian company tax payments and Australian investors) but examine alternatives for company tax arrangements in the longer term. Longer term alternatives canvassed included: providing dividend tax relief at the company rather than shareholder level; consideration of a company level expenditure tax approach; adopting a ‘flow-through’ tax regime for closely held businesses and fixed trusts. Possible adjustments to the imputation system canvassed (but not supported) included: allowing tax credits for foreign taxed income; allowing streaming of foreign source and domestic source income to foreign and domestic shareholders respectively.
APPENDIX 3: Some mechanisms for foreign investors to create value from imputation credits

1. An equity swap

Bank A enters a swap with foreigner F involving:

- A pays to F the cash flow stream equal to cash flow dividend plus implied capital gain/loss on stock market value of a share of Company X.
- F pays to A the cash flow stream equal to specified interest rate applied to commencement date price of share in Company X.

Bank A purchases one share in Company X, and:

- receives franked dividends plus capital gains
- foregoes interest otherwise earned on purchase price (or pays interest on funds borrowed to make purchase).

The terms of the swap are such that the interest rate paid by F in the swap is less than the going market interest rate (such as the interest paid by Bank A on borrowed funds).

The Outcome

If, for example, the foreigner had borrowed funds to directly purchase Company X, it would have paid a higher interest rate than in the swap arrangement, and would have received the franking credits which had no value to it. Now it foregoes the franking credits in exchange for a lower interest payment, thereby realising some value for giving up the franking credits, and still receives the equivalent of the cash dividend and capital gains or losses on Company X shares.
Bank A benefits by receiving franking credits which it can pass on to its Australian shareholders, and has shared some of this benefit with the foreigner through the discounted interest rate in the swap relative to the cost of borrowed funds. In practice the design of the swap arrangements also need to take into account tax issues regarding cash flow effects and tax treatment of unrealised capital gains/losses on Bank A’s holding of Company X shares and the swap payments of implied capital gains/losses to F.

2. Trading Imputation Credits

One strategy which could generate value from imputation credits for a foreign shareholder involves selling the share cum-div and repurchasing it ex-div, if demands of domestic investors capitalised the value of franking credits into the share price.

- For domestic investors, an arrangement whereby they bought the share cum-div for a price of $S$, received a franked dividend of $D$ and sold the share ex-div for $S - D/ (1 - t_c)$ would, ignoring some timing differences regarding tax cash flows, be a zero NPV transaction.
  - After tax the investor (with tax rate $t_p$) has $D(1 - t_p) / (1 - t_c)$ from the franked dividend and after tax (short term) capital loss of $(S - (S - D/ (1 - t_c))(1-t_p))/(1-t_c) = D(1-t_p)/(1-t_c)$.

- For the foreign shareholder with a personal tax rate of $t_p$, selling at $S$ and repurchasing at $S - D$ would involve an after tax capital gain of $D(1 - t_p)$ whereas holding the share over the ex divide date generates an equal after tax dividend amount of $D(1 - t_p)$.

Thus:

- The domestic investor would benefit from any repurchase price above $S - D/(1 - t_c)$.
- The foreign investor would benefit from any repurchase price below $S - D$.

There is thus scope for mutually beneficial trades in which the value of the tax credit is shared between the foreign and domestic investors.

The 45 day requirement – that franking credits can only be claimed by domestic investors who have held shares for at least 45 days around the ex-div date – attempts to prevent this arbitrage activity. Similarly, the prohibition on claiming franking credits if the market risk associated with ownership has been hedged over the ex-div date (such as would occur for the domestic investor participating in the repurchase agreement) also attempts to prevent such arbitrage.
APPENDIX 4: Estimating the value of franking credits

Lajbcygier and Wheatley (2012) outline the various methods which have been used by researchers to estimate the value of franking credits, and distinguish four major approaches which, adapted slightly to incorporate a broader range of studies and approaches, are shown in the table below. (There are also numerous consultant’s reports available as part of submissions to access pricing regulators).

<table>
<thead>
<tr>
<th>Approach</th>
<th>Description</th>
<th>Examples</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ex-day drop-off studies</td>
<td>Examination of share price change on ex-dividend day. Arbitrage should imply price change equals value of cash dividend plus value of tax credits received. The effect of tax credits is identified by comparison with drop-off rates for unfranked dividends or by regression coefficient from regression of (eg) drop off rate on franking percentage of dividend.</td>
<td>Brown and Clarke (1993), Bellamy (1994), Hathaway and Officer (2004), Beggs and Skeels (2006), Gray (2011); Gray (2013), Bruckner, Dewes et al. (1994), Feuerherdt, Gray et al. (2010), Minney (2010)</td>
<td>The most recent study of Gray (2013) derives a value of theta (valuation of a dollar of imputation credits by investors) of around 0.35. Some earlier studies found higher values (and some lower) – with results varying with tax changes (such as introduction of rebates for unused credits).</td>
</tr>
<tr>
<td>Futures – spot price differences</td>
<td>Arbitrage should imply price differential equals value of dividends (including market valuation of franking credits) received on the physical (but not on the futures) over the term of the futures contract.</td>
<td>Cannavan, Finn et al. (2004) Cummings and Frino (2008), Twite and Wood (2002)</td>
<td>Cummings and Frino (2008) find a value of $1 of tax credits of 0.52. Cannavan et al (2004) find that after the 2000 measures to prevent trading of credits the value drops from around 0.50 to near zero.</td>
</tr>
<tr>
<td>Price differences of otherwise similar assets with different franked dividend entitlements</td>
<td>Arbitrage should imply price differential equals value of franking credits received with dividend on one asset but not the other. Simultaneous trading of shares ex and cum dividend and of existing and new securities which are issued without dividend entitlements are considered.</td>
<td>Chu and Partington (2008) Walker and Partington (1999)</td>
<td>Walker and Partington (1999) estimate a value of $1 of tax credits at around 0.90. Chu and Partington (2008) find that the value is lower near ex-div dates than at other times.</td>
</tr>
<tr>
<td>Tax Statistics Implications</td>
<td>Proportion of franking credits distributed which are used by resident investors should indicate average valuation.</td>
<td>Handley and Maheswaran (2008), Handley (2012), Hathaway and Officer (2004)</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Capitalisation of future expected tax credits into stock price</td>
<td>Use dividend growth and expected earnings based models to examine whether, controlling for other factors, projected franking credit payments imply a higher stock price or lower forward earnings yield</td>
<td>Siau, Sault et al. (2013)</td>
<td>No clear evidence that imputation credits have a positive effect on stock price.</td>
</tr>
</tbody>
</table>
REFERENCES


Ernst & Young (2002). International trends in dividend taxation: Implications for Australian Companies and Tax Policy.


OECD (2015a). 'Table II.4 - Overall statutory tax rates on dividend income'. OECD Tax Database


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