# The effectiveness of the regulatory response to corporate tax aggressiveness in Australia

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## Certificate of Original Authorship

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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## Abstract

The objective of this thesis is to assess the effectiveness of dividend imputation in reducing corporate tax aggressiveness in Australia. An evaluation of the impact of divergent incentives for tax avoidance across a pooled, cross-section of firms reveals significant differences between firms that pay dividends with tax credits attached, as opposed to those that do not pay dividends or pay dividends without tax credits. Results suggest that firms paying dividends with tax credits are less likely to engage in tax avoidance, having an average cash effective tax rate up to 16.9 percentage points higher than firms that pay dividends without tax credits, and up to 14.7 percentage points higher than firms that do not pay dividends at all. Despite these results, there is still wide variation in the level tax avoidance amongst those firms paying dividends with tax credits, even though they face similar incentives that theoretically, should discourage corporate tax avoidance. This thesis finds economically and statistically significant evidence that firms in this group set target tax rates, based on their planned dividend payouts, in order to maximize tax credits available to shareholders. Further, a positive association exists between outside directors and corporate tax avoidance, even in instances where firms are utilising dividend imputation which is expected to mitigate such an association. In combination, these results suggest there is heterogeneity of the costs and benefits of tax avoidance which creates a challenge in evaluating corporate tax aggressiveness generally, and the impact of corporate governance on corporate tax avoidance in particular. Overall, these results provide insights into the effectiveness of dividend imputation in mitigating corporate tax avoidance, as well as providing theoretical and empirical support for the continuance of dividend imputation in Australia.

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# Chapter 1

# Introduction

## 1.1 Research Question

Corporate tax avoidance[1] is a global phenomenon and the objective of this thesis is to assess the effectiveness of dividend imputation, as a regulatory response to address this problem. Specifically, this thesis examines how dividend imputation changes the incentives (costs and benefits) and impacts the incidence of corporate tax avoidance. Two research questions are pursued investigating separate aspects of dividend imputation.

The first objective, discussed in Chapter 2, is whether there are significant differences in the level of corporate tax avoidance across firms paying dividends with tax credits, dividends without tax credits, and not paying dividends. Under dividend imputation the costs of corporate tax payments are reduced as shareholders are able to claim tax credits for the tax paid by the firm. Critically, this reduces the benefits of corporate tax aggressiveness. Accordingly, this thesis empirically evaluates differences in corporate tax aggressiveness across firms paying dividends with tax credits, those dividends without tax credits, and those not paying dividends. This provides insights into the impact of dividend imputation as a regulatory response to corporate tax aggressiveness.

The second objective, discussed in Chapter 3, is to assess the extent to which dividend imputation encourages firms to adopt target tax rates that enhance shareholder value. While dividend imputation reduces the costs of corporate tax payments by shareholders being able to claim tax credits for tax paid by the firm, the ability to do so is constrained by the extent to

[1] The terminology and definitions of "tax planning aggressiveness" (Blouin 2014, p.875) used in this thesis follows the structure developed by Lisowsky, Robinson & Schmidt (2013, pp. 590-591). While there may be some disagreement with their notion of tax planning aggressiveness, their framework has been adopted by much of the subsequent empirical literature (e.g. Blouin 2014; Dyreng, Hanlon & Maydew 2014; Guenther, Matsunaga & Williams 2017).

which the firm pays dividends to which imputation credits can be attached (i.e., dividend payout ratio). This places limits on the extent to which dividend imputation impacts the incentives for corporate tax avoidance and it is probably for this reason that there is material variation in corporate tax avoidance for firms paying dividends with tax credits. For example, in 2017 Wesfarmers Ltd reported a tax expense of 30.57% of pre-tax profit whereas in 2015, Mirage Resorts Ltd reported a tax expense of only 6.83% of pre-tax profit, GBST Holdings Ltd (11.85%), and RCR Tomlinson Ltd (17.99%). This thesis empirically evaluates the extent to which firms establish target tax rates that reflect limits on the ability dividend imputation to reduce the costs of corporate tax payments, thereby constraining the ability of dividend imputation to mitigate the incentives for corporate tax avoidance.

### 1.2 Motivation

The primary motivation for this thesis is to provide empirical evidence informing the debate about dividend imputation and the potential consequences of its discontinuance. In March 2015, the Australian Treasury released a discussion paper, *Re:think – Tax discussion paper* (Treasury 2015) which contained a proposal recommending the abolition of dividend imputation in Australia.[2] Treasury maintained that imputation is expensive, costing government revenues an estimated AUD19 billion per year, and that it does little to attract foreign direct investment to Australia. This is not the first call to abolish dividend imputation in Australia (Gruen 2006; Martin 2009) and follows a trend of dividend imputation being discontinued in other countries. In the United Kingdom (U.K.), it was abolished on the basis that it encouraged companies to distribute earnings as dividends rather than reinvesting them in the expansion of their operations or to take up new investment opportunities (Ainsworth 2016; Gammie 1997). In the European Union (E.U.), imputation was held by the European

[2] Dividend imputation, as it operates in Australia, allows firms to pass on tax credits to shareholders equal to the amount of corporate tax paid. Appendix 2.A. contains an overview of the systems and operations of dividend imputation in Australia.

Court of Justice (E.C.J.) to be unfair state support, as it discriminated in favour of domestic investors (Ainsworth 2016; Sorensen 2002). Despite these disadvantages, it has also been claimed that dividend imputation may contain a number of benefits (see for example Poljak & Drummond 2015).

Dividend imputation was originally introduced to Australia in 1987 to eliminate double taxation of corporate profits (Taxation Laws Amendment [Company Distributions] Bill 1987; Treasury 2015); first in the hands of companies as corporate tax, and second when paid as dividends in the hands of individual investors as personal tax. This simplified the tax system, rendering separate dividend taxes obsolete, and treated dividend income in a similar manner to wage and salary income. Company tax is now the dividend equivalent of pay-as-you-go withholding tax on wages, with all income being subject to the same marginal tax rates regardless of source, and thereby eliminating any distortionary incentives regarding the form in which income is received (ASFA 2015).

The introduction of dividend imputation also led to a reduction in the previously high and unsustainable levels of debt in the balance sheets of Australian companies (Australia, House of Representatives 1987; Twite 2001). With dividend imputation, dividends effectively become 'deductable' for tax purposes, putting them on an equal footing with interest payments (Pattenden 2006). This makes the 'tax shield' effect of debt redundant and takes away the previous tax advantage of debt over equity financing (Hamson & Ziegler 1990). This has also led to improved stability in the financial system and the strength of the Australian economy during the Global Financial Crisis (GFC) has been attributed to this aspect of dividend imputation (Davis 2011).

While the U.K. viewed dividend imputation as an incentive that encouraged firms to pay dividends, in order to distribute tax credits, rather reinvesting the profits, as a negative

attribute, it has been argued that this aspect of dividend imputation has a disciplining role on managerial investment decisions. As managers are required to approach the capital market for funds, investment proposals are subject to scrutiny by analysts, industry experts and sophisticated investors (Twite 2001). Further, dividend imputation has also been found to encourage the repatriation of profits from overseas subsidiaries in order to produce tax credits in Taiwan (Chen & Gupta 2011).

Critically, there is also evidence that suggests dividend imputation may reduce corporate tax avoidance (Amiram, Bauer & Frank 2016; Ikin & Tran, 2012; Wilkinson, Cahan & Jones 2001). Even the Treasury discussion paper conceded that dividend imputation "*reduces incentives for Australian companies with Australian shareholders to avoid Australian tax*" (Treasury 2015, p.84). However, there is no empirical evaluation of the extent or economic significance of this impact, nor any theory of how and why the reduction in corporate tax avoidance occurs.

While the focus of this thesis is on the operation of dividend imputation in Australia, there is potentially wider relevance. Globally, the level of corporate tax avoidance is at historic highs (Levin 2013). It has become a serious and increasing problem for governments and has a major impact on economic development at both national and international levels (Christensen & Murphy 2004; OECD 2013), where it produces a significant and potentially irrecoverable loss to society as a whole (Slemrod 2004; Williams 2007). The adverse effects have a particularly negative effect on many developing economies where it enables the expropriation of natural resources with little economic benefit to the host nations, and fosters increased corruption through "*opaque and anonymous structures*" (Shaxson, Christensen & Mathiason 2012, p.1). The magnitude of tax avoidance has global economic significance and this thesis will provide insights on the potential for dividend imputation to address this global problem.

A further motivation for this thesis is that there is considerable cross-sectional variation in the level of tax avoidance amongst firms paying dividends with imputation credits. This thesis investigates whether this variation may result from limits on the impact of dividend imputation on corporate tax avoidance, and whether this manifests in firms setting targets for their tax payments. The finance literature has explored a range of corporate targeting behaviours, focusing on capital structures (Leary & Roberts 2005; Myers 1984; Taggart 1977), leverage (Chang & Dasgupta 2009; Javiland & Harris 1984) and dividend payouts (Brav et al. 2005; Lintner 1956; Partington 1984). While there is a limited literature suggesting firms may also set targets for tax purposes (Graham et al. 2014; Kim et al. 2015) this is problematic as targets for corporate tax are difficult to observe or measure in most instances. The use of dividend imputation in Australia provides an ideal setting to observe and measure the impact of targets for tax purposes. This is reflected in the second objective of this thesis which is to evaluate the extent to firms establish target tax rates which reflect limits on the extent to which dividend imputation is able to reduce the cost of corporate tax payments and mitigate the incentives for corporate tax avoidance.

## 1.3 Contribution

This thesis is expected to make an important contribution to the ongoing policy debate in Australia regarding continuation of dividend imputation (Treasury 2015) and is an example of research that examines the effectiveness of a regulatory response to tax avoidance. The assertions about the impact of dividend imputation on corporate tax avoidance raised in Wilkinson et al. (2001), Ikin and Tran (2013) and Amiram, Bauer and Frank (2016) will be rigorously evaluated and hopefully extended: first, by ascertaining, describing and analysing the incentive mechanisms that drive tax avoidance; second, by providing robust empirical evidence as to whether an association between imputation and tax avoidance does exist; and third, by quantifying any economic impact dividend imputation has on corporate tax

avoidance in Australia. Hence, this thesis expects to contribute to the literature on both dividend imputation and corporate tax avoidance, and in particular, the incentives for firms to engage in aggressive tax strategies.

A related contribution is to the finance literature on targeting, and in particular tax payment targeting. The prior literature implies that firms engage in tax avoidance where *"the marginal benefits ... exceed the marginal costs"* (Hanlon and Heitzman 2010, p. 138), yet no prior research has examined the behaviour of these costs and benefits at different levels of tax avoidance. By focusing on a context where there are limits on the benefits of corporate tax avoidance, this thesis is able to distinguish circumstances whether corporate tax avoidance may or may not be enhancing shareholder value.

A final contribution of this these is in relation to literature evaluating whether corporate tax avoidance is undertaken to enhance shareholder wealth, and the impact of monitoring by outside directors (Amiram et al. 2016; Lasfer 1996). This is undertaken in a dividend imputation context where there is variation in the benefits for shareholders and these benefits are determinable.

## 1.4 Structure of thesis

The structure of the thesis is as follows. Chapter 2 discusses differences in the impact of dividend imputation on the incentives for corporate tax avoidance, and the impact of outside directors on that association. Chapter 3 discusses the use of target tax rates to increase shareholder wealth. Finally, conclusions and suggestions for further research are discussed in Chapter 4.

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# Chapter 2

## The impact of dividend imputation on corporate tax avoidance: The case for shareholder value


### Abstract

The objective of this chapter is to evaluate whether dividend imputation, whereby tax credits may be passed on to shareholders for corporate tax paid, impacts corporate tax avoidance. This is undertaken with a pooled cross-sectional research design evaluating differences in tax avoidance across firms where there are significant differences in corporate tax avoidance incentives. Specifically, potential differences arise between firms paying dividends with tax credits, paying dividends without tax credits, and not paying dividends. Results suggest that firms paying dividends with tax credits attached are less likely to engage in tax avoidance with an average cash effective tax rate up to 16.9 percentage points higher than firms that pay dividends without tax credits, and up to 14.7 percentage points higher than firms that do not pay dividends at all. Accordingly, this provides insights into the effectiveness of dividend imputation in mitigating corporate tax avoidance, as well as providing support for the continuance of dividend imputation in Australia. Additionally, a positive association is found to exist between outside directors and corporate tax avoidance, extending to firms paying dividends with tax credits where dividend imputation is expected to mitigate such a relation. In combination, these results suggest heterogeneity of costs and benefits of tax avoidance and this is a challenge in evaluating corporate tax aggressiveness generally, and the impact of corporate governance on corporate tax avoidance in particular.

## 2.1 Introduction

The extant literature suggests that dividend imputation[3] may be associated with lower levels of tax avoidance. However, there are numerous limitations in these studies. Amiram et al. (2016) rely on a cross country design, and both Wilkinson, Cahan and Jones (2001), and Ikin and Tran (2013), use limited samples which are unlikely to be representative of the overall population. Further, all three papers lack a theoretical foundation linking tax avoidance and dividend imputation, and provide no evidence of economic significance. Amiram, Bauer and Frank (2016) in particular, and with little justification, implicitly assume that under dividend imputation, managers in all firms will not engage in tax avoidance, as it is ineffective in increasing shareholders' wealth (Amiram, Bauer & Frank 2016; Lasfer 1996). As a consequence, they ignore differences from the impact of dividend imputation across firms, and in particular, firms not paying dividends, as the effects of tax-induced dividend clienteles and the constraints on the impact of imputation are not considered.

The objective of this chapter is to evaluate corporate tax avoidance separately across firms paying dividends with tax credits, dividends without tax credits, and not paying dividends, where significant differences in the impact of dividend imputation on the incentives for corporate tax avoidance exist. Additionally, this chapter evaluates the tax avoidance strategies available in an imputation setting that are in the best interests of shareholders, by controlling for outside director monitoring. This research has important policy implications given that the recent Australian Treasury Department discussion paper (Treasury 2015) proposes the abolition of dividend imputation in Australia.[4]

[3] A description of the operation of dividend imputation in Australia is provided in Appendix 2.A

[4] The Treasury paper released in March 2015 argues that imputation is expensive, costing government revenues an estimated AUD19 billion per year, and that it does little to attract foreign direct investment to Australia, as tax credits provide little value for non-resident investors.

Research into corporate tax has gained in significance due to the increasing incidence and magnitude of corporate tax avoidance.[5] In response, the OECD initiated the Base Erosion and Profit Shifting (BEPS) project proposes greater international co-operation and coordination to combat global corporate tax aggressiveness. Alternate international responses include the U.K. Finance Act, 2015, and the Australian Tax Laws Amendment (Combating Multinational Tax Avoidance) Act, 2015. One commonality is that these responses represent a transaction-based approach that attempts to close opportunities for inter-jurisdictional tax arbitrage, without addressing the fundamental underlying incentives that drive corporate tax avoidance. Conversely, dividend imputation impacts these incentives by allowing firms to provide the same level of potential benefit to shareholders without incurring the potential costs associated with tax avoidance. Critically, the impact of dividend imputation on the incentives for corporate tax avoidance has not been rigorously developed on a theoretical basis, or subjected to robust empirical analysis.

Australia's dividend imputation arrangements have been operating since 1987 and provide an ideal setting where such analysis can be undertaken, since the cost of corporate tax borne by shareholders is reduced for those firms paying dividends with tax credits, and this impacts the incentives for corporate tax avoidance.[6] Critically, this impact will not be uniform across firms, as not all shareholders can fully utilize the tax credits resulting from dividend imputation, and therefore may result in significant heterogeneity of the costs and benefits of corporate tax avoidance across firms in an imputation environment.[7]

[5] For example, the corporate contribution to total tax revenues in the U.S. declined by a quarter between 1996 and 2012. At the same time profits held by multinational entities in low tax jurisdictions increased fourfold to over $1.9 trillion in the decade to 2012 (Levin 2013).

[6] Corporate tax can be viewed as a cost to shareholders, as it reduces profits available for distribution and therefore reduces their wealth (for example, see Rego and Wilson [2012]). This is not to be confused with the costs associated with engaging in tax avoidance, which includes transaction costs, legal fees, penalties and reputational costs that are incurred by the firm.

[7] Tax credits (known as "franking" credits) are the basis of dividend imputation and the mechanism through which taxes paid by firms are passed through to the benefit of shareholders.

For firms that do not pay dividends, or those that pay dividends without tax credits,[8] incentives for corporate tax avoidance remain the same as they would within a "classical" tax regime.[9] Managers' decisions about corporate tax avoidance are dictated by a comparison of the anticipated tax savings that can be passed to shareholders, with the potential costs and risks that may be incurred by the firm. However with imputation, firms that pay dividends with tax credits provide benefits that mitigate the cost of corporate tax to shareholders, without incurring any of the potential costs associated with engaging in tax avoidance. For firms that pay dividends with tax credits, tax paid on corporate profits is "*not really company tax but rather a collection of personal tax at the company level*" (Officer 1994, p.4). This changes a firm's incentives from maximising after-tax earnings to maximising pre-tax earnings (Bellamy 1994). As tax credits are generated by the amount of corporate taxes paid, this potentially makes tax avoidance and the distribution of tax credits, especially at the maximum rate, mutually exclusive corporate strategies.[10]

Amiram et al. (2016) evaluated the impact of dividend imputation on corporate tax avoidance using a difference in differences approach across countries where dividend imputation was removed in favour of a "classical" dividend tax system. Consequently, this leads to the unsupported contention that the costs and benefits of tax avoidance are homogenous for all firms, whether in a classical or imputation setting. On the one hand, as corporate tax avoidance increases the return to shareholders it has been identified as in the best interest of

[8] The payment of dividends with tax credits is used as the proxy for the effects of dividend imputation in the analysis of corporate tax avoidance. For a discussion of the effects of dividend imputation on dividend policy, see Pattenden and Twite (2008). An analysis of the determinants of dividend policy under imputation is beyond the scope of this chapter.

[9] For a "classical" dividend taxation system, corporate profits are taxed first within the firm through company income tax, and then again in the hands of the shareholders, as income on their personal tax return, when distributed as dividends.

[10] While the relation between tax credits and dividends poses further questions regarding the impact of imputation on corporate dividend policy, the scope of this chapter is limited to evaluating the impact of imputation on corporate tax strategies and associated incentives, whilst allowing for the mediating effects of corporate governance factors and managerial incentives. See Pattenden and Twite (2008) for an evaluation of the impact of imputation on dividend policy in Australia. While dividend policy is related to corporate tax strategies through imputation, the determinants of corporate payout policy under imputation is also beyond the scope of this thesis.

shareholders of all firms in a classical tax system (Amiram, Bauer & Frank 2016; Lasfer 1996). Evidence consistent of an association between the quality of corporate governance and corporate tax avoidance exists (Armstrong et al. 2015; Desai & Dharmapala 2006, 2009; Jimenez-Angueira 2008; Lanis & Richardson 2011; Minnick & Noga 2010). This is a plausible assumption given that the costs and benefits of tax avoidance in a classical regime are likely to have greater homogeneity, due to less identifiable and measurable determinants.

On the other hand, Amiram, Bauer and Frank (2016) contend that within an imputation setting, corporate tax avoidance reduces shareholder returns, and therefore managers of all firms will not engage in tax avoidance as it is ineffective in increasing shareholders' wealth. However, this chapter expects that this assumption is more tenuous in an imputation setting due to the existence of tax-induced dividend clienteles[11] and constraints on the ability of firms to fully distribute tax credits. As a result, a substantial number of firms either pay no dividends, or pay dividends without tax credits attached, and this leads to a diversity of outcomes with respect to tax avoidance strategies. In the Australian imputation setting there are constraints on the ability of firms to distribute all the tax credits. For instance, reductions in the corporate tax rate may provide incentives for managers of firms that pay dividends with tax credits attached to engage in some level of tax avoidance. Australia provides an ideal setting to resolve these tensions and to test extant research assumptions, as the heterogeneity in the costs and benefits of tax avoidance are easily identifiable and measurable in an imputation setting. These issues are addressed by evaluating corporate tax avoidance

[11] A further example of the clientele effect that explains why a significant number of firms pay no tax credits in Australia is that costs of corporate tax avoidance may be heterogeneous because they have low or zero potential costs associated with adopting corporate tax avoidance strategies (Austin & Wilson 2015; Hanlon & Slemrod 2009). For example, there is evidence that the costs and risks associated with corporate tax avoidance might not be homogeneous across firms in different industries (Austin & Wilson 2015; Edwards, Schwab & Shevlin 2016; Guenther, Matsunaga & Williams 2017; Hanlon & Slemrod 2009). These firms may also be responding to shareholders who are unable to access the value of the tax credits, such as foreign residents, or individuals subject to high marginal tax rates. In this regard, it should be noted that there is strong evidence that imputation creates tax-induced dividend clienteles (Bellamy 1994; Henry 2011; Jun, Gallagher & Partington 2011). Therefore, shareholders' residency and individual tax circumstances may induce the formation of these dividend clienteles.

separately for firms paying dividends with tax credits, dividends without tax credits and not paying dividends. Further, this classification permits the evaluation of the role of outside directors in monitoring tax strategies where controls for potential heterogeneity in the costs and benefits of corporate tax avoidance are included with respect to each of these categories.[12]

Based on a sample of 4,729 firm-year observations between 2004 and 2015, variations in corporate tax avoidance are evaluated across firms (1) not paying dividends, (2) paying dividends without tax credits, and (3) paying dividends with tax credits. If dividend imputation reduces the incentives for tax avoidance, different levels of tax avoidance are expected between these three groups of firms. Notably, the results from the evaluation are economically significant, as firms paying dividends with tax credits attached have an average cash effective tax rate (ETR) almost seventeen percentage points higher than those paying dividends without tax credits. Firms paying dividends without tax credits have an average cash ETR approximately two percentage points lower than firms that do not pay dividends. However, even within those firms that distribute tax credits, there is wide variation exhibited in the cash ETR's. This extends the extant literature, suggesting a more nuanced association between dividend imputation and corporate tax avoidance. This intra-group variation also occurs for firms that pay dividends without tax credits and those that do not pay dividends. Further evaluation of these variations is beyond the scope of this chapter.

After controlling for the impact of dividend imputation on corporate tax avoidance a positive association between the proportion of outside directors and the level of corporate tax avoidance is exhibited. This confirms the view that the costs and benefits of tax avoidance are

[12] Board independence has been promoted as a shareholder wealth-maximizing mechanism through improved monitoring of managers and improved decision-making (Hermalin & Weisbach 1988). It is also the most widely associated corporate governance mechanism with respect to corporate tax avoidance (Armstrong et al. 2015; Lanis & Richardson 2011; Minnick & Noga 2010).

heterogeneous, and also suggests that in general, managers in Australian firms still pursue policies of tax avoidance in order to maximise shareholder wealth, despite the imputation environment. This finding is inconsistent with the implicit claims in Lasfer (1996) and Amiram, Bauer and Frank (2016). Specifically, for firms that are not paying dividends, or paying dividends without tax credits, the incentives for corporate tax avoidance remain consistent with those in operating within a 'classical' dividend tax system, with this chapter finding that outside director monitoring is associated with increased tax avoidance in those firms as suggested by Amiram, Bauer and Frank (2016). However, for firms paying dividends with tax credits, outside director monitoring is also found to be associated with increased tax avoidance, and the association is not significantly different than for firms not paying dividends or paying dividends without tax credits. This is also inconsistent with Amiram, Bauer and Frank (2016), suggesting that the imputation environment in Australia has built-in constraints preventing firms from fully streaming the benefit from paying corporate tax by way of dividends with tax credits attached. That is, these constraints, above some minimum payment of tax in order to pay a given tax credit, still provide management with enough incentive to pursue tax avoidance to increase benefits for shareholders. Thus, even if imputation sets a ceiling on the level of tax avoidance, it does not fully eliminate the benefits thereof.

In order to confirm the veracity of the results and the supporting theoretical arguments, a series of additional analyses are included. They are an examination of whether heterogeneity of the costs associated with tax avoidance (Austin & Wilson 2015; Dyreng, Hoopes & Wilde 2014; Hanlon & Slemrod 2009) impacts the incentives for tax avoidance and produces the variation in tax avoidance outcomes. There is no support found for this proposition. Assessing the level of foreign ownership between the different groups of firms supports the existence of a clientele effect that is associated with the distribution of tax credits. Other

analyses indicate that the Global Financial Crisis has reduced the overall level of tax avoidance for all firms, with no differential impact on those firms that pay dividends with tax credits. Untabulated, annual cross-sectional regressions of the baseline regressions are consistent with the main results across all firm-years. While results from these tests provide limited support for the independence of the main variables, concerns of endogeneity, reverse causality and selection bias are also addressed and the results remain consistent, confirming the baseline results.

This chapter makes a number of important contributions to the ongoing policy debate in Australia regarding dividend imputation (Treasury, 2015), and to the scant academic literature on firm incentives for tax avoidance and the role of imputation and corporate governance in ameliorating those incentives. In this chapter the assertions raised in Wilkinson, Cahan and Jones (2001), Ikin and Tran (2013) and Amiram Bauer and Frank (2016) are rigorously evaluated, and extended in a number of ways. This includes ascertaining the incentive mechanisms that drive tax avoidance, providing robust empirical evidence as to the association between imputation and tax avoidance and by quantifying the economic impact of dividend imputation on tax avoidance in Australia. Hence, this chapter contributes to the literature on corporate tax avoidance, and in particular, the incentives for firms to engage in aggressive tax strategies. Additionally, this chapter is one of the few that examines the effectiveness of a regulatory response to tax avoidance.[13] Critically, this chapter is the first to empirically evaluate a number of previously unsubstantiated assumptions with respect to how managers behave with respect to corporate tax avoidance in order to maximise shareholder wealth within the context of monitoring by outside directors. Implicitly the mixed results achieved in the extant literature are reconciled in the Australian imputation

[13] Exceptions are the evaluation of the U.S. Tax Reform Act, 1986 (e.g. Auerbach & Slemrod 1997; Givoly et al. 1992) and effectiveness of the U.S. Job Creation Act, 2004 (e.g. Blouin & Krull 2009; Clausing 2005).

environment which provides an ideal setting for resolving much of the tension produced within the corporate governance and tax avoidance discourse to date.

The remainder of the chapter is structured as follows. Section 2.2 outlines the relevant literature and hypothesis development. Section 2.3 describes the research design and proxies for tax avoidance. Section 2.4 presents the results, and Section 2.5 contains the conclusions.

## 2.2 Theory and hypothesis development

In their review of tax research in accounting, Hanlon and Heitzman (2010) call for accounting researchers to examine "real" corporate decisions, and the incentive structures around corporate tax reporting. Both corporate tax avoidance and dividend imputation contain incentives regarding the amount of tax a firm pays on its profits, and are potentially of first order importance in other strategic decisions (Allen & Michaely 2003; Poterba 2004). Dividend imputation alters incentives for managers, corporations and shareholders when making decisions about investment opportunities, capital structures, and dividend policies, as well as their tax strategies (Amiram Bauer & Frank 2016). Despite this, there is inadequate rigorous research into the effects of dividend imputation on the incentives to engage in corporate tax avoidance or whether managers pursue these tax strategies in the shareholders best interests.

Dividend imputation allows firms to avoid the costs of taxation by allowing firms to pass the costs on to shareholders with tax credits attached to their dividends, representing the corporate tax paid on the profits distributed. To the extent that shareholders can access the value of corporate tax paid, imputation diminishes the benefits of engaging in tax avoidance. As tax avoidance may also incur substantial costs (Hanlon & Heitzman 2010; Hanlon & Slemrod 2009), imputation is likely to diminish the incidence of such behaviour. Critically, the modified treatment of corporate tax paid within an imputation environment changes a

firm's motivations from maximising after-tax earnings to maximising pre-tax earnings (Bellamy 1994). In order to maximise shareholder wealth, firms operating in an imputation environment should concentrate on maximising pre-tax earnings and paying tax on their profits to allow for tax credits to be distributed at the maximum rate.[14] While this suggests that dividend imputation mitigates the incentives for corporate tax avoidance, the extent will be limited by the existence of tax-induced dividend clienteles, as not all shareholders are able to fully utilize their tax credits, and by constraints on the ability of firms to distribute tax credits.

### *2.2.1 The costs and benefits of corporate tax avoidance*

While corporate tax avoidance[15] has at times been portrayed as managers extraction of net benefits from governments on behalf of shareholders (e.g., Rego & Wilson 2012), it is questionable whether these strategies are always in the best interest of shareholders (Amiram Bauer & Frank 2016; Desai & Dharmapala 2009; Slemrod 2004). There are obvious benefits to firms engaging in tax avoidance such as an increase in cash and liquidity (Saavedra 2013), increased after-tax profits, and a reduced tax liability (Hanlon & Slemrod 2009). Further, the reduction in a firm's ETR provided by tax avoidance is potentially a positive signal to investors, thereby reducing the cost of equity capital (Chi, Pincus & Teoh 2013; Inger 2013; McGuire, Omer & Wilde 2013). These benefits provide strong incentives for firms to engage in tax avoidance.

[14] This is generally equal to the current corporate tax rate. A full explanation of the maximum rate is provided in Appendix 2.A.

[15] Hanlon and Heitzman (2010) state "that there are no universally accepted definitions of, or constructs for, tax avoidance or tax aggressiveness; the terms mean different things to different people." (p.137). Nevertheless, this chapter follows Hanlon and Heitzman (2010) and defines tax avoidance very broadly reflecting all transactions that reduce a firm's explicit tax liability, including both certain and uncertain tax positions that may or may not be challenged by tax authorities. Additionally, the cash effective tax rates used in this research are a clearer signal of tax avoidance as they are not confounded by accounting accruals (Dyreng, Hanlon & Maydew 2008).

Conversely, there are potentially significant costs and risks for firms engaging in corporate tax avoidance. These potential costs include increased legal and transaction costs (Rego & Wilson 2012; Wilson 2009), and hostility towards the firm, including reputational damage amongst its various stakeholders (Boone, Khurana & Raman 2013; Lanis & Richardson 2013). It can also leave firms exposed to higher levels of political and regulatory risk, as well as social sanctions such as boycotts (Hoi, Wu & Zhang 2013). If tax avoidance is detected and the tax position found to be unsupported, it can result in further financial penalties as well as the potential for increased damage to the firm's reputation (Desai & Dharmapala 2006; Hanlon & Slemrod 2009; Lanis & Richardson 2013). Managers implementing tax avoidance strategies are also personally exposed to the risk of penalties and fines, and damage to their reputations. As the risks associated with detection of tax avoidance falls more heavily on the individual manager than on the firm itself, substantial compensation costs are required to offset the higher risks (Chen & Chu 2005). Therefore, either the benefits gained from tax avoidance need to significantly exceed the potential costs in order to encourage managers and firms to engage in tax avoidance, or the costs would need to be insignificant.[16] It is also likely that the costs and benefits of corporate tax avoidance will somewhat differ across firms reflecting firm-level characteristics.

Tax avoidance also potentially involves a number of additional, less explicit costs that can be detrimental to shareholders interests and reduce net benefits flowing to shareholders from corporate tax avoidance. Low ETR's are associated with higher levels of debt in capital structures (Graham & Tucker 2006; Harrington & Smith 2012), lower earnings persistence (Hanlon 2005) and higher stock volatility (Kim, Li & Zhang 2011). Additionally, in poorly governed firms, secrecy surrounding tax avoidance can be exploited to obscure rent

[16] There is evidence that the costs of tax avoidance, particularly reputational costs, are not homogeneous amongst firms (Hanlon & Slemrod, 2009; Guenther, Matsunaga & Williams 2017) and this may partially explain the anomaly of firms that both pay corporate taxes and distribute dividends without attaching tax credits.

extraction by managers, resulting in future negative abnormal returns (Desai & Dharmapala 2006). Also, tax avoidance has been used to mask the hoarding of bad news by managers, leading to increased risk of a stock price crash (Kim, Li & Zhang 2011). As with explicit costs, these costs might not be homogeneous between firms and industries, and recent evidence suggests the relation between tax avoidance and stock prices might not be linear (Cook, Moser & Omer 2015), as it appears investors reward lower levels of tax avoidance but disapprove of higher levels. However, as corporate tax avoidance has a detrimental effect on government revenues, it may provoke a regulatory response that can adversely impact firms engaging in certain tax avoidance strategies.

With dividend imputation, some of the potentially significant costs associated with tax avoidance need not be incurred if the benefits of such activities are reduced by passing them on to shareholders through the payment of dividends with tax credits. Firms can provide, ceteris paribus, the same level of benefits to shareholders as they can through tax avoidance, without incurring any of the potential costs. The extent of the benefits to shareholders is only constrained by limits on firms' ability to distribute tax credits.

### *2.2.2 Dividend imputation in Australia*

Dividend imputation was introduced in Australia in 1987, primarily to provide relief to individual resident shareholders from double taxation of corporate profits.[17] Essentially, shareholders receive a tax credit attached to their dividends that reflects the extent to which corporate tax has been paid on that portion of profit. Consequently, corporate profit will ultimately be taxed only at the individual shareholders' marginal tax rate. However, corporations can only distribute tax credits to the extent that corporate tax has been paid.

[17] Under a classical dividend taxation system, profits are taxed firstly in the hands of the company, and then again in the hands of investors, when distributed as dividends.

Dividend payments are the mechanism through which the benefit from the payment of corporate tax is passed to shareholders. Hence, the level of tax credits that can be distributed is a function of dividend distribution, with tax credits subject to a maximum rate of the dividend multiplied by the company statutory tax rate. However, while this mechanism limits tax credits to the corporate tax rate, it does not constrain the payment of dividends, and they may be paid with only partial tax credits or no tax credits. Following legislative changes, it is no longer possible to selectively stream tax credits to specific categories of shareholders. In situations where corporate tax payments exceed the value of the tax credits distributed, excess tax credits may be accrued and carried forward for future distribution, although it should be noted that there are limits on the rate at which tax credits can be distributed, and their value to shareholders diminishes over time.[18]

The benefit of the tax credit is realized by individual shareholders when determining their personal tax obligations. For Australian resident shareholders the dividend and the tax credits are included in the shareholders' taxable income, and credit is given for the tax paid. When imputation was introduced there was no provision for tax credits in excess of the shareholders' tax liability to be refunded to the shareholder. In these circumstances, the shareholder would not realize the full value of the tax credit, with excess value being lost. This may have created an incentive for firms to pay dividends with only partial tax credits, or without tax credits. However, since 2000, the value of excess tax credits is refundable for resident shareholders removing this incentive. While there has been refinement to the regulations addressing dividend imputation, it has generally operated in such a manner as to give shareholders tax credits equal to the corporate taxes paid on the dividends.

[18] Over the period 2004-2011, 71% of corporate tax paid was distributed as tax credits attached to dividends, and an estimated 62.3% of these tax credits were redeemed by shareholders (Hathaway 2013, p.7). However, that level of redemption may be understated, as Lally (2012), using data from the Australian Tax Office, estimated the redemption rate to be has high as 81% during the period from 2000 to 2010.

As tax credits are non-redeemable for non-resident shareholders, imputation discriminates against these shareholders potentially creating tax-induced dividend clienteles based on an investors' tax residency (Bellamy 1994; Heaney 2011; Jun, Gallagher & Partington 2011).[19] While a number of strategies had been developed by firms and shareholders to access the full value of tax credits, those strategies have been largely abandoned as a result of legislative changes to dividend imputation between 1998 and 2001. There is now little value in tax credits for non-resident shareholders. This splits Australian equity investors into two groups: those that can access the full value of the tax credits; and those that gain little or no value, creating two investor clienteles. To provide maximum benefits to their shareholders, firms either: (1) opt in to dividend imputation, pay the corporate tax rate on earnings, and distribute earnings with the maximum rate of tax credits attached; or (2) they opt out, and attempt to provide increased benefits through corporate tax avoidance, regardless of whether they pay dividends or not.

Much of the literature on tax-induced dividend clienteles examines arbitrage between capital gains tax and dividend tax, within a "classical" tax regime (Desai & Jin 2011; Dhaliwal, Erickson & Trezevant 1999; Elton and Gruber 1970). Miller and Modigliani (1961) argue that investors should be indifferent to value gained through either dividends or capital gains if there were no taxes, or if both were taxed at the same rate. However, consistent with research in other countries, Pattenden and Twite (2008) found that, even when capital gains were taxed preferentially in Australia, firms still continued to pay dividends. This anomaly has been previously established and is known as the "dividend puzzle" (Black 1976; Myers 1984).

[19] The discriminatory nature of imputation systems and the bias in favour of domestic investors was identified by the European Court of Justice in the late 1990's when dividend imputation systems in Europe were challenged under unfair competition/government support rules leading to the abolition of dividend imputation in a number of European countries.

A possible explanation offered for the dividend puzzle is the heterogeneity of personal taxes. Some investors gain better tax outcomes through capital gains, some gain more through dividends, while others may be indifferent. Two trends could be expected to emerge simultaneously: (1) investors will gradually align with firms whose dividend policy matches their tax preferences; and (2) firms will gradually move their dividend policy towards the tax preferences of their major shareholders. Over time, alignment of investors and dividend policy will become entrenched. Dividends signal managers' private information regarding the future earnings of the firm (Allen & Michaely 2003; Bhattacharya 1979; Coulton & Ruddock 2011) and managers respond by setting long-term target payout ratios (Lintner 1956). Firms reducing or eliminating dividends are punished by shareholders causing dividends to become 'sticky' over time (Lintner 1956). This chapter exploits the clientele effect in Australia by examining and comparing two groups: one that is engaging in the imputation system; and another that is not.

A second objective for the introduction of dividend imputation in Australia was to correct a bias in the previous "classical" tax system that favoured debt over equity finance (Treasury 1986). This bias was generated by the differential tax deductibility of interest compared to dividend payments. Corporate regulators felt that Australian firms were carrying unsustainable levels of debt due to this imbalance (Treasury 1986), with shareholders bearing most of the risk. The introduction of dividend imputation appears to have achieved this objective, as it led to a decline in the aggregate proportion of debt in corporate capital structures in Australia (Twite 2001). The decline was more significant for firms with higher ETR's, which indicates that the tax shield effect of debt appears to have been an incentive to firms to increase their levels of debt for no other purpose than to reduce their tax liabilities. While the use of debt can magnify the return on investment for shareholders, this is

conditional on the funds being employed productively and generating a positive rate of return.

Some prior research purports to have found evidence that Australian publicly listed firms may have changed their tax strategies in response to amendments to dividend imputation in the late 1990′s and early 2000′s (Amiram, Bauer & Frank 2016; Ikin & Tran 2013; Wilkinson, Cahan & Jones 2001). Critically, these papers lack adequate theoretical frameworks[20] linking theory to their research designs, and challenging their conclusions. They also suffer from unsubstantiated assumptions about the effects of imputation, and potentially unrepresentative or at best problematic sample selection.

Amiram, Bauer and Frank (2016) examined a change to the Australian imputation system in 2002, using a difference-in-differences research design. They compared the effect of the change in corporate tax avoidance in Australia after that date (treatment group), to changes in tax avoidance in other countries over the same period (control group). A major limitation with their research design, which may be a consequence of its multinational context, is the implicit assumption that the costs and benefits of corporate tax avoidance were treated as homogenous across firms, hence the impact of dividend imputation was also assumed to be uniform across firms. Notably, in this chapter the sample distinguishes that 32% of firms are not paying dividends and 10% are paying dividends without tax credits. Critically, the incentives for corporate tax avoidance in these circumstances are not ameliorated by dividend imputation. Accordingly, the results from Amiram et al., 2016 may be attributable to other uncontrolled institutional differences, or the impact of dividend imputation on corporate tax

[20] For example, Ikin and Tran (2013) claim that they are not examining tax strategies that include "outright tax evasion such as deliberate omission of income from corporate tax returns" (p.525) but use effective tax rates as their proxy for tax strategy that includes all tax minimising strategies. They also state that "dividend imputation system eliminates the double taxation of corporate profits distributed as dividends and thus reduces management incentives to pursue costly aggressive tax strategies" (p.530) but provide no explanation of how this occurs nor do they cite any supporting evidence.

avoidance may be grossly understated. A second limitation of Amiram et al. (2016) is the comparison of tax avoidance outcomes across tax jurisdictions, as it is fraught with difficulties. Not only are tax laws different in scope, applicability, and in the incentives they contain, but the compliance and enforcement regimes can also be markedly different.

A greater limitation of both Amiram, Bauer and Frank (2016) and Ikin and Tran (2013) were their sample periods and treatment dates. The change in the imputation laws used as the treatment effect in Amiram, Bauer and Frank (2016) was not the only change affecting dividend imputation between 2000 and 2003. The Australian dividend imputation regime was comprehensively overhauled between 1997 and 2002 with numerous concurrent changes occurring, some with phase-in periods of two or three years.[21] These concurrent changes create large confounding effects for any event-type study during this period. Perhaps the largest effect came from reductions in the corporate tax rate,[22] combined with the change to the accounting for tax credits from the assessed tax liability to a cash taxes paid basis. This included the abolition of quarantined profits with corresponding tax credits. Firms were able to distribute tax credits at a higher rate than the current tax rate with balances converted to a cash basis at the end of the three year phase in period, hence distorting any measures based on the distribution of tax credits during that period. Ikin and Tran (2013) used only the period from 1999 to 2003 to test their hypotheses, significantly constraining any findings due to

[21] The period between 1997 and 2003 was one of intense and major change to the Australian taxation system. Some to the significant changes that affected dividend imputation were: a prohibition on trading (selling) of imputation credits by foreign investors, such as via a securities loan (1997); 45 day holding rule to qualify for imputation credits (2000); refund to shareholders for unused tax credits (2000); further limits on the trading of imputation credits by foreign investors (2002); removing the ability to "stream" tax credits to different classes of shareholders (2002); rolling balance "franking" accounts for each corporate tax entity recorded on a tax paid rather than an annual after-tax distributable profits basis (2002); tax on corporate dividend income treated the same as individual shareholders (2002); New Zealand companies become eligible for any tax paid in Australia (2003). Another major tax change that would affect both investor and corporate tax strategies was a 50% discount on capital gains income (1999) and the abolition of accelerated depreciation (1999). There was also the introduction of a broad-based consumption tax, along with the abolition or amendments to both wholesale and retail sales taxes, stamp duties and financial taxes and duties, in 2001.

[22] There were two reductions in the corporate tax rate: from 36% to 34% (2000); from 34% to 30% (2001). Profits were quarantined into categories depending on the tax rate that had applied to them, and depleted on a first in, first out basis.

"noise" from other changes. Problematically, some of the legislative changes had theoretically opposite implications for the incentives to engage in tax avoidance.[23] The longer sample period used in this chapter ameliorates these impacts, with the period since 2004 being relatively stable, with very little further change to Australian corporate and investor taxes, or to the corporate tax rate.

A further issue for Ikin and Tran (2013) is that the restrictions on the sample selection may have produced an unrepresentative sample. They included only large Australian firms, including financial and utilities firms, with all data available between 1999 and 2003. They reported an average rate of tax credits attached to dividends of 77%, for firms that paid dividends with tax credits. This compares to over 96% for the sample of all Australian firms between 2004 and 2015 used in this chapter, which excludes financial and real estate institutions.[24] Further, like Amiram, Bauer and Frank (2016), Ikin and Tran (2013) made no distinction between firms not paying dividends and those paying dividends without tax credits. Greater insights are to be gained by examining the differences between these groups, rather than excluding them. Critically, it is the existence of these groupings of firms in Australia that provides an ideal setting to evaluate and test assumptions regarding 'imputation effects'.

While Wilkinson, Cahan and Jones (2001) examined the New Zealand imputation regime, they suffer from similar issues to Ikin and Tran (2013) and Amiram, Bauer and Frank (2016). They used a small, possibly unrepresentative sample, and a changes analysis involving a period very soon after the introduction of dividend imputation in New Zealand, and during

[23] For instance, eliminating the ability to 'stream' tax credits to different classes of shareholders, may have increased the incentives for tax avoidance in order to compensate non-resident shareholders, while the refund of tax credits to resident shareholders who have no tax liability to offset, may have the opposite effect.

[24] The difference between the average tax credit percentages is possibly due to the different samples of firms in each study or to the non-refundable nature of tax credits during part of this period which may have downwardly biased the demand for tax credits, even from some domestic investors, including superannuation funds.

one of the most far-reaching financial reform agendas in the developed world (Reserve Bank of New Zealand, 1996). Their measure of tax avoidance was based on the tax expense rather than the cash tax paid, despite the New Zealand system linking tax credits to the amount of tax actually paid. However, Wilkinson, Cahan and Jones (2001) acknowledged the limitations of their research and the weak support it provided for their hypotheses, and called for future research into this relationship using larger samples and in other jurisdictions with imputation. So far, no other research appears to have taken up that challenge. This chapter responds to their call by attempting to address these issues.

While Wilkinson et al. (2001) investigated the differential effects of imputation on dividend clienteles, neither Ikin and Tran (2013), nor Amiram, Bauer and Frank (2016), considered the clientele effects on the incentives for tax avoidance. They both appear to assume homogeneity in the costs and benefits of corporate tax avoidance across firms. However, the changes to imputation in Australian during the late 1990′s and early 2000′s further entrenched the differential tax incentives facing various groups of firms and investors. Hence, this chapter exploits the impact of dividend imputation on groups of firms that face different incentives for tax avoidance. Additionally, this chapter considers whether managers engaging in tax avoidance do so in the best interests of their shareholders, by examining the role of corporate governance factors.

If dividend imputation alters the balance between the costs and benefits of tax avoidance, then theoretically, imputation provides the same level of benefits as tax avoidance without incurring the associated costs. Amongst the benefits of tax avoidance are increased cash flows, increased liquidity, and higher after-tax profits (Saavedra 2013). Imputation provides a benefit equivalent to these increased cash flows through the distribution of tax credits. Imputation also removes the benefits of the debt tax shield, thereby improving liquidity

through the use of increased equity finance (Schulman et al. 1996; Twite 2001). The focus for firms that pay dividends with tax credits attached, moves from after-tax profits, in a classical dividend taxation system, to pre-tax profits (Bellamy 1994). Hence, dividend imputation is expected to provide similar benefits to tax avoidance without incurring the associated legal and transaction costs, or the risk of penalties and reputational damage. Thus, it is interesting that some firms engage in tax avoidance when dividend imputation is a viable alternative. Based on the intuition that dividend imputation mitigates the incentives for tax avoidance, and the evidence from prior research, it is hypothesised that:

> **H1.** *Firms paying dividends with tax credits attached undertake less tax avoidance than firms not paying dividends, or paying dividends without tax credits attached.*

Confirmation of the above hypothesis would be an indication that there is a corporate response to Australian dividend imputation in the form of changed tax behaviour as some firms pay dividends with tax credits attached and thus limiting the need and incentive for tax avoidance without any loss in shareholder wealth. However, further theoretical discourse and propositions are necessary to ascertain whether this effect remains uniform across all firms, and therefore, if dividend imputation in Australia completely eliminates the benefits of tax avoidance so that managers do not pursue tax avoidance strategies.

### *2.2.3 The impact of corporate governance on tax avoidance and imputation*

While the relevant literature has purportedly found a negative association between dividend imputation and corporate tax avoidance (Ikin & Tran 2013; Amiram, Bauer & Frank 2016), it makes unsubstantiated assumptions as to what management should pursue in the best interests of shareholders. That is, in an imputation environment, managers in all firms will not engage in tax avoidance as it is ineffective in increasing shareholders' wealth (Amiram,

Bauer & Frank 2016; Lasfer 1996). This is likely to be correct only if there is homogeneity across the costs and benefits of corporate tax avoidance, and therefore, a uniform association between imputation and corporate tax avoidance. In this case the corporate governance role of monitoring in all firms would be to ensure higher tax payments and therefore an absence of tax avoidance.[25] However, if the costs and benefits of corporate tax avoidance are heterogeneous, or the benefits of imputation do not completely mitigate the same benefits available through tax avoidance, there may be variation in the level of corporate tax avoidance across firms. This suggests a more diverse and less certain overall monitoring role for corporate governance in ensuring a firm's tax strategies are in the best interests of its shareholders. For example, for firms that have a clientele of mainly domestic investors, who prefer all earnings be distributed with full tax credits, the impact of imputation on the costs and benefits of tax avoidance would be significant. Conversely, for firms that have a clientele that either cannot derive any value from tax credits, or can still gain a greater tax advantage through capital gains taxes, the impact of imputation on the costs and benefits of corporate tax avoidance are minimal. There are likely other factors that also impact the costs and benefits of corporate tax avoidance across firms differentially.[26] Hence, to examine assumptions in the extant literature as to management pursuits of tax avoidance, and its benefits to shareholders in an imputation setting, this chapter considers whether corporate governance, by way of monitoring, impacts tax avoidance directly, and whether this is conditioned by the impact of dividend imputation on the costs and benefits of corporate tax avoidance.

[25] Another way to look at this is to assume that the benefits of imputation are complete and therefore there is no need and opportunity whatsoever to pursue a tax avoidance strategy by management which in fact will decrease shareholders wealth. This is possible in an extreme case where paying dividends with full tax credits puts a floor (presumably the statutory corporate tax rate) on the payment of tax and therefore completely eliminates any tax avoidance for all firms. In this case the role of monitoring would be to ensure that no tax avoidance is pursued by management.

[26] These factors are outside the imputation system and beyond the scope of this chapter.

There are a number of corporate governance factors that have been found to impact the alignment of the interests of managers with those of shareholders, such as board independence and expertise, executive compensation and incentives, and ownership concentration and structure. There is extensive literature that identifies board independence as the most important factor, particularly in respect to tax avoidance (Adams & Ferreira 2007; Armstrong, Guay & Weber 2010; Finkelstein & Mooney 2003; Hermalin & Weisbach 1988; Lanis & Richardson 2011; Mace 1986; Pfeffer & Salancik 1978). Therefore, this chapter focuses on board independence when assessing the impact of governance by way of monitoring tax avoidance strategies. This chapter extends the extant literature by examining this relation in both an imputation and a classical dividend taxation setting.

*2.2.3.1 The monitoring role of outside directors*

The effectiveness of the board of directors[27] in monitoring the management of a firm is considered a function of the combination of inside and outside directors serving on the board (Fama 1980; Fama & Jensen 1983). Outside directors are appointed in the interests of shareholders (Rosenstein & Wyatt 1990) and depending on their knowledge-base and experience, outside directors on the board can have different functions (Coles, Daniel & Naveen 2008).While knowledge and experience brought to a firm by outside directors can be used to counsel management about a firm's strategic direction (Adams & Ferreira 2007), outside directors primarily provide independent monitoring of top management on behalf of shareholders (Anderson & Reeb 2004; Dahya & McConnell 2005; Fama & Jensen 1983). Relevant literature also suggests that the unbiased monitoring provided by outside directors, to both the board and to managers, improves corporate decisions-making quality and protects

[27] The board of directors is a market-induced, low-cost mechanism for the internal transfer of control of a firm from its shareholders to management (Fama & Jensen 1983). It has an important role advising and monitoring senior management (Adams & Ferreira 2007; Armstrong, Guay & Weber 2010; Finkelstein & Mooney 2003; Mace 1979).

shareholders' interests. (e.g. Anderson & Reeb 2004; Dahya & McConnell 2005). Hence, outside directors act as monitors of firm tax strategies, ensuring that the strategies pursued by management are in the best interests of shareholders (Lanis & Richardson 2011; Richardson, Lanis & Leung 2014).

*2.2.3.2 Outside directors and tax avoidance*

The relevant literature on the impact of outside directors as monitors on tax avoidance provides competing theories and mixed results. For instance, Khurana and Moser (2013) suggested that within an agency theory framework, tax aggressiveness is value maximising and an activity for achieving a transfer of wealth from the government to shareholders. Hence, it is in the best interests of shareholders and should be pursued by management. However, results in the literature are equivocal, as for instance Minnick and Noga (2010) evaluated the impact of outside directors on corporate tax aggressiveness and found that governance factors, including board independence, were not significantly associated with either book or cash taxes. However, they claimed that the uncertainty involved in tax planning does not produce immediate benefits to the firm and is therefore a long-term investment. Using a long-term perspective to determine the lasting effects of corporate governance on investment in tax management, they found that investment in tax planning is positively related to higher shareholder returns over longer horizons.

Conversely, an Australian study by Lanis and Richardson (2011) found evidence that a higher proportion of outside members on the board of directors was associated with lower levels of tax aggressiveness. However, they were not concerned with dividend imputation and this was considered without controls for firms paying dividends with tax credits. Further, their study was based on a small and restricted sample of 16 firms that had first been described in official announcements in terms that suggested they had been tax aggressive, and second had

received an amended tax assessment from the tax authorities over a five-year period. Hence, their sample was restricted to firms at the more aggressive end of the tax minimisation continuum, and this might not be representative of Australian publicly-listed firms in general. Other studies have also produced mixed results regarding the association between board independence and tax aggressiveness (e.g., Rego & Wilson 2012; Robinson, Xue & Zhang 2012). Notably, the effects of board independence do not appear to be uniform across firms (Armstrong et al. 2015). Therefore, the literature provides empirical evidence that outside directors are associated with tax avoidance, or at least have a marginal effect on tax avoidance at the extremes, but the results seem inconsistent with respect to the direction of the association.

A potential contributor to this tension and to the diverse results is the heterogeneity of the costs and benefits of corporate tax avoidance across firms. Potentially, this provides different results depending on the setting, as it can cancel out results when there is no control for this, or create erroneous results that are anomalous with theory. To the extent that dividend imputation is a prominent cause of differences in the costs and benefits of corporate tax avoidance, this may confound any association between outside directors and corporate tax avoidance. Further, the effect of dividend imputation in Australia is easily identifiable and measurable which provides for a solid setting to control for the heterogeneity in the costs and benefits of corporate tax avoidance. Thus, an interesting question is whether, after controlling for the effects of dividend imputation, there is an association between outside directors and corporate tax avoidance, and critically, the direction of any association. If Lasfer (1996) and Amiram, Bauer and Frank (2016) are correct that in an imputation environment, management are likely not to engage in tax avoidance to maximise shareholder wealth, there is an expectation of a positive association between outside directors and tax avoidance. However, that is an extreme assumption based on the view that the costs and benefits of corporate tax

avoidance are homogenous. Relaxing that view, and considering the more likely case[28] of heterogeneity of the costs and benefits, creates tension as to the direction of any association. This position is somewhat supported by the mixed empirical results in the extant tax avoidance literature. Hence, the following hypothesis with respect to the proportion of outside directors and tax avoidance is non-directional:

**H2.** *There is an association between the proportion of outside directors on a board and the level of tax avoidance.*

If the assumption holds that management in an imputation environment do not pursue aggressive tax strategies and this is in the best interests of shareholders, given that the costs and benefits of corporate tax avoidance are homogenous, there is an expectation of uniformity to be exhibited across all firms. However, if the costs and benefits of corporate tax avoidance are heterogeneous, a further question arises as to whether this changes the tax strategies that mangers should pursue, and therefore, also changes the outcomes that will result from outside directors' monitoring. For firms that are not paying dividends, or paying dividends with no tax credits, there is no impact of dividend imputation on the incentives for corporate tax avoidance. Those firms are essentially akin to their counterparts in a classical tax regime, and therefore present an ideal setting for examining the Lasfer (1996) and Amiram, Bauer and Frank (2016) assumption that management are likely to pursue tax avoidance in the best interests of shareholders, in a classical dividend tax environment.[29] If tax avoidance is in the best interests of shareholders for firms in that situation, the presence of outside directors should increase the level of tax avoidance for those firms. Hence, in the

[28] This is likely given the discussion surrounding the first hypothesis (H1) and in particular the rudimentary evidence that in Australia a large proportion of firms pay no tax credits, which has been linked to tax-induced dividend clientele effect.

[29] This proposition would also be prefaced with the homogeneity of costs and benefits of corporate tax avoidance assumption but the likely causes of heterogeneity in a classical system are not as prevalent, and hard to identify and measure.

following hypothesis there is an expectation of a positive association between the proportion of outside directors and tax avoidance for firms that do not distribute tax credits:

> **H3.** *Board independence is positively associated with the level of tax avoidance for firms that pay no dividends or dividends with no tax credits.*

Again, if the costs and benefits of corporate tax avoidance are heterogeneous in general, for firms that pay dividends with tax credits, managers in all firms will not engage in tax avoidance as it is ineffective in increasing shareholders' wealth (Amiram, Bauer & Frank 2016; Lasfer 1996). However, that proposition also assumes that firms paying dividends with tax credits have no further incentive to pursue any tax avoidance strategy whatsoever. That assumption is unlikely under conditions inherent in the Australian imputation setting which prevents firms from fully streaming tax payments as tax credits attached to dividends, ceteris paribus. Amore plausible scenario is that imputation, as has been suggested throughout the theory section, reduces (but does not completely eliminate) incentives for firms that pay dividends with tax credits for pursuing tax avoidance strategies as there is no benefit (or potentially a cost) to their shareholders.

There is at least a limit on the level of tax avoidance available to firms that pay dividends with tax credits because they have to pay tax in order to be able to pass it on. However, given certain constraints (an obvious one is the corporate tax rate itself as firms cannot stream tax payments beyond that as tax credits)[30] on the amount of tax paid that can be streamed as tax credits attached to dividends, firms could still pursue tax avoidance strategies, albeit only to a

[30] The number one constraint is the upper limit at which tax credits can be attached to dividends which is equal to the current corporate tax rate. While tax credits can be accrued from year to year, their value diminishes over time and large accrued balances can be difficult to distribute as tax credits can only be attached to dividends at the maximum corporate tax rate. Therefore, large accrued balances of tax credits may be wasted, particularly if there is not a corresponding large balance in the retained earnings account. Wasted tax credits are not in the shareholders best interests and therefore may create incentives for tax avoidance in order to reduce the balance of accrued tax credits.

certain limit and with less aggressiveness than firms that pay no dividends or dividends with no tax credits. This has the effect of introducing significant tension with respect to the choice of which management's tax avoidance strategy would be in the best interest of shareholders.

Firms can accrue large imbalances between accrued tax credits and retained earnings that could then provide, albeit to a lower degree, incentives to avoid tax. A source of large tax credit balances in excess of retained earnings arises from reductions in the corporate tax rate. Firms can also accrue large balances of retained earnings, as well as a corresponding large balance of tax credits, often with plans for a future distribution. However, if the corporate tax rate is reduced, retained earnings will not be sufficient to distribute all the accrued tax credits, as the maximum rate that tax credits can be attached to dividends is at the current tax rate. For example, if tax credits were accrued at 30% and the tax rate was subsequently reduced to 25%, then 5% of the accrued tax credits would be wasted as now they can only be distributed at the maximum rate of 25%. Prior to 2002, profits were quarantined into categories for different tax rates, and when profits were distributed, it was on a first-in, first-out basis. However, subsequent to 2002, tax credits have accrued on a ‘cash taxes paid’ basis with no requirement for quarantining. While there have been no general reductions in the corporate tax rate since the 2002 reform, legislation passed in 2016 started a graduated reduction in the corporate tax rate from 30% to 25% for small, then medium firms, with an expectation that it will eventually flow through to large firms as well. The effect of the tax rate reduction on accrued tax credit balances has already produced some resistance to the reduction in corporate tax rates, particularly from shareholders who gain most value from dividends and the corresponding tax credits (Newnham 2017).

In order to further evaluate the impact of outside directors as monitors on the tax avoidance of firms that pay dividends with tax credits and to test the implicit assumption expounded in

Amiram, Bauer and Frank (2016) that dividend imputation completely eliminates the incentive for corporate tax avoidance, and therefore management should not pursue tax avoidance, the following hypothesis arises. It is expressed in a non-directional form because the extant constraints introduce a significant amount of tension with respect to the direction of any association between the proportion of outside directors and the level of tax avoidance for firms that pay dividends with tax credits.

**H4.** *Board independence is associated with the level of tax avoidance for firms that pay dividends with tax credits.*

### 2.3 Research design

This chapter is concerned with evaluating differences in the level of tax avoidance between firms paying dividends with tax credits, those paying dividends without tax credits, and those not paying dividends (H1), and also with the impact of board independence on those differences (H2, H3 and H4). To test these hypotheses, the following baseline regression model is estimated:

$$CashETR_{it} = \propto_0 + \propto_1 DivTC_{it} + \propto_2 DivNTC_{it} + \propto_3 Outside\%_{it} + \propto_4 Outside\%_{it} * DivTC_{it} + \sum_{\gamma=5}^{k} \propto_y Controls_{it} + \sum_{k+1}^{j} \propto_k Indust_{it} + \sum_{j+1}^{l} \propto_j Year_i + \varepsilon_{it} \quad (1)$$

Where:

$CashETR_{it}$ = Cash effective tax rate;

$DivTC_{it}$ = indicator variable equal to 1 if firm *i* paid dividends with tax credits attached in year *t*, otherwise 0;

$DivNTC_{it}$ = indicator variable equal to 1 if firm *i* paid dividends without tax credits attached in year *t*, otherwise 0;

$Outside\%_{it}$ = percentage of outside directors on the board of firm *i* in year *t*;

$Controls_{it}$ = a series of variables that have been shown to impact corporate tax avoidance;

$Indust_{it}$ = indicator variable equal to 1 if firm *i* has a specified 2-digit industry code in year *t*;

$Year_i$ = indicator variable equal to 1 if firm *i* has data in the specified year.

Eq. (1) is estimated using an ordinary least squares regression on the pooled cross-section of firms, with year and industry fixed effects. For profit making firms, there is a reasonable presumption that, in the absence of tax avoidance, firms face an obligation to make corporate tax payments, and this potentially offers tax avoidance incentives.

*2.3.1 Tax avoidance measure*

As tax avoidance cannot be observed directly, all measures of tax avoidance may be subject to error and have limitations (Hanlon & Heitzman 2010; Lisowsky, Robinson & Schmidt 2013). ETR's have commonly been identified in the literature as the most useful measures for capturing and comparing the tax burden of firms and industries (Dyreng, Hanlon & Maydew 2008 Fullerton 1984).[31] Although the literature has used different measures of tax in the numerator, and different measures of income or cash flow in the denominator to calculate ETR's, ETR's remain widely used because: they capture a broad range of tax avoidance activities; they confirm potential levels of tax avoidance; and they provide a ranking of firms along the continuum of tax minimization activities (Hanlon & Heitzman 2010).[32]

The specific measure of tax avoidance adopted here has been labelled the cash effective tax rate (*CashETR*). This measure was developed by Chen et al. (2010) where tax paid from the Statement of Cash Flows is used in the numerator and income before taxes in the

[31] In prior research, there have been different measures of tax used in the numerator, and for measures of income or cash flow used in the denominator. These choices are typically influenced by the particular research question.

[32] This is consistent with the research definition in Footnote 14.

denominator. It has the benefit of capturing a broad range of tax planning activities that can have either certain or uncertain outcomes (Badertscher, Katz & Rego 2013),[33] it is not affected by changes in accounting estimates such as the valuation allowance or tax contingency reserve (Dyreng, Hanlon & Maydew 2008), and it is the variable of interest in a majority of empirical research into corporate tax avoidance (Blouin 2014). Persuasively, evaluating tax avoidance on this basis is consistent with the process that generates imputation tax credits - cash taxes paid. Accordingly, the *CashETR* is calculated as:

$$CashETR_{it} = \frac{Tax\ Paid_{it}}{Pre-tax\ Income_{it}}$$

*2.3.2 Explanatory variables*

Eq. (1) addresses the first concern in this chapter, which is whether dividend imputation impacts corporate tax avoidance. Variations in corporate tax avoidance for firms paying dividends with or without tax credits are assessed with indicator variables. It is appropriate to designate *DivTC*, which specifies firms that paid dividends with tax credits attached in the current period, as an indicator variable because during the period from 1996 to 2015, 96% of firms attached tax credits at a rate of 100%. If firms paying dividends with tax credits avoid less tax than other firms (H1), the coefficient on this variable from estimating Eq. (1) will be negative. The indicator variable *DivNTC* is used to identify firms that pay dividends without tax credits. Relative to firms not paying dividends, dividend imputation is not expected to impact the costs and benefits of tax avoidance for these firms and the coefficient on this variable is not expected to be significant. However, the financial requirements for paying dividends may impose constraints on tax avoidance, and this may result in less tax avoidance

[33] The *CashETR* also has limitations, as it can potentially capture outcomes that are not associated with tax aggressiveness, such as large depreciation deductions (Khurana & Moser 2012), investments in municipal bonds (Khurana & Moser 2012; Kim, Li & Zhang 2011), and research and development tax credits (Treasury 2015). It is also affected by the exercise of stock options (Blouin, 2014).

and potentially, a negative coefficient. This would be more appropriately labelled a dividend effect rather than a dividend imputation effect.

The other explanatory variable is *Outside%* which is calculated as the percentage of outside directors on the board. In Eq. (1), this variable captures the impact of outside directors on the *CashETR* generally (H2). To further explore this association, *Outside%* is also interacted with *DivTC* to identify the differential impact of outside directors in firms that pay dividends with tax credits. If outside directors are associated with corporate tax avoidance for firms not paying dividends or paying dividends without tax credits (H3) we expect a negative coefficient on *Outside%*. The difference in the association between outside directors and corporate tax aggressiveness for firms paying dividends with tax credits (H4) is captured by the interaction.

### *2.3.3 Control variables*

There are an extensive range of variables that have been used in the literature to control for known determinants of variation in tax avoidance. Firm size (*Size*) is commonly included as a control for tax avoidance and this is likely relevant due to there being significant transaction costs in establishing the necessary structures (Omer, Molloy & Ziebart 1993; Zimmerman 1983) and this impacts the demand for corporate tax avoidance. However, there is conflicting evidence as to the direction of the effect (e.g. Stickney & McGee 1982; Zimmerman 1983). This may be a consequence of increasing political costs associated with firm size, as the tax affairs of larger firms receive greater scrutiny in the media and from tax authorities potentially limiting the benefits available from corporate tax avoidance (Zimmerman 1983). *Size* is measured by the natural log of total assets. The demand for tax aggressive strategies is also likely influenced by profitability as there are clearly larger benefits from corporate tax avoidance if there is potentially greater tax that would otherwise be payable. Accordingly,

return on assets (*ROA*) is also included as a control variable and is measured as pre-tax income divided by total assets.

Early tax research found that the lowest ETR's are associated with high leverage (*LEV*) and high levels of capital intensity (*CAPINT*) (Omer, Molloy & Ziebart 1993; Stickney & McGee, 1982). Capital intensity identifies a constraint on shifting operations and profits, and LEV recognizes the tax shelter provided by debt and the use of debt in profit shifting. Intangible assets (*INTAN*) are measured as the ratio of intangible assets to total assets, although a challenge with this measure is the often limited recognition that is assumed to be the real economic value of intangible assets. Researchers have also considered research and development costs (*RDINT*), which may have concessional tax treatment, and can be indicative of intangible assets which can facilitate profit shifting. Finally, *TotalAccruals* is included to control for the effect of earnings management on the denominator of the *CashETR*, *TotalAccruals* is calculated as net increase in cash held divided by net income.

### *2.3.4 Sample selection and description*

Panel A of Table 2.1 describes the initial sample selection process for the baseline tests. Sample firms to test the association between tax avoidance and dividend (H1), and for the impact of board independence on corporate tax avoidance (H2, H3 and H4), are taken from the Aspect Huntley database. Initially all firms listed on the Australian Stock Exchange (ASX) during financial-years 2004 to 2015 are included. This period is selected due to limited availability of some data items for outside directors (*Outside%*) in the firms covered on the database before 2004. The period is also selected as it is subsequent to a period of major changes to the Australian imputation, which amongst other changes, extended the benefits of imputation to a greater proportion of shareholders, while also closing down loopholes for others who did not qualify to benefit from tax credits. There have been no

major changes to dividend imputation in Australia during the sample period selected or any change to the corporate tax rate producing a period of stability to test the imputation effects. There are 21,384 firm-year observations listed on the ASX during this period. Firm-year observations are deleted from the sample: for any years they report losses, as firms making a loss will be less likely to pay tax or pay dividends (12,422);[34] if they are in the financial services and utilities industries because they are subject to different and more stringent regulations that are likely to affect their tax avoidance measures (2,157); if there are firm-years with missing data (914); or with missing outside director data (1,162). This leaves a final sample of 4,729 firm-years.

Consistent prior research, *CashETR* has been winsorised between the values of zero and one, and LEV has been winsorised at the 1% and 99% values, in order to reduce the influence of extreme observations (Armstrong, Blouin & Larker 2012; Frank, Lynch & Rego 2009; Gupta & Newberry 1997).[35] Panel A of Table 2.2 demonstrates that industry distribution classified according to global industry classification system (GICS) of sample firms are drawn across a reasonably balanced cross-section of industries indicating that there is no significant degree of industry bias in the sample. Similarly, Panel B demonstrates that the distribution of firm-years across the sample remains reasonably distributed indicating that there is no significant degree of bias occurring from any sample year. Summary statistics for the samples are presented in Table 2.3. *CashETR* for the full sample in Panel A has a mean (median) value of

[34] A significant number of firms listed on the Australian Stock Exchange are small mining exploration companies, which are individually economically insignificant. These firms are loss making in most years.

[35] It is possible for a firm to have cash taxes paid greater than the measure of book income for the year, thereby producing a negative *CashETR*. However, those situations are outside normal business parameters and are usually related to the reversal of a previous transaction, such as a successful challenge by the tax authorities to a previous tax position taken by the firm. It is also possible for firms to have an amount for cash taxes paid while reporting a loss in the same period, or to receive a tax refund while reporting a profit. However, these circumstances produce negative measures of tax avoidance which are outside the normal bounds for profitable firms and can be difficult to interpret (Gupta & Newberry 1997).

0.202 (0.158) indicating that the sample is skewed towards higher *CashETR*'s, and that on average firms reduce their *CashETR*'s by ten percentage points from the 30% corporate tax rate. This demonstrates tax avoidance strategies are being employed amongst the sample firms. Dividends are paid in 68.4% of firm-year observations which is in line with other research reporting Australian data (Hail, Tahoun & Wang 2014; Pattenden & Twite 2008). Dividends with tax credits are paid in 58.5% of all firm-years, or 85.5% of observations where dividends have been paid. This suggests considerable variation between the groups of firms not paying dividends, those paying dividends without tax credits, and those that pay dividends with tax credits, confirming the decision to evaluate the impact of dividend imputation on corporate tax avoidance. Outside directors constitute 54.9% of the membership of boards represented in this sample.

In Table 2.4, the sample is split into sub-samples of observations where (i) dividends were not paid (*NoDiv*), (ii) those where dividends were paid without tax credits (*DivNTC*), and (iii) those where dividends were paid with tax credits (*DivTC*). The mean value for *CashETR* is considerably lower for observations where dividends were not paid or tax credits were not distributed. The mean *CashETR* for *DivTC* observations is approximately sixteen percentage points above the mean for other observations. This provides initial support for the first hypothesis (H1), that firms paying dividends with tax credits attached undertake less tax avoidance than firms not paying dividends, or paying dividends without tax credits attached.

Correlations between all variables used in the models are presented in Table 2.5, with the full sample in Panel A, and the foreign ownership sample in Panel B. In Panel A, there is a strong correlation between *CashETR* and *DivTC*, and a negative correlation with firms that do not pay dividends (*NoDiv*) or distribute tax credits (*DivNTC*). There is also a moderate positive correlation between *DivTC* and a number of the control variables.

## 2.4 Results

Results from estimating Eq. (1) are presented in Table 2.6.[36] The difference in tax avoidance between firms paying dividends with tax credits and those not paying dividends is captured by the coefficient on *DivTC*. For firms paying dividends without tax credits, it is captured by the coefficient on *DivNTC*. The impact of outside directors (*Outside%*) on tax avoidance (H1) and the interactive term between *Outside%* and *DivTC* assess whether outside directors have a disproportionate impact on firms that engage in dividend imputation (H3 and H4).

For the baseline model presented in Column (1), the coefficient on *DivTC* is positive and significant ($\alpha_1 = 0.123$, *t*-stat = 13.163), while the coefficient on *DivNTC* is negative but not significant ($\alpha_2 = -0.022$, *t*-stat = −1.849). This indicates that firms paying dividends with tax credits engage in less tax avoidance than firms that either do not pay dividends or pay dividends without tax credits. The difference between firms not paying dividends and those paying dividends without tax credits ($\alpha_2$) demonstrates that these differences are a consequence of paying dividends (i.e., a dividend effect), and the difference between firms paying dividends with and without tax credits confirms a dividend imputation effect. Critically, this result demonstrates *CashETR*'s being 12.3 percentage points higher for firm-years where dividends are paid with tax credits compared to those that did not pay dividends, and 14.4% higher than firm-years where dividends are paid without tax credits. The results are strongly supportive of an economically significant reduction in corporate tax avoidance as an outcome from dividend imputation (H1).

A further issue that is considered is whether this result is impacted by corporate governance and board independence in particular. To evaluate this proposition, the proportion of outside

[36] There is potential multicollinearity between the independent variables used in the models in Table 2.6. The means of the Variance Inflation Factors (VIFs) for Column (1) and Column (2) are both 1.9. The mean VIF for Column (3) is higher at 3.05 due to the inclusion of an interactive term. These results indicate a low probability that multicollinearity between variables is inflating the variance in these models.

directors on a firm's board (*Outside%*) is included as a control measure, and the results of this analysis are reported in Column (2) of Table 2.6. The coefficient on *Outside%* indicates that there is a negative and significant association between the presence of outside directors and lower cash ETR's ($\alpha_3 = -0.099$, *t*-stat = −3.931). Notably, the inclusion of *Outside%* does not change the tenor of the other results. However, caution is suggested as this might be attributable to firms that are not paying dividends or paying dividends without tax credits, as dividend imputation does not impact the costs and benefits of corporate tax avoidance for these firms.

To isolate the effect of outside directors on the level of tax avoidance for firms paying dividends with tax credits, outside directors (*Outside%*) and an interaction term between outside directors and firms paying dividends with tax credits (*Outside%*DivTC*) is included in the baseline model. The results are presented in Column (3) of Table 2.6. It is notable that this coefficient on *DivTC* has increased ($\alpha_1 = 0.147$, *t*-stat = 5.432), strengthening support for H1. There is a negative association between outside directors and cash ETR's ($\alpha_3 = -0.076$, *t*-stat = −2.038). This suggests that where firm-years where dividends are not paid, or paying dividends without tax credits, there is a higher level of tax avoidance in the presence of stronger governance and monitoring (H3). The coefficient on the interaction term between outside directors and firms paying dividends with tax credits is not significant ($\alpha_4 = -0.044$, *t*-stat = −0.911). Hence, there is evidence that after controls for the payment of dividends with tax credits there is no difference in the impact of outside directors on tax avoidance between those paying dividends with tax credits and those paying dividends without tax credits or not paying dividends. Further, the association between corporate tax avoidance and governance for these firms (i.e., $\alpha_3+\alpha_4$) is significant (H4). This result suggests that while dividend imputation mitigates the incentives for tax avoidance, there remain differences in the costs

and benefits of corporate tax avoidance due to the constraints of imputation and hence, there still remains some incentive to avoid tax when paying dividends with tax credits attached. However, an evaluation of this outcome is beyond the scope of this chapter which is primarily concerned with the impact of dividend imputation on corporate tax avoidance.

Only three control variables have statistical significant. *Size* is positive and statistically significant in all models but the economic significance is low ($\alpha_5$ = 0.009 to 0.012, *t*-stat = 5.024 to 6.004). Capital intensity (*CAPINT*) and intangibles (*INTAN*) are also statistically significant, and the positive coefficients are opposite to the predicted sign. Again, further analysis of these results is beyond the scope of this thesis.

*2.4.1 Additional analysis, sensitivities and robustness checks*

There is a growing literature suggesting the costs and benefits of tax avoidance may be heterogeneous across firms for reasons other than imputation (Austin & Wilson 2015; Edwards, Schwab & Shevlin 2016; Guenther, Matsunaga & Williams 2017; Hanlon & Slemrod 2009). For example, Hanlon and Slemrod (2009) found that firms in retail industries were more sensitive to reputational concerns arising from alleged involvement in tax shelter activity. Dyreng, Hoopes and Wilde (2014) also found that firms reliant on consumer discretionary expenditure were more sensitive to disclosures that might impact their reputation. Dividend imputation in Australia provides an ideal setting to examine the differential costs of tax avoidance across different groups of firms. If firms in certain industries are more sensitive to reputational costs associated with tax avoidance, there are strong incentives for firms in those industries to avail themselves to the advantages of imputation. Hence, there should be a higher probability of firms in those industries paying dividends with tax credits attached. Therefore, the following model is used to test this:

$$DivTC_{it} = \delta_0 + \sum_{k=1}^{6} \delta_k \, Industry_{it} + \sum_{k+1}^{j} \delta_j \, Controls_{it} + \varepsilon_{it} \qquad (2)$$

Where:

$DivTC_{it}$ = 1 if firm *i* pays a dividend with a tax credit in year *t*, else 0.

$Industry_{it}$ = 1 if firm *i* is in the specified 2-digit GICS code in year *t*.

$Controls_{it}$ = the array of controls used in Equation (1).

The model is estimated using a probit regression model with year fixed effects on the pooled, cross-section of firm-years. The results are presented in Table 2.7.[37] The coefficients on all industries are statistically significant, with a negative association with paying dividends with tax credits. This indicates that firms engaging in imputation are not clustered in any particular industry as suggested by prior literature (Dyreng, Hoopes & Wilde 2014; Hanlon & Slemrod 2009) and therefore, the costs associated with tax avoidance appear to be homogenous across dividend paying firms, regardless of whether they distribute tax credits. This also implicitly confirms the point made in an earlier section that causes, other than imputation, of heterogeneity of the costs and benefits of tax avoidance are not as prevalent, hard to identify and measure, making Australia an ideal setting for testing assumptions with respect to the heterogeneity/ homogeneity of the costs and benefits of tax avoidance.

Further insights into the impact of dividend imputation on corporate tax avoidance may be gained from investigating the ownership structures between firms that distribute tax credits and others. As non-resident shareholders are generally unable to benefit from the tax credits, the benefits of corporate tax avoidance are not ameliorated by dividend imputation for these shareholders. This suggests that firms with high levels of foreign ownership are more likely to engage in corporate tax avoidance in order to maximise shareholders benefits. As avoiding tax and distributing tax credits are mutually exclusive pursuits, these firms are less likely to

[37] A mean VIF of 1.9 for the model used in Table 2.7 indicates a low probability that multicollinearity between the independent variables is inflating the variances.

pay dividends with tax credits attached. Subsequently, the following model is estimated to evaluate whether firms paying dividends with tax credits have lower foreign share ownership.

$$Foreign\%_{it} = \delta_0 + \delta_1 DivTC_{it} + \sum_{y=2}^{k} \delta_y Controls_{it} + \sum_{k+1}^{j} \delta_k Indust_{it} + \epsilon_{it} \quad (3)$$

Where:

$Foreign\%_{it}$ = percentage of shares held by foreign investors;

$DivTC_{it}$ = indicator variable equal to 1 if firm *i* paid dividends with tax credits attached in year *t*, otherwise 0;

$Controls_{it}$ = a series of variables that have been shown to impact corporate tax avoidance;

$Indust_{it}$ = indicator variable equal to 1 if firm *i* has a specified 2-digit industry code in year *t*;

The measure of non-resident share ownership (*Foreign%*) is the percentage of shares held by foreign investors. To the extent that non-resident shareholders are unable to benefit from the tax credits attached to dividends, it is expected that these firms would be less likely to pay corporate taxes and hence, dividends with tax credits. Accordingly, the coefficient on *DivTC* is expected to be negative.

Due to limited data availability, the sample employed to test the association between foreign ownership and the payment of dividends with tax credits is limited to the 2015 financial year. The sample selection process is outlined in Table 2.1, Panel B. Foreign ownership data is obtained from the IBIS World database using the ownership percentage and geographical location of the Top 20 shareholders for each firm, as disclosed in the notes to their financial statements. This will potentially understate the level of foreign ownership of Australian companies, as some shareholders are listed through nominees in Australia, and it excludes

foreign shareholders not in the Top 20. The understatement of foreign ownership will likely create bias against finding a significant result. Ownership data is only available for 326 firms. The sample is reduced for firms where losses are reported (78), firms in the financial services and utilities industries (51), and firms with missing data (1), leaving a sample of 196 firms.

Summary statistics for the foreign ownership sample are displayed in Table 2.3, Panel B. The level of foreign ownership for the sample is only 7.6%. This is much lower than the level reported in prior research (Wilkinson, Cahan & Jones 2001) or reported by government sources (Department of Foreign Affairs and Trade 2016) which both estimate the level of foreign ownership at closer to 30%. This may be due to only using data for the Top 20 shareholders and their reported geographical location. However, the lower proportion creates a potential bias against finding a significant result for this test. In Table 2.4, where the sample is divided into sub-samples, the level of foreign ownership for *DivTC* observations (0.041) is considerably lower than for other observations (0.160 and 0.200) indicating the likely presence of tax-induced dividend clienteles based on residency status.

Table 2.8[38] presents the results of testing whether an association exists between the payment of dividends with tax credits and foreign share ownership. The coefficient on *DivTC* is negative and significant ($\delta_1 = -0.123$, *t*-stat = −3.569), which indicates firm-year dividends paid with tax credits have lower foreign share ownership. Interestingly, the only other coefficient that is significant is *CAPINT*. This suggests there may be little else determining foreign investment.[39] The model from Eq. (2) has an adjusted R-squared of 13.7% indicating its explanatory power.

[38] A mean VIF of 1.9 for the model used in Table 2.8 indicates a low probability that multicollinearity between the independent variables is inflating the variances.
[39] Further examination this result is beyond the scope of this thesis.

This analysis indicates that the payment of dividends with tax credits appears to be associated with firms where shareholders are able to obtain benefit from tax credits. Where shareholders are unable to gain any benefit from the tax credits, such as foreign shareholders, firms appear to engage in tax avoidance in order to provide additional benefits to their shareholders. This is consistent with dividend imputation reducing the incentives for tax avoidance and H1.

Additional sensitivity tests to ensure the robustness of the reported results are also undertaken. The results are presented in Table 2.9.[40] First, an indicator variable (*PostGFC*) is included in the model from Eq. (1) to assess the impact of the Global Financial Crisis (GFC) in 2007 and 2008. *PostGFC* is set to one if the financial year was after 2008, and zero otherwise. *PostGFC* is also interacted with *DivTC* to estimate differential effects. The coefficient on *PostGFC* is positive and significant ($\alpha$*PostGFC* = 0.051, *t*-stat = 2.682), indicating that firms in general have reduced their levels of tax avoidance since the GFC. Critically, the interactive term is not significant, indicating that the reduction in tax avoidance is found across all firms-years. This also suggests that *CashETR* (i.e. tax aggressiveness) is not endogenous with dividend payments.

In untabulated results, annual cross-sectional regressions for the baseline model from Eq. (1) are also evaluated. A Wald test of the differences in the coefficients is used to assess the significance of the main results which may be overstated due to the use of a cross-sectional research design. When Eq. (1) is estimated annually, the coefficient on *DivTC* is negative and statistically significant in every year. The Wald test of difference in the coefficients for *DivTC* and *DivNTC* is positive and significant in both the pooled cross-section, and in all of the annual cross-section regressions. The results from this analysis are consistent with the results from our main regression.

[40] The mean VIF for the model used in Table 2.9 is 3.3. While this indicates a low probability that multicollinearity between the independent variables is inflating the variances, the VIF is higher than the previous models in this chapter due to the inclusion of two interactive terms.

The two previous sensitivity tests provide limited evidence to support the independence of the main variables; they do not directly address concerns of endogeneity, reverse causality or selection bias. Therefore, a two-stage least squares (2SLS) regression was fitted with a wide range of possible instruments. However, all instrumental variables considered are found to be too weak to provide significant results in the first stage.[41] Therefore, the 2SLS could not be used to reliably address selection bias and propensity score matching (PSM) is employed instead. PSM seeks to alleviate concerns that the observed difference between two groups, such as *DivTC* and *DivNTC*, is due to the method of selection rather than the treatment effect. PSM uses an array of observed variables to predict the probability that a particular observation will be in the treatment group. It uses those variables to match the high probability observations to other observations that have a low probability of experiencing the treatment, as a control group. The results from the PSM are presented in Table 2.10. These results are bootstrapped and remain consistent with the results from our main regression.

The second test that is contemplated is a first differences analysis which relies on variation in the independent variables. However, the independent variables in Eq. (1) are indicator variables and therefore, are unsuitable for use in first differences analysis; a Fama-MacBeth two-step regression is used instead. The Fama-MacBeth two-step regression controls for correlated residuals in the cross-section of observations and is used to correct for bias in the OLS standard errors. The results of the Fama-MacBeth regressions are presented in Table 2.11. These estimates remain consistent with our main results.

## 2.5 Conclusions

The objective of this chapter is to evaluate whether dividend imputation impacts corporate tax avoidance. Furthermore, this chapter tests the assumption of extant literature that in

[41] For a discussion of the issues associated with the use of selection models, including two-stage least squares regressions; see Lennox, Francis and Wang (2012).

dividend imputation environments managers in all firms will not engage in tax avoidance as it is ineffective in increasing shareholders' wealth (Amiram, Bauer & Frank 2016; Lasfer 1996). This involves testing whether the costs and benefits of corporate tax avoidance, as implicitly assumed by Lasfer (1996) and Amiram, Bauer and Frank (2016), are homogenous in an imputation setting.

Rigorous theoretical analysis in this chapter proposes (H1) that firms paying tax credits undertake less tax avoidance than those which do not. A significantly lower level of corporate tax avoidance for firms that are paying dividends with tax credits is found to be exhibited across sample firm-years. This is economically significant with firms paying dividends with tax credits attached having a cash ETR up to 16.9 percentage points higher than firms that pay dividends without tax credits, and up to 14.7 percentage points higher than firms that do not pay dividends. Therefore, dividend imputation alters the balance between the costs and benefits of tax avoidance by providing the same level of benefits as tax avoidance without incurring the associated costs. This suggests that there is a corporate response to Australian dividend imputation in the form of changed firm tax behaviour.

H2, H3 and H4 specifically relate to the contention that the costs and benefits of tax avoidance are homogenous, thereby, as corporate tax avoidance increases the return to shareholders it would be in the best interest of shareholders of all firms in a classical tax regime and as corporate tax avoidance decreases the return to shareholders it would not be in the best interest of shareholders of all firms in an imputation regime (Amiram, Bauer & Frank 2016; Lasfer 1996). In order to test these assumptions, the corporate governance role of monitoring is controlled for byway of outside directors. H2 proposes a non-directional association between outside directors and tax avoidance in Australia given the potential impact of the tax-induced dividend clientele effect. The results indicate a positive significant

association exists between outside directors and tax avoidance, indicating that managers pursue higher levels of tax avoidance to maximise shareholders wealth in an imputation setting. This is consistent with H1, and inconsistent with the Lasfer (1996) and Amiram, Bauer and Frank (2016). It suggests that the costs and benefits of tax avoidance are heterogeneous due to the tax-induced dividend clientele effect and that overall the management of firms in Australia still pursues tax avoidance. H2 in the context of those firms that do not pay tax credits, proposes that management would pursue tax avoidance by way of a positive association between outside directors and tax avoidance in consistency with a classical tax system setting (Amiram, Bauer & Frank 2016; Lasfer 1996). The results are consistent with H2, therefore suggesting the Lasfer (1996) and Amiram, Bauer and Frank (2016) assumption with respect to management pursuing higher tax avoidance in a classical tax system is accepted.

The final hypothesis (H4) proposes a non-directional association between outside directors and tax avoidance given the constraints on the ability of firms that pay dividends with tax credits to distribute all tax paid in the form of those tax credits. The results indicate that there is a positive association between outside directors and tax avoidance for those firms that pay dividends with tax credits. This is inconsistent with the Lasfer (1996) and Amiram et al. (2016) assumption with respect to management not engaging in tax avoidance in an imputation setting which further confirms H1, albeit for reasons related to the inherent constraints built into the imputation system which prevents even those firms that pay dividends with tax credits to fully stream all the tax paid as tax credits. Thus, overall the results suggest that imputation, although reducing incentives, and therefore the possible level, for firms that pay dividends with tax credits with which to pursue aggressive tax strategies, does not completely eliminate that pursuit by firms in Australia.

This chapter contributes to both the contemporaneous public discourse on corporate tax avoidance and the extant literature, by extending the research examining the effectiveness of regulatory responses to corporate tax avoidance. It identifies the potential for dividend imputation to mitigate the incentives for firms to engage in tax avoidance strategies by better aligning shareholders' interests with those of the tax authorities (Bellamy 1994). This chapter also contributes to the literature on dividend imputation and the value of tax credits, as well as the literature on the determinants of corporate dividend policy. It also contributes to the growing research into the heterogeneity of the costs associated with corporate tax avoidance, by for the first time utilizing an ideal setting to observe these effects and at the same time addressing the inherent problems in the extant literature made through unsubstantiated assumptions.

A final contribution is made to the current policy debate both globally and in Australia, where a Treasury review of the Australian taxation system has made a direct reference to the abolition of dividend imputation (Treasury 2015). On the one hand, Treasury conjectures that dividend imputation may encourage Australian firms to pay tax in Australia. On the other hand, it suggests imputation provides little net benefit to Australia. A potential reason for this tension is the paucity of rigorous empirical research in this area. Hence, this research contributes to this debate by demonstrating that because dividend imputation requires corporations to pay tax in order to be able to pass credits onto the shareholders, it places economically significant constrains on corporate tax avoidance.

While the results in this chapter indicate a strong influence of dividend imputation on the level of tax avoidance, it is acknowledged that there are limitations with the data and methods employed and that further research is needed into the impacts of dividend imputation on corporate and investor decision making. The large cross-sectional variation in the tax

avoidance proxies for the sample of firms that pay dividends with tax credits attached warrants further examination, particularly with regard to constraints on the ability of firms to distribute tax credits. A related anomaly is firms that pay both tax and dividends but do not distribute tax credits, potentially wasting the value of the tax payments. Further investigation in to the characteristics of these firms is warranted. The paucity of available ownership data makes inferences from the foreign ownership tests problematic beyond signalling an effect, with the size of any effect difficult to reliably quantify. The foreign ownership data only recognizes the largest shareholders, and some observations do not provide reliable geographical information.

There are other issues associated with dividend imputation that are beyond the scope of this chapter that should also be pursued in future research. For example, dividend imputation may create incentives for firms to pay dividends, as opposed to re-investing retained profits. This has been identified as a possible distortion in the capital markets. However, the necessity for firms to raise capital for investment projects through the capital market has been identified as a disciplining mechanism, possibly protecting shareholders against unprofitable, “trophy” investments by managers. It is also possible that dividend imputation impacts foreign direct investment in Australia and Australian investors considering investing overseas. Finally, for firms paying dividends with tax credits there is still a large cross-sectional variation in their ETR's which can be investigated in future research.

## Appendix 2.A: Dividend imputation in Australia

Dividend imputation was introduced in Australia in 1987. It was designed to address the double taxation of company income when paid out as dividends, and is similar to integrated tax systems that were introduced in Italy, Germany and New Zealand, as it allows for the full amount of taxes paid on company profits to be distributed to shareholders as tax credits attached to dividends. The 2010 Henry Review of Taxation in Australia asserted that only New Zealand and Australia had imputation systems currently operating. [42]

Dividend imputation essentially passes the payment of corporate taxes as a benefit to shareholders. Hence, corporate taxes may therefore be considered "*not really company tax but rather a collection of personal tax at the company level*" (Officer 1994, p.4).[43] Whilst tax credits that cannot be used to offset other income are fully refundable to individuals and qualifying superannuation funds, they cannot be redeemed by non-residents against their personal income tax liabilities in their home country. Legislation was introduced in Australia in 1997 to prevent the practice of non-resident owned firms "selling" their undistributed franking account balances (i.e. tax credits) to resident-owned firms through mergers and acquisitions. Hence, the dividend imputation favours Australian resident shareholders over non-residents. The level of benefits available are not uniform across all resident shareholders, because the marginal tax rate on each shareholders total personal income is heterogeneous. Hence, variation in the value attributed to the tax credits is dependent on the tax status of the individual shareholder.

[42] There have been various forms of dividend imputation systems operating in many countries throughout the world, although many have now been abolished. However, Malta introduced a form of dividend imputation in 2007, and Mexico, Chile and Canada have full imputation systems (as at May 2014). Other countries such as United Kingdom and Korea have partial imputation systems. The U.K. had full imputation until 1997. Full or partial imputation systems have been abolished in Germany (abolished in 2001), France (2004), Finland (2005), Norway (2006), Spain (2006), Turkey (2002), Singapore (2003), and Malaysia (2008). [Source: OECD (2015)].

[43] This is comparable to a withholdings tax on wages paid to employees where tax is withheld when the dividends (wages) are paid and the shareholder (employee) claims the credit for the amount of tax already paid in Australia when they file their personal tax return.

The dividend imputation can be seen in contrast to dividend taxes under a "classical" system. With a classical tax system corporate profits are taxed twice, first in the hands of the company at the corporate tax rate, and second, if distributed as dividends, in the hands of the shareholders at their personal tax rate. Therefore, that rate of tax on corporate profits is the corporate tax rate plus the investor's personal or dividend tax rate, and shareholders gain no benefit for tax paid at the corporate level.

However, using the Australian dividend imputation system, firms pay tax on profits at the corporate tax rate (currently 30%) before the potential distribution of those profits to shareholders as dividends. Each firm maintains a "franking" account and tax credits accrue to the franking account for cash taxes paid to the Australian Tax Office. While tax credits can be accrued indefinitely, their value, as with money, decreases over time. There is also the difficulty of distributing them with future dividends unless tax is paid at below the statutory rate on future earnings. A tax credit, known as a franking credit, may be attached to dividends to reflect the tax already paid on that income at the corporate level. The "franking credit" is calculated as:

$$\textit{Franking Credit} = \textit{Div} \times \textit{ctr} / (1 - \textit{ctr}) \times \textit{Franking Percentage}$$

Where: *Div* = dividend amount; and, *ctr* = corporate tax rate.

The *Franking Percentage* is decided by the firm based on available credits in their franking account and takes a value between 0 and 1. Dividends with tax credits that have had tax paid at the full statutory tax rate on the underlying profit are known as fully, or 100%, franked dividends. Partially franked dividends refer to dividends that have tax paid at less than the statutory tax rate. There is a maximum level franking credits that a company can attach to dividends. The maximum that can be distributed is 100% franked dividends (30% of the

grossed-up dividend amount under the current STR). It is best illustrated by the following formula:

*Maximum franking amount = Div x ctr / (1 – ctr)*

In the sample used in this research, the franking percentage was 100% in 96% of instances where dividends have been paid with tax credits attached, between 1996 and 2014. When shareholders (individual and corporate) who have received franked dividends file their tax returns, the cash dividends are "grossed up" by adding the amount of the franking credit. Tax is paid on the grossed up amount at the applicable tax rate and the resultant tax liability is then reduced by the amount of the franking credit with the balance being tax payable. Income from foreign operations is not taxable in Australia to the extent that tax has been paid to foreign tax authorities, and therefore, does not generate franking credits.

An example of the workings of the imputation system and its comparison with a classical system is outlined in Table 2.A1. The illustration includes the following assumptions:

1. The corporate tax rate is 30% in all scenarios
2. The level of deductions used for tax avoidance is 50% of the Net Profit before Tax
3. The cost of the deduction for tax avoidance is 10% of the value attained.
4. All profits are distributed as dividends
5. Dividends are franked to the maximum amount possible
6. There is no opening balance to the franking account
7. The marginal tax rate is 35%; the dividend tax rate is 15%.

**Table 2.A1: Comparative example of Australian dividend imputation**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | ***Imputation*** | ***Classic*** | ***Imputation*** | ***Classic*** |
| | ***No tax avoidance*** | | ***With tax avoidance*** | |
| *Firm* | | | | |
| Operating profit | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 |
| *Less* Cost of tax avoidance (10%) | 0 | 0 | (50,000) | (50,000) |
| Net Profit before Tax | 1,000,000 | 1,000,000 | 950,000 | 950,000 |
| Tax avoidance (50%) | 0 | 0 | (500,000) | (500,000) |
| Taxable Income | 1,000,000 | 1,000,000 | 450,000 | 450,000 |
| *Company tax rate* | *30%* | *30%* | *30%* | *30%* |
| Tax Paid | (300,000) | (300,000) | (135,000) | (135,000) |
| Net Profit after Tax | 700,000 | 700,000 | 815,000 | 815,000 |
| | | | | |
| *Dividends* | | | | |
| *Dividend payout ratio* | *100%* | *100%* | *100%* | *100%* |
| *Cash dividends* | *700,000* | *700,000* | *815,000* | *815,000* |
| *Franking credits* | *300,000* | | *135,000* | |
| *Franking %age* | *100%* | | *55%* | |
| | | | | |
| *Shareholder* | | | | |
| *%age of Shares* | *1%* | *1%* | *1%* | *1%* |
| Cash dividends | 7,000 | 7,000 | 8,150 | 8,150 |
| Franking credits | 3,000 | | 1,350 | |
| Dividend income (grossed-up) | 10,000 | 7,000 | 9,500 | 8,150 |
| *Marginal tax rate* | *35%* | *15%* | *35%* | *15%* |
| Tax liability | 3,500 | 1,050 | 3,325 | 1,223 |
| *Less* Franking credits | (3,000) | 0 | (1,350) | 0 |
| Tax payable | 500 | 1,050 | 1,975 | 1,223 |
| After-tax dividend income | 6,500 | 5,950 | 6,175 | 6,928 |

The main interest in this example is *After-tax dividend income* indicated at the bottom line. The difference between columns (1) and (2) indicates that, even with a marginal tax rate of 35%, dividend imputation compared to a dividend tax rate of 15% for the classical system, the shareholder receives almost 10% more after tax income. Columns (3) and (4) introduce a level of tax avoidance whereby a deduction reduces taxable income by 50%. The cost of the deduction is 10% of its value and reduces *Net Profit before Tax*. The tax avoidance reduces

the *After-tax dividend income* for the shareholder under imputation but increases it under the classical system. It reverses the difference between the two shareholders, leaving the shareholder under imputation over 10% worse off them under the classical system. This is the effect of the additional costs associated with tax avoidance being passed on to shareholders.

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**Table 2.1**
Sample selection

| | *N* |
|---|---|
| *Panel A: Full sample* | |
| Firm-years listed on the ASX - 2004 to 2015 | 21,384 |
| *Less* Loss observations | 12,422 |
| | 8,962 |
| *Less* Financial & Utilities firms | 2,157 |
| | 6,805 |
| *Less* Missing data | 914 |
| | 5,981 |
| *Less* Missing Outside Directors data | 1,162 |
| **Full sample (main regression)** | **4,729** |
| | |
| *Panel B: Foreign ownership sample* | |
| Firms with ownership data available (2015 only) | 326 |
| *Less* Loss observations | 78 |
| | 248 |
| *Less* Financial & Utilities firms | 51 |
| | 197 |
| *Less* Missing data | 1 |
| **Foreign ownership sample** | **196** |

**Table 2.2**

Sample distribution

This table presents the full sample partitioned into three sub-samples based dividend and tax credit distributions, and displays the distribution by industry and by year. *NoDiv* is a dummy variable equal to 1 if the firm did not pay a dividend during the year. *DivPd* is a dummy variable equal to 1 if the firm did pay a dividend during the year. *DivNTC* is a dummy variable equal to 1 if the firm did not pay a dividend with tax credits attached during the year. *DivTC* is a dummy variable equal to 1 if the firm did pay a dividend with tax credits attached during the year.

| | *NoDiv* | | *DivNTC* | | *DivTC* | | Full Sample | |
|---|---|---|---|---|---|---|---|---|
| Industry/year | *N* | *%* | *N* | *%* | *N* | *%* | *N* | *%* |
| *Panel A: Industry* | | | | | | | | |
| Energy | 191 | 0.128 | 34 | 0.073 | 150 | 0.054 | 375 | 0.079 |
| Materials | 440 | 0.294 | 88 | 0.188 | 358 | 0.129 | 886 | 0.187 |
| Industrial | 240 | 0.160 | 80 | 0.171 | 727 | 0.263 | 1047 | 0.221 |
| Consumer Discretionary | 215 | 0.144 | 94 | 0.201 | 652 | 0.236 | 961 | 0.203 |
| Consumer Staples | 69 | 0.046 | 44 | 0.094 | 201 | 0.073 | 314 | 0.066 |
| Health Care | 104 | 0.070 | 37 | 0.079 | 151 | 0.055 | 292 | 0.062 |
| Information Technology | 151 | 0.101 | 64 | 0.137 | 223 | 0.081 | 438 | 0.093 |
| Telecommunications | 58 | 0.039 | 19 | 0.041 | 253 | 0.091 | 330 | 0.070 |
| Real Estate | 28 | 0.019 | 7 | 0.015 | 51 | 0.018 | 86 | 0.018 |
| *Panel B: Year* | | | | | | | | |
| 2004 | 90 | 0.060 | 35 | 0.075 | 209 | 0.076 | 334 | 0.071 |
| 2005 | 89 | 0.059 | 31 | 0.066 | 241 | 0.087 | 361 | 0.076 |
| 2006 | 113 | 0.076 | 36 | 0.077 | 238 | 0.086 | 387 | 0.082 |
| 2007 | 97 | 0.065 | 42 | 0.090 | 251 | 0.091 | 390 | 0.082 |
| 2008 | 122 | 0.082 | 33 | 0.071 | 260 | 0.094 | 415 | 0.088 |
| 2009 | 128 | 0.086 | 28 | 0.060 | 218 | 0.079 | 374 | 0.079 |
| 2010 | 166 | 0.111 | 52 | 0.111 | 235 | 0.085 | 453 | 0.096 |
| 2011 | 161 | 0.108 | 41 | 0.088 | 234 | 0.085 | 436 | 0.092 |
| 2012 | 142 | 0.095 | 44 | 0.094 | 233 | 0.084 | 419 | 0.089 |
| 2013 | 138 | 0.092 | 40 | 0.086 | 224 | 0.081 | 402 | 0.085 |
| 2014 | 136 | 0.091 | 46 | 0.099 | 222 | 0.080 | 404 | 0.085 |
| 2015 | 114 | 0.076 | 39 | 0.084 | 201 | 0.073 | 354 | 0.075 |
| **Full sample** | **1496** | **1.000** | **467** | **1.000** | **2766** | **1.000** | **4729** | **1.000** |
| %age | 31.6% | | 9.9% | | 58.5% | | 100% | |

**Table 2.3**

Summary statistics

This table presents summary statistics for the two samples of firms over the period 2004 to 2015. Panel A presents the full sample of firms, and Panel B the foreign ownership sample. The table presents the number of observations, the mean, median, standard deviation, minimum, maximum, and 25$^{th}$ and 75$^{th}$ percentiles for each variable. *CashETR* is cash taxes paid divided by net profit before tax. *NoDiv* is a dummy variable equal to 1 if the firm did not pay a dividend during the year. *DivPd* is a dummy variable equal to 1 if the firm did pay a dividend during the year. *DivNTC* is a dummy variable equal to 1 if the firm did not pay a dividend with tax credits attached during the year. *DivTC* is a dummy variable equal to 1 if the firm did pay a dividend with tax credits attached during the year. *Outside%* is the percentage of outside directors on the board. *Foreign%* is the percentage of shares owned by non-residents. *Size* is the natural log of total assets. *ROA* is the net profit before tax divided by average assets. *LEV* is long-term debt divided by total assets. *CAPINT, RDINT and INTAN* are property, plant and equipment balance, research and development costs and intangible assets divided by total assets respectively. *TotalAccruals* is the net increase in cash flow minus net income, as a proportion of total assets. *CashETR* has been censored between 0 and 1, and *LEV* has been winsorised at 1% and 99% of its empirical distribution.

| Variable | N | Mean | Std. dev. | Min | 25$^{th}$ per. | Median | 75$^{th}$ per. | Max |
|---|---|---|---|---|---|---|---|---|
| *Panel A: Full Sample* | | | | | | | | |
| CashETR | 4729 | 0.202 | 0.230 | 0.000 | 0.000 | 0.158 | 0.305 | 1.000 |
| NoDiv | 4729 | 0.316 | 0.465 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 |
| DivNTC | 4729 | 0.099 | 0.298 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 |
| DivTC | 4729 | 0.585 | 0.493 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 |
| Outside% | 4729 | 0.549 | 0.137 | 0.125 | 0.444 | 0.571 | 0.667 | 0.900 |
| Size | 4729 | 18.930 | 2.029 | 9.932 | 17.571 | 18.788 | 20.216 | 25.812 |
| ROA | 4729 | 0.204 | 1.660 | 0.000 | 0.051 | 0.097 | 0.172 | 81.190 |
| LEV | 4729 | 0.119 | 0.142 | 0.000 | 0.000 | 0.062 | 0.209 | 0.784 |
| CAPINT | 4729 | 0.107 | 0.133 | 0.000 | 0.014 | 0.054 | 0.153 | 0.823 |
| RDINT | 4729 | 0.007 | 0.033 | 0.000 | 0.000 | 0.000 | 0.000 | 0.599 |
| INTAN | 4729 | 0.179 | 0.222 | 0.000 | 0.000 | 0.071 | 0.309 | 0.903 |
| TotalAccruals | 4729 | 0.018 | 0.320 | -12.718 | -0.018 | 0.007 | 0.053 | 1.756 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Panel B: Foreign ownership* | | | | | | | | |
| CashETR | 196 | 0.228 | 0.222 | 0.000 | 0.039 | 0.203 | 0.314 | 1.000 |
| NoDiv | 196 | 0.143 | 0.351 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 |
| DivNTC | 196 | 0.158 | 0.366 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 |
| DivTC | 196 | 0.699 | 0.460 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 |
| Foreign% | 196 | 0.076 | 0.155 | 0.000 | 0.000 | 0.000 | 0.085 | 0.868 |
| Size | 196 | 20.387 | 1.575 | 16.774 | 19.199 | 20.192 | 21.547 | 25.812 |
| ROA | 196 | 0.100 | 0.081 | 0.003 | 0.045 | 0.076 | 0.129 | 0.514 |
| LEV | 196 | 0.148 | 0.139 | 0.000 | 0.006 | 0.120 | 0.242 | 0.591 |
| CAPINT | 196 | 0.127 | 0.151 | 0.000 | 0.020 | 0.066 | 0.183 | 0.869 |
| RDINT | 196 | 0.005 | 0.018 | 0.000 | 0.000 | 0.000 | 0.000 | 0.147 |
| INTAN | 196 | 0.222 | 0.227 | 0.000 | 0.021 | 0.154 | 0.358 | 0.883 |
| TotalAccruals | 196 | 0.010 | 0.061 | -0.261 | -0.010 | 0.002 | 0.025 | 0.412 |

**Table 2.4**

Summary statistics for sub-samples

This table presents the full sample partitioned into three sub-samples based dividend and tax credit distributions, and displays the means for the main variables for each sub-sample. The sample and variables are defined in Table 2.3.

| Variables | NoDiv | DivNTC | DivTC | Full sample |
|---|---|---|---|---|
| CashETR | 0.111 | 0.107 | 0.268 | 0.202 |
| Outside% | 0.514 | 0.576 | 0.563 | 0.549 |
| Foreign% (a) | 0.160 | 0.200 | 0.041 | 0.076 |
| Size | 17.628 | 19.388 | 19.558 | 18.930 |
| ROA | 0.313 | 0.236 | 0.140 | 0.204 |
| LEV | 0.081 | 0.141 | 0.135 | 0.119 |
| CAPINT | 0.081 | 0.102 | 0.121 | 0.107 |
| RDINT | 0.007 | 0.013 | 0.005 | 0.007 |
| INTAN | 0.119 | 0.139 | 0.218 | 0.179 |
| TotalAccruals | 0.040 | 0.018 | 0.007 | 0.018 |
| Observations | 1496 | 467 | 2766 | 4729 |
| (a) Foreign% observations | 27 | 31 | 133 | 191 |

**Table 2.5**

Correlation matrix

This table presents the correlation matrices. Panel A is for the full sample and Panel B for the foreign ownership sample. Pearson correlations are displayed above the diagonal, with Spearman's rank correlations below. Variables are defined in Table 2.3. **Bold** type indicates correlation coefficients statistically different from zero at the 5 per cent level.

| | CashETR | NoDiv | DivNTC | DivTC | Outside% | Size | ROA | LEV | CAPINT | RDINT | INTAN | TotAcc's |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Panel A: Full sample (N = 4729* | | | | | | | | | | | | |
| CashETR | | **-0.272** | **-0.138** | **0.340** | 0.008 | **0.203** | **-0.047** | **0.090** | **0.083** | -0.025 | **0.167** | **-0.054** |
| NoDiv | **-0.431** | | **-0.225** | **-0.808** | **-0.172** | **-0.437** | **0.045** | **-0.181** | **-0.132** | 0.012 | **-0.183** | **0.046** |
| DivNTC | **-0.175** | **-0.225** | | **-0.393** | **0.065** | **0.075** | 0.007 | **0.052** | -0.011 | **0.059** | **-0.060** | -0.000 |
| DivTC | **0.513** | **-0.808** | **-0.393** | | **0.123** | **0.367** | **-0.046** | **0.140** | **0.131** | **-0.048** | **0.209** | **-0.043** |
| Outside% | **0.038** | **-0.165** | **0.064** | **0.117** | | **0.319** | 0.025 | **0.090** | **0.105** | **0.037** | 0.025 | -0.007 |
| Size | **0.291** | **-0.441** | **0.077** | **0.369** | **0.338** | | **-0.146** | **0.356** | **0.241** | **-0.092** | **0.143** | -0.009 |
| ROA | 0.016 | **-0.145** | **-0.044** | **0.163** | **-0.064** | **-0.130** | | **-0.044** | **-0.038** | -0.002 | **-0.044** | **0.072** |
| LEV | **0.195** | **-0.252** | **0.030** | **0.220** | **0.101** | **0.457** | **-0.197** | | **0.216** | **-0.083** | **0.215** | **-0.057** |
| CAPINT | **0.209** | **-0.216** | -0.004 | **0.206** | **0.100** | **0.255** | 0.000 | **0.337** | | **-0.073** | **-0.140** | -0.019 |
| RDINT | **0.057** | **-0.059** | **0.066** | 0.016 | **0.091** | 0.027 | **0.044** | 0.026 | **0.099** | | 0.006 | 0.016 |
| INTAN | **0.306** | **-0.280** | **-0.059** | **0.300** | **0.044** | **0.180** | **-0.066** | **0.329** | **0.120** | **0.113** | | -0.021 |
| TotalAccruals | **-0.171** | **0.093** | -0.016 | **-0.078** | **-0.041** | **-0.094** | **0.174** | **-0.121** | **-0.081** | -0.005 | **-0.078** | |

*Panel B: Foreign ownership sample (N = 196)*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CashETR | | -0.041 | -0.113 | 0.121 | -0.109 | 0.011 | -0.119 | **0.148** | 0.013 | -0.031 | **0.212** | -0.095 |
| NoDiv | **-0.152** | | **-0.177** | **-0.622** | **0.208** | -0.115 | **-0.236** | -0.028 | **0.195** | -0.096 | **-0.168** | -0.040 |
| DivNTC | -0.128 | **-0.177** | | **-0.661** | **0.221** | **0.186** | 0.076 | 0.107 | 0.011 | **0.280** | -0.061 | -0.033 |
| DivTC | **0.217** | **-0.622** | **-0.661** | | **-0.334** | -0.060 | 0.120 | -0.064 | **-0.157** | **-0.150** | **0.177** | 0.057 |
| Foreign% | -0.108 | 0.115 | **0.199** | **-0.246** | | 0.059 | -0.054 | 0.078 | -0.093 | 0.002 | -0.059 | -0.113 |
| Size | 0.026 | -0.124 | **0.219** | -0.080 | **0.199** | | **-0.179** | **0.360** | **0.216** | -0.004 | 0.078 | **-0.140** |
| ROA | -0.019 | **-0.315** | 0.084 | **0.173** | -0.118 | -0.106 | | **-0.149** | -0.096 | **0.417** | -0.005 | -0.112 |
| LEV | **0.195** | -0.036 | 0.094 | -0.047 | 0.044 | **0.388** | -0.123 | | **0.194** | -0.011 | **0.230** | -0.136 |
| CAPINT | 0.067 | 0.119 | -0.037 | -0.061 | -0.057 | 0.111 | -0.025 | **0.192** | | -0.080 | -0.240 | -0.100 |
| RDINT | 0.065 | -0.097 | **0.171** | -0.061 | 0.032 | 0.063 | **0.267** | 0.078 | 0.086 | | 0.071 | -0.011 |
| INTAN | **0.290** | **-0.192** | -0.075 | **0.206** | 0.021 | 0.085 | 0.064 | **0.239** | -0.095 | **0.155** | | 0.047 |
| TotalAccruals | -0.023 | -0.077 | -0.032 | 0.084 | -0.087 | -0.088 | 0.052 | -0.108 | -0.051 | -0.026 | 0.078 | |

**Table 2.6**
Association between dividend imputation and corporate tax avoidance

This table examines the association between dividend imputation and corporate tax avoidance, including control for Outside Directors. The sample is defined in Table 2.1 and the variables are defined in Table 2.3. The model uses an OLS regression with robust standard errors, and industry and year fixed effects. Subscripts ***, **, * denote coefficients significantly different from zero at the 0.1%, 1% and 5% level, respectively.

| | | (1) CashETR | | | (2) CashETR | | | (3) CashETR | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Variable | Pred | Coef. | t-stat. | | Coef. | t-stat. | | Coef. | t-stat. | |
| Constant | | -0.104 | -2.920 | ** | -0.089 | -2.481 | * | -0.104 | -2.590 | ** |
| DivTC | + | 0.123 | 13.163 | *** | 0.124 | 13.317 | *** | 0.147 | 5.432 | *** |
| DivNTC | - | -0.022 | -1.849 | | -0.020 | -1.677 | | -0.022 | -1.793 | |
| Outside% | +/- | | | | -0.099 | -3.931 | *** | -0.076 | -2.038 | * |
| Outside%*DivTC | +/- | | | | | | | -0.044 | -0.911 | |
| Size | +/- | 0.009 | 5.024 | *** | 0.011 | 5.949 | *** | 0.012 | 6.004 | *** |
| ROA | +/- | -0.002 | -1.762 | | -0.001 | -1.305 | | -0.001 | -1.350 | |
| LEV | - | -0.028 | -1.225 | | -0.031 | -1.349 | | -0.032 | -1.385 | |
| CAPINT | - | 0.076 | 2.887 | ** | 0.080 | 3.060 | ** | 0.079 | 3.030 | ** |
| RDINT | - | 0.058 | 0.774 | | 0.082 | 1.091 | | 0.082 | 1.088 | |
| INTAN | - | 0.108 | 6.405 | *** | 0.107 | 6.353 | *** | 0.108 | 6.372 | *** |
| TotalAccruals | +/- | -0.026 | -1.353 | | -0.026 | -1.368 | | -0.026 | -1.373 | |
| Energy | | 0.036 | 1.951 | | 0.035 | 1.884 | | 0.035 | 1.885 | |
| Materials | | 0.004 | 0.246 | | 0.002 | 0.174 | | 0.003 | 0.186 | |
| Industrials | | 0.035 | 2.476 | * | 0.032 | 2.283 | * | 0.032 | 2.264 | * |
| Consumer Discretionary | | 0.037 | 2.619 | ** | 0.036 | 2.574 | * | 0.036 | 2.571 | * |
| Consumer Staples | | 0.004 | 0.244 | | 0.006 | 0.393 | | 0.007 | 0.424 | |
| Health Care | | -0.009 | -0.515 | | -0.008 | -0.464 | | -0.008 | -0.477 | |
| Information Technology | | 0.000 | -0.024 | | -0.001 | -0.087 | | -0.001 | -0.085 | |
| Telecommunications | | -0.027 | -1.388 | | -0.025 | -1.316 | | -0.025 | -1.309 | |
| Observations | | 4729 | | | 4729 | | | 4729 | | |
| R-squared | | 0.151 | | | 0.154 | | | 0.154 | | |
| Adjusted R-squared | | 0.146 | | | 0.149 | | | 0.149 | | |
| F-Stat. | | 37.51 | | | 37.58 | | | 36.33 | | |

**Table 2.7**

Heterogeneity of the costs of corporate tax avoidance

The table presents the probit regression of the *DivTC* dummy variable on industries to examine whether tax avoidance clusters in consumer sensitive industries. Industries are defined by the two-digit GICS code. Other variables are defined in Table 2.3. The model includes robust standard errors and year fixed effects. Subscripts ***, **, * denote coefficients significantly different from zero at the 0.1%, 1% and 5% level, respectively.

| | | DivTC | | |
|---|---|---|---|---|
| Variable | Pred | Coef | t-stat. | |
| Constant | | -1.033 | -14.802 | *** |
| Energy | +/- | -0.381 | -12.129 | *** |
| Materials | +/- | -0.338 | -12.064 | *** |
| Industrials | +/- | -0.074 | -2.608 | ** |
| Consumer Discretionary | +/- | -0.080 | -2.862 | ** |
| Consumer Staples | +/- | -0.177 | -5.115 | *** |
| Health Care | +/- | -0.240 | -6.601 | *** |
| Information Technology | +/- | -0.191 | -5.606 | *** |
| Telecommunications | +/- | -0.052 | -1.065 | |
| Size | +/- | 0.090 | 27.280 | *** |
| ROA | +/- | 0.006 | 3.079 | ** |
| LEV | - | -0.290 | -5.607 | *** |
| CAPINT | - | 0.282 | 5.117 | *** |
| RDINT | - | -0.222 | -1.078 | |
| INTAN | - | 0.318 | 9.315 | *** |
| TotalAccruals | +/- | -0.046 | -2.349 | * |
| Observations | | 4729 | | |
| F-stat | | 88.85 | | |
| R-squared | | 0.237 | | |
| Adjusted R-squared | | 0.233 | | |

**Table 2.8**
Association between dividend imputation and foreign ownership

This table presents the OLS regression of *Foreign%* on the *DivTC* dummy variable, control variables and industry dummies. The sample is defined in Table 2.1, Panel B, and the variables are defined in Table 2.3. The model includes robust standard errors and year fixed effects. Subscripts ***, **, * denote coefficients significantly different from zero at the 0.1%, 1% and 5% level, respectively.

| | | Foreign% | | |
|---|---|---|---|---|
| Variable | Pred | Coef. | t-stat. | |
| Constant | | 0.103 | 0.624 | |
| DivTC | - | -0.123 | -3.569 | *** |
| Size | +/- | 0.001 | 0.197 | |
| ROA | +/- | 0.052 | 0.241 | |
| LEV | - | 0.119 | 0.991 | |
| CAPINT | - | -0.213 | -2.330 | * |
| RDINT | - | -0.605 | -0.550 | |
| INTAN | - | -0.032 | -0.636 | |
| TotalAccruals | +/- | -0.209 | -1.047 | |
| Energy | | 0.165 | 1.698 | |
| Materials | | 0.062 | 2.177 | * |
| Industrials | | 0.053 | 1.599 | |
| Consumer Discretionary | | 0.049 | 1.953 | |
| Consumer Staples | | 0.019 | 0.531 | |
| Health Care | | 0.057 | 1.652 | |
| Information Technology | | -0.029 | -0.867 | |
| Telecommunications | | 0.019 | 0.432 | |
| Observations | | 196 | | |
| R-squared | | 0.208 | | |
| Adjusted R-squared | | 0.137 | | |
| F-Stat. | | 2.616 | | |

**Table 2.9**
Impact of global financial crisis on tax avoidance with imputation

This table presents the results from adding the variable *Post-GFC* to Eq (1). *PostGFC* is a dummy variable equal to one for years after 2008. The sample is defined in Table 2.1 and the variables are defined in Table 2.3. The model uses an OLS regression with robust standard errors, and year and industry fixed effects. Subscripts ***, **, * denote coefficients significantly different from zero at the 0.1%, 1% and 5% level, respectively.

| | | CashETR | | |
|---|---|---|---|---|
| | Pred | Coef. | t-stat. | |
| Constant | | -0.108 | -2.711 | ** |
| DivTC | + | 0.157 | 5.641 | *** |
| DivNTC | - | -0.021 | -1.737 | |
| Outside% | +/- | -0.077 | -2.060 | * |
| Outside%*DivTC | +/- | -0.042 | -0.863 | |
| Post-GFC | + | 0.075 | 4.088 | *** |
| PostGFC*DivTC | + | -0.017 | -1.332 | |
| Size | +/- | 0.012 | 5.938 | *** |
| ROA | +/- | -0.002 | -1.395 | |
| LEV | - | -0.031 | -1.362 | |
| CAPINT | - | 0.080 | 3.049 | ** |
| RDINT | - | 0.081 | 1.075 | |
| INTAN | - | 0.109 | 6.410 | *** |
| TotalAccruals | +/- | -0.026 | -1.351 | |
| Observations | | 4729 | | |
| R-squared | | 0.155 | | |
| Adjusted R-squared | | 0.149 | | |
| F-Stat. | | 35.69 | | |

**Table 2.10**
Propensity Score Matching

| | | | | | | | | Matched Sample | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Baseline | | | BL + controls | | | Nearest | | | Radius (0.1) | | | Kernel | | |
| | Pred | Coef. | t-stat | | Coef. | t-stat | | Coef. | t-stat | | Coef. | t-stat | | Coe7. | t-stat | |
| DivTC | + | 0.158 | 24.84 | *** | 0.133 | 19.06 | *** | 0.132 | 11.24 | *** | 0.137 | 17.65 | *** | 0.119 | 14.13 | *** |
| Std. Err. | | 0.006 | | | 0.007 | | | 0.012 | | | 0.008 | | | 0.008 | | |
| Obs. | | 4729 | | | 4729 | | | 4729 | | | 4729 | | | 4729 | | |

**Table 2.11**
Fama-MacBeth regressions

| | | (1) CashETR | | | (2) CashETR | | | (3) CashETR | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Pred | Coef. | t-stat. | | Coef. | t-stat. | | Coef. | t-stat. | |
| Constant | | -0.040 | -1.289 | | -0.040 | -1.315 | | -0.069 | -2.127 | * |
| DivTC | + | 0.125 | 17.389 | *** | 0.125 | 21.001 | *** | 0.126 | 16.246 | *** |
| DivNTC | - | -0.027 | -2.193 | | -0.027 | -2.082 | | -0.024 | -2.021 | * |
| Size | +/- | 0.008 | 4.785 | *** | 0.008 | 4.963 | *** | 0.009 | 5.036 | *** |
| ROA | +/- | -0.030 | -1.812 | | -0.030 | -2.235 | * | -0.002 | -1.037 | |
| LEV | - | -0.018 | -0.770 | | -0.018 | -0.747 | | -0.015 | -0.624 | |
| CAPINT | - | 0.062 | 2.510 | * | 0.062 | 3.718 | ** | 0.074 | 2.953 | ** |
| RDINT | - | 0.031 | 0.354 | | 0.031 | 0.284 | | -0.006 | -0.066 | |
| INTAN | - | 0.098 | 6.917 | *** | 0.098 | 7.734 | *** | 0.107 | 7.130 | *** |
| TotalAccruals | +/- | -0.116 | -3.421 | ** | -0.116 | -3.782 | ** | -0.027 | -2.780 | ** |
| Observations | | 4729 | | | 4729 | | | 4729 | | |
| R-squared | | 0.166 | | | 0.166 | | | 0.135 | | |

# Chapter 3

## Target tax rates and dividend imputation

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### Abstract

While there is evidence that dividend imputation reduces the costs of corporate tax payments and reduces the incentives for corporate tax avoidance, for firms paying dividends with tax credits there is still wide variation in the proxies commonly used as measures of corporate tax avoidance. This chapter examines whether this variation in corporate tax payments arises from firms setting target tax rates that maximize the value of tax credits available to shareholders. We find evidence of firms setting target tax rates that is economically and statistically significant.


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## 3.1 Introduction

The finance literature is rich with research evaluating targeting behavior by firms, including the consideration of capital structure (Leary & Roberts 2005; Myers 1984; Taggart 1977), leverage (Chang & Dasgupta 2009; Javiland & Harris 1984), and dividend payouts (Brav et al. 2005; Lintner 1956; Partington 1984). Furthermore, this literature has examined financial targets in terms of their function (Graham, Harvey & Rajgopal 2005), their determinants (Byoun 2008; DeAngelo & Roll 2015; Indjejikian et al. 2014; Jalilvand & Harris 1984; Leary & Roberts 2014; Lintner 1956; Ozkan 2001), and their consequences for various aspects of the corporation, including shareholder wealth maximization (Albon 1985; Boot & Thakor 2011; Harford, Klasa & Walcott 2009). There is a limited literature suggesting that firms also set targets for tax (Graham et al. 2014; Kim et al. 2015), but research into the targeting aspect of tax behavior is limited because targets for corporate tax are generally difficult to observe. Further, despite the maximization of shareholder wealth being regarded as one of the main objectives for firms (Grossman & Stiglitz 1977), and theoretically, the adoption of target tax rates and minimizing tax payments does enhance shareholder value, there is little evidence that managers commit to activities to achieve that goal (Hanlon & Hoopes 2014). Hence, the objectives of this chapter are to evaluate (i) the extent to which firms adopt target tax rates in order to maximize shareholder wealth, (ii) whether the behavior of marginal costs and benefits of corporate tax avoidance impacts tax rate targets, and (iii) the degree to which corporate governance factors impact the adoption of tax rate targets.

A major obstacle to researching target tax rates in a "classical" tax system[44] is that, for most firms, the preferred level of tax payments would be zero.[45] However, dividend imputation

[44] With a "classical" dividend taxation system, corporate profits are taxed first within the firm through company income tax, and then again in the hands of the shareholders, as income on their personal tax return, when those same profits are distributed as dividends.

provides an ideal setting to examine both the existence of tax targets and whether there are constraints and limitations on corporate tax avoidance. This is a consequence of the maximum level of tax avoidance (or the minimum level of tax payments) being able to be observed and measured, albeit with error.[46] With dividend imputation the ability to distribute tax credits for corporate tax paid is constrained by the extent to which the firm pays dividends. This establishes a limit on the extent to which dividend imputation can eliminate the benefits of corporate tax avoidance. This allows identification of a limit, or target tax rate, below which corporate tax avoidance will not be pursued. Therefore, this chapter allows insights into corporate behavior that has previously remained a black box.

Dividend imputation impacts the cost of corporate tax payments and changes a firm's incentives from maximizing after-tax earnings to maximizing pre-tax earnings (Bellamy 1994). Hence in a dividend imputation setting, significantly less corporate tax avoidance occurs amongst firms distributing tax credits with their dividends (McClure et al. 2018). While there has been a reduction in the aggregate level of tax avoidance for these firms, there is still a wide cross-sectional variation in the level of tax avoidance between them (McClure et al. 2018). This variation occurs despite these firms facing similar tax incentives. As dividends are the mechanism through which *imputation* tax credits are distributed, any subsequent variation in tax avoidance is likely to be associated with variations in dividend payout ratios.[47] There is an extensive literature that documents firms having long-term targets for their dividend policy (e.g., see Brav et al. 2005; Lintner 1956; Partington 1984).[48]

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[45] This (a) assumes tax avoidance is value-enhancing for shareholders, and (b) given some of the constraints and limitations on the level of tax avoidance that can be achieved, any target that is adopted is likely to be greater than zero. Constraints and limitations are further discussed in Section 2.

[46] When controls for the other determinants of tax avoidance are included, the base level of tax avoidance can be estimated.

[47] This chapter only examines the extent to which target tax rates are used. Consideration of the determinants of dividend policy, though related, is beyond the scope of this chapter. Dividend policy is relevant only to the degree that the dividend payout ratio is used to establish the target tax rate.

[48] A survey of corporate managers by Partington (1984) indicated that approximately 60% of Australian firms had an explicit payout target. This result was similar to an earlier survey in the U.S. by Lintner (1956)

Similarly, there is a significant literature examining long-term corporate tax avoidance strategies (Dyreng, Hanlon & Maydew 2008; Kim et al. 2015). However, the consideration of tax effects in dividend research is generally limited to its role as one of the determinants of either dividend policy or payout targets. This chapter fills this gap in the literature.

Firms that distribute tax credits with their dividends (i.e. utilize dividend imputation) appear to have incentives to align their tax payments with their dividend policy in order to maximize shareholder value. The use of target tax rates can arise because of constraints on the ability of firms to distribute tax credits, particularly an upper limit which restricts the maximum distribution of tax credits to the dividend amount multiplied by the current corporate tax rate. When tax is paid at the full corporate tax rate on all profits, a dividend payout ratio less than one hundred per cent may cause an accumulation of tax credits. While undistributed tax credits can accumulate from year to year, they lose value over time, and may be difficult to distribute if there is an excess of accrued tax credits over retained earnings. This suggests that, in order to maximize shareholders value, firms should attempt to reduce their tax payments if they plan to distribute less than full earnings as dividends. Firms only need to pay tax on the part of the profit they intend to distribute, resulting in a target tax rate less than the corporate tax rate. Dividend imputation aligns both tax strategy and dividend policy, as dividends are the mechanism through which tax credits are distributed (McClure et al. 2018; Pattenden & Twite 2008). While considerable literature examines corporate tax planning strategies and reporting, consideration about whether firms use targets for their level of tax

whereby two-thirds of the firms in his sample had explicit payout targets. Further, Lintner (1956) found that an additional quarter of the firms in the sample "acted to a good approximation as if they had [a payout target]" (p.108). An extensive literature examines instances of corporations using targets for many aspects of their business. Corporations have targets for capital structures (Leary & Roberts 2005; Myers 1984; Taggart 1977), dividend payouts (Brav et al. 2005; Lintner 1956; Partington 1984), and sales growth and earnings (Bang & De Bondt 1998; Graham, Harvey & Rajgopal 2005). In fact, the very process of budgeting, undertaken in some form by most corporations, is an obvious example of corporate targeting practice.

payments remains limited.[49] Therefore, it is conjectured that firms also set a target for the amount of tax paid concomitant on their target for their dividend payout ratio, theoretically leading to a one-to-one relationship. This may contribute to the wide variation in the level of tax avoidance amongst firms that utilize dividend imputation (McClure et al. 2018).

An assumption in the above conjecture is that marginal costs and benefits are constant across the tax avoidance spectrum. However, there are constraints and limitations on the ability of firms to engage in increased levels of tax avoidance (Gallemore, Maydew & Thornock 2014; Graham et al. 2014). The relationship between marginal costs and marginal benefits of corporate tax avoidance might not be linear, as easily accessible, or hard to detect tax avoidance strategies are implemented first, leaving less beneficial and riskier schemes until higher levels of tax avoidance are required. It is posited that marginal benefits from tax avoidance grow at a declining rate, while the marginal costs increase exponentially. Therefore, at higher levels of tax avoidance, the marginal benefits do not exceed marginal costs and further tax avoidance is not undertaken (Badertscher et al. 2015; Hanlon & Heitzman 2010).

As there is limited evidence that managers commit their firms to activities that maximize shareholder wealth (Hanlon & Hoopes 2014), a further question arises as to whether managers set target tax rates and adopt strategies in order to advance shareholder interests. There is theory suggesting that managers require strong incentives in order to engage in increased levels of tax avoidance due to their personal exposure to some of the costs of tax avoidance (Chen & Chu 2005). A dividend imputation setting provides no incentives for

[49] The limited research that has examined tax targeting has found evidence that firms undertake long-term strategies to reduce tax payments, in some cases for periods of ten years or more (Dyreng, Hanlon & Maydew 2008). Some firms set up their tax departments as profit centres that set a target for their GAAP effective tax rate (Graham et al. 2014). It has also been suggested that firms may adjust their tax planning to achieve a target level of tax avoidance (Kim et al. 2015). These studies indicate that firms may set various targets for different tax rates based on a variety of incentives, although no previous studies have examined whether firms set specific targets for their level of tax payments.

managers to either adopt a more aggressive tax avoidance strategy, or to minimize the potential wastage of tax credits.[50] Critically, improved corporate governance, such as the increased presence of outside directors, has been found to be associated with enhanced decision-making and better outcomes for shareholders (Lanis & Richardson 2016). As wastage of tax credits is not in the best interests of shareholders, the presence of outside directors should therefore increase the alignment of tax payments with the target tax rate in order to reduce any wastage. Thus, this chapter also conjectures that the impact of corporate governance significantly impacts the association between target tax rates and effective tax rates in order to increase shareholder wealth.

Based on a sample of 247 listed Australian dividend paying firms over the period 2004-2015 (1,254 firm-year observation) this chapter demonstrates that firms make tax payments consistent with target tax rates that reflect the costs and benefits of corporate tax avoidance, and this provides insights into cross-sectional variation in tax payments for firms that pay dividends with tax credits attached. After controlling for outside directors, a 10 per cent increase in the target tax rate results in an increase of up to 5.7 percentage points in the cash effective tax rate. This suggests that the dividend payout ratio is a significant determinant of the level of tax avoidance for Australian firms paying dividends with tax credits attached, and that a proportion of these firms appear to manage their tax payments to match the level of tax credits required to provide full tax credits on their anticipated dividend payout. Further, marginal costs appear to increase at a higher rate than marginal benefits, creating a limit on higher levels of tax avoidance. Interestingly, the presence of outside directors significantly diminishes the association between target and effective tax rates, but only when tax avoidance is measured over a longer period. This suggests that outside directors may have an

[50] Dividend imputation changes managers' incentives from maximising after-tax earnings to maximising pre-tax earnings (Bellamy 1994).

influence at the longer-term strategic level only and are advising management to increase the level of tax avoidance given the existence of accumulated tax credits.

This chapter extends the literature on corporate financial targeting behavior. Lintner (1956) found that firms target a certain level of dividend payout that is partially adjusted to changes in sustainable earnings. There is also evidence of other targeting behavior such as for long and short-term debt, corporate liquidity and equity issuance (Flannery & Rangan 2006; Jalilvand & Harris 1984). While there has been doubts raised about the robustness of some empirical models used to infer targeting behavior (Chang & Dasgupta 2009; Chauhan & Huseynov 2016), the existence of financial targeting has not been dismissed by the extant literature, and the prevalence of corporate financial targeting has also been supported by evidence from surveys of finance directors and CFO's (Brav et al. 2005; Graham & Harvey 2001; Graham, Harvey & Rajgopal 2005). This is the first study to extend corporate targeting research into the area of corporate tax by examining the association between dividend policy and tax avoidance under a dividend imputation regime.

This chapter also contributes to the contemporaneous debate surrounding the effectiveness of dividend imputation to reduce corporate tax avoidance by examining the corporate response to some of the tax incentives imputation provides. In Australia, dividends remain the major conduit through which firms distribute earnings to their owners making this chapter central to examining dividend and payout policies, without the confounding effects of investor tax incentives.

Currently the literature alludes to firms engaging in tax avoidance where "*the marginal benefits ... exceed the marginal costs*" (Hanlon & Heitzman 2010, p. 138), but no prior research has examined the behavior of the costs and benefits. This research contributes to the determinants of tax avoidance by analyzing this relationship. This chapter also contributes to

the literature on corporate tax avoidance by analyzing firms' behavior in response to changed tax incentives, as well as explaining the flexibility available to firms for avoiding tax. Coulton, Ruddock and Taylor (2014) suggested that firms have greater flexibility around dividend payments than around the distribution of tax credits (Coulton, Ruddock & Taylor p.1311). This chapter explores that inference adding to the literature on the information content of dividends and tax credits.

The remainder of chapter is arranged as follows. Section 3.2 reviews current theory and develops the hypotheses. Section 3.3 outlines the sample and research design. Section 3.4 presents the results of the tests and Section 3.5 concludes.

## 3.2 Theory and hypotheses development

### *3.2.1 Tax targeting and shareholder wealth*

Corporate tax payments represent the government's claim on the firm's earnings with the residual available to shareholders. Hence, corporate tax avoidance[51] is often portrayed as managers extracting net benefits from governments on behalf of shareholders (e.g. Rego & Wilson 2012), with any reduction in tax payments automatically increasing the residual earnings available to shareholders. If managers are acting in the interests of shareholders, they would be expected to pursue any "*opportunities to reduce tax liabilities as long as the expected incremental benefit exceeds the incremental cost.*" (Hanlon & Heitzman 2010, p.138) The benefits from engaging in tax avoidance strategies are clearly understood and include: increased cash and liquidity (Saavedra 2013); increased after-tax profits and earnings per share, and reduced tax liabilities (Hanlon & Slemrod 2009). In most circumstances,

[51] Hanlon and Heitzman (2010) state "*that there are no universally accepted definitions of, or constructs for, tax avoidance or tax aggressiveness; the terms mean different things to different people.*" (p.137). Nevertheless, this chapter follows Hanlon and Heitzman (2010) and defines tax avoidance very broadly reflecting all transactions that reduce a firm's explicit tax liability, including both certain and uncertain tax positions that may or may not be challenged by tax authorities. Additionally, the cash effective tax rates used in this research are a clearer signal of tax avoidance as they are not confounded by accounting accruals (Dyreng, Hanlon & Maydew, 2008).

investors view the lower effective tax rate provided by tax avoidance as a positive signal, thereby reducing the cost of equity capital through increased stock prices (Chi, Pincus & Teoh 2013; Inger 2014; McGuire, Omer & Wilde 2014). These benefits provide strong incentives for firms to engage in corporate tax avoidance.

However, there are limits on the benefits that can be obtained from corporate tax avoidance, and ultimately on the ability of management to reduce tax payments (Amiram, Bauer & Frank 2016; Desai & Dharmapala 2009; Slemrod 2004). The ability to reduce tax payments is potentially restrained by significant costs and risks from engaging in corporate tax avoidance. These costs include increased legal and transaction costs (Rego & Wilson 2012; Wilson 2009), community hostility towards the firm, including reputational damage among its various stakeholders (Boone, Khurana & Raman 2013; Lanis & Richardson 2013), and it can leave the firm exposed to higher levels of political and regulatory risk, as well as social sanctions such as boycotts (Hoi, Wu & Zhang 2013). If tax avoidance is detected and the tax position found to be unsupported, it can result in further financial penalties as well as the potential for further damage to the firm's reputation (Desai & Dharmapala 2006; Hanlon & Slemrod 2009; Lanis & Richardson 2013).

A further limitation on the benefits from increased tax avoidance is the absence of an incentive for managers to engage in tax avoidance. Unless they are adequately compensated managers may be reluctant to implement or increase tax avoidance strategies because they are personally exposed to the risk of penalties, fines and reputational damage. The risks associated with detection of tax avoidance fall more heavily on the individual manager than on the firm, requiring higher compensation to offset the increased risk (Armstrong, Blouin & Larker 2012; Chen & Chu 2005). Therefore, the benefits of tax avoidance would need to be

significantly greater than the potential costs to encourage managers and firms to engage in tax avoidance, or the costs of engaging in tax avoidance would need to be insignificant.[52]

Decisions regarding a firm's tax strategy therefore require the balancing of the estimated marginal costs and benefits of corporate tax avoidance and will additionally be impacted by the firm's risk tolerance which might also change over time. This is a significant business decision and one that is substantially reviewed at the board level (Richardson, Taylor & Lanis 2013). A manifestation of this is likely to be the setting of target tax rates (Graham et al. 2014; Kim et al. 2015). However, the evaluation of target tax rates, and the extent to which they guide tax strategy, is challenging as target tax rates are generally difficult to determine.

### *3.2.2. Dividend imputation, target tax rates and shareholder wealth*

The government's main objective for introducing dividend imputation in Australia was to provide relief from the double taxation of corporate profits (Taxation Laws Amendment [Company Distributions] Bill 1987), and while it has been subsequently modified, the main characteristics remain unchanged.[53] Dividend imputation provides shareholders with tax credits attached to their dividends, reflecting the extent to which corporate tax has been paid on the profits from which the dividends are paid. Consequently, corporate profits will ultimately be taxed only at the shareholder's marginal tax rate, with tax credits representing

[52] There is evidence that the costs of tax avoidance, particularly reputational costs, are not homogeneous amongst firms (Guenther, Matsunaga & Williams 2017; Hanlon & Slemrod 2009) and this may partially explain the anomaly of firms that both pay corporate taxes and distribute dividends without attaching tax credits.

[53] Dividend imputation was introduced in Australia in 1987. The Henry Review of Taxation in Australia in 2010 stated that only New Zealand and Australia had operating imputation systems. However, Malta introduced a form of dividend imputation in 2007, and Mexico, Chile and Canada have full imputation systems (as at May 2014). Other countries such as United Kingdom and Korea have partial imputation systems. The U.K. had full imputation until 1997. Full or partial imputation systems have been abolished in Germany (abolished in 2001), France (2004), Finland (2005), Norway (2006), Spain (2006), Turkey (2002), Singapore (2003), and Malaysia (2008). [Source: OECD (2015)].

tax already paid. Importantly, imputation can provide the same or greater benefits than tax avoidance (McClure et al. 2018), without the need to incur any of the associated costs.[54]

By allowing firms to attach tax credits, dividend imputation passes the benefits of firms' tax payments to their shareholders. For resident shareholders, the dividend and the tax credit are included in the shareholders taxable income, with the tax credit amount deducted from their assessed tax liability. Any excess credits for an income year are refunded to the shareholder in cash by the tax authorities. In contrast, non-residents are unable to redeem tax credits, or extract any value from them. This results in two distinct tax-induced dividend clienteles (Bellamy 1994; Henry 2011). The first clientele is domestic investors who are able to obtain full value for the tax credits and includes Australian superannuation funds that prefer to hold shares in firms with high dividend payout ratios with tax credits attached at the maximum rate. The second clientele is those investors who cannot access the value of the tax credits, such as foreign investors, or investors facing high marginal tax rates and who can obtain greater tax benefits from capital gains. These investors tend to prefer firms that retain earnings within the firm and produce higher capital gains. Given these clienteles, there is considerable variation in the form of distributions made to shareholders (i.e. dividends and share repurchases), in dividend payout ratios, and in the extent to which tax credits are attached to dividends.

When firms make dividend distributions, the rate at which tax credits can be attached is limited to the maximum rate at which tax was paid on the profits that is being distributed as dividends, which equates to the current statutory corporate tax rate. This is the maximum rate at which tax credits can be attached and does not constrain the ability of firms to pay dividends, as they can still be paid with only partial tax credits, or with no tax credits. Despite the ability to attach only partial tax credits, the payment of dividends with tax credits attached

[54] Costs and benefits of corporate tax avoidance are outlined in Section 2.2.1.

has become almost a binary decision where tax credits are either attached at the maximum rate, or not at all. Reforms to dividend imputation in the late 1990's prohibited the stripping and transfer of tax credits, and also provided for refundable tax credits. Since then, almost 95% of firms that pay dividends with tax credits attached, do so at the maximum rate (McClure et al. 2018). Therefore, firms that pay corporate tax on their full reported profits will be able to distribute all profits as dividends with tax credits attached at the maximum rate.[55]

An issue arises when firms decide not to distribute their entire profit as dividends. Firms may have long-term targets for their dividend payouts (Brav et al. 2005; Lintner 1956; Partington 1986). If corporate tax paid exceeds the level of tax credits needed for the target dividend payout ratio, firms can increase the dividend payout ratio and offset this with dividend reinvestment plans to conserve cash (effectively stripping the tax credits). Additionally, they can issue equity to provide additional cash, or they can engage in tax aggressiveness. Critically, while tax credits may be distributed with dividends, it does not necessarily constrain or dictate dividend policy. Excess tax credits can be accrued and carried forward, but their value to shareholders diminishes over time, and there are constraints on the ability of managers to distribute them.[56] Accumulated tax credits require a corresponding level of retained earnings if they are to be distributed in the future. If the corporate tax rate is reduced, or a proportion of a firm's profits is re-invested, an excess of tax credits over the corresponding retained earnings may occur. Hence, there is an incentive to reduce tax payments to align tax credits with planned dividend payouts, as excess tax credits can

[55] Tax credits attached to dividends at the maximum rate are also known as "100% franked" or "fully-franked" dividends. This indicates that tax was paid at the full corporate tax rate (CTR) on this portion of the firm's profit (2004-2015: CTR = 30%). The maximum rate (MR) that tax credits can be attached to dividends is calculated as: MR = Dividend x CTR / (1 – CTR).

[56] Over the period 2004-2011, 71% of all corporate tax paid in Australia was distributed as tax credits attached to dividends, and an estimated 62.3% of these tax credits were redeemed by shareholders (Hathaway 2013, p.7). However, that level of redemption may be understated, as Lally (2012), using data from the Australian Tax Office, estimated the redemption rate to be has high as 81% for the period from 2000 to 2010.

represent wastage of shareholder value. A likely result is firms setting a target for tax payments in order to align their tax credits with their dividend amount and thereby avoiding the accumulation of excess tax credits. The tax rate target is determined as the dividend payout ratio multiplied by the corporate tax rate.

There is evidence that dividend imputation has impacted the level of corporate tax avoidance in countries where it has been operating (Amiram, Bauer & Frank 2016; Ikin & Tran 2013; McClure et al. 2018). In Australia, there is a strong negative association between measures of corporate tax aggressiveness on the one hand, and the payment of dividends with tax credits on the other (McClure et al. 2018). It is estimated that firms distributing tax credits paid over 13% more in tax on their pre-tax earnings than firms not distributing tax credits (McClure et al. 2018). Following Taiwan's adoption of dividend imputation, Taiwanese multinational firms increased dividend payments to their parent firms in Taiwan, as this increased the parent firm's effective tax rate, maximizing the tax benefit for shareholders (Chen & Gupta 2011). Further, a number of countries that previously had dividend imputation, but since reverted to a 'classical' tax system, experienced an increase in corporate tax aggressiveness after the abolition of dividend imputation compared to countries where there was no change to their tax system (Amiram, Bauer & Frank 2016). However, while McClure et al. (2018) found lower levels of tax avoidance for firms paying dividends with tax credits, there remains considerable variation in the level of tax avoidance across firms. This variation is a likely consequence of the manner in which dividend imputation restricts the benefits of corporate tax avoidance, and the impact this has on target tax rates.

Dividend imputation is critical to the determination of target tax rates as the extent to which tax credits are distributed with dividends establishes a limit on the benefits of corporate tax avoidance. Specifically, there is no benefit in reducing tax payments below the level required

for the payment of dividends with the maximum rate of tax credits, and any increase in tax avoidance would necessarily entail increased costs and reduce the imputation benefit to qualifying shareholders. Accordingly, a minimum target tax rate can be determined based on the level of tax payments that can be utilized as tax credits attached to planned dividend payments. For example, if a firm has a dividend payout ratio of 100% there is no benefit to undertaking any tax avoidance, and a target tax rate equal to the statutory tax rate is suggested. If the dividend payout ratio is only 60%, it is only necessary to have a target tax rate equal to 60% of the statutory tax rate to generate sufficient tax credits that can be attached to the dividend payments. If dividends are paid without tax credits or are not paid no such minimum target tax rate can be determined. Shareholder value from imputation is maximized when firms align their tax payments with their target tax rate, and variations in target tax rates should flow through to the tax strategies employed by firms. Therefore, the following hypothesis is posited:

> ***$H_1$:*** *Firms with higher tax rate targets (determined on the basis of tax credits attached to dividends) engage in less tax avoidance.*

Further, if all firms fully align their tax strategy with their dividend policy, there should be a perfect negative correlation between the target tax rate and the level of tax avoidance, *ceteris paribus*. Firms with lower tax rate targets should increase their pursuit of tax avoidance to bring their tax payments in line with their expected dividend payout, and *vice versa*. However, there appear to be restrictions or limits on the degree to which firms can increase their level of tax avoidance in order to achieve a lower tax rate target (McClure et al. 2018), suggesting a "ceiling" or maximum level of tax avoidance for each firm (or this can be

alternatively expressed as a 'floor' on minimum tax payments).[57] This may be due to differences in the marginal costs and benefits of increasing tax avoidance

Some of the benefits of increased tax avoidance, such as the increase in cash and liquidity (Saveedra 2013), increase at the same rate as the amount of tax avoided indicating that marginal benefits are constant. However, other benefits, such as the potentially lower cost of capital from the positive signal a reduced ETR provides to investors (Chi, Pincus & Teoh 2013; Inger 2014; McGuire, Omer & Wilde 2014), appear to decline or even reverse at higher levels of tax avoidance (Cook, Moser & Omer 2017), thus resulting in an optimal or preferred level of tax avoidance (Hanlon & Slemrod 2009). This indicates that the marginal benefits decrease.

On the other hand, the costs of tax avoidance are likely to increase, as the easily accessible or hard to detect tax avoidance schemes are probably already being utilized or have been closed down by tax authorities. More complex schemes are not only likely to require higher legal and transaction costs (Rego & Wilson 2012; Wilson 2009), but might also lead to higher detection risks, thereby requiring increased compensation to the managers implementing the schemes (Armstrong, Blouin & Larker 2012; Chen & Chu 2005). While the literature examining the impact of tax avoidance on corporate reputations has produced either mixed results (Armstrong et al. 2015; Austin & Wilson 2017), or reported little to no impact (Chyz & Gaertner 2018; Gallemore, Maydew & Thornock 2014), firms with valuable consumer brands, especially in retail industries, are less likely to engage in higher levels of tax avoidance to avoid damage to their brands (Austin & Wilson 2017), and there is a perception amongst firms that tax avoidance carries political and reputational costs (Graham et al. 2014; Rego & Wilson 2009). These costs are likely to increase with higher levels of tax avoidance

[57] Or a "floor" to their achievable, effective tax rate.

and the greater public scrutiny it brings (Dyreng, Hoopes & Wilde 2016). This indicates that the marginal costs of tax avoidance are increasing.

Due to the impact of decreasing marginal benefits and rising marginal costs on the level of tax avoidance that firms can achieve, the correlation between target tax rates and effective tax rates is expected to be less than one, suggesting the following hypothesis:

> ***$H_2$:*** *The correlation between a firm's target tax rate and its level of corporate tax avoidance is significantly less than one, ceteris paribus.*

Further, the impact of the ceiling on the level of tax avoidance will impact firms differently based on their dividend payout policy. Firms with low target tax rates will need to be more aggressive in lowering their tax payments than those with high target tax rates. Lower target tax rates are more difficult to achieve, as easily accessible or hard to detect schemes may already be utilized. Therefore, the correlation between target tax rates and effective tax rates should be stronger for firms with higher target tax rates as they should be easier to achieve. Hence, the following hypothesis is posited:

> ***$H_3$:*** *The correlation between a firm's target tax rate and its level of corporate tax avoidance is significantly less for firms with lower target tax rates, ceteris paribus.*

### *3.2.3. Outside directors and target tax rates*

It has been argued that the primary objective of a firm is the maximization of shareholder wealth (Grossman & Stiglitz 1977), and since a series of shareholder lawsuits against boards of directors in the 1980s, outside directors are legally obligated to actively pursue the objective of maximizing shareholder wealth (Schellinger, Wood & Tashakori 1989). Tax avoidance can be portrayed as increasing shareholders' wealth, and a reluctance by managers

to engage in the same level of tax avoidance as the owners would prefer if they managed the firm themselves, gives rise to an agency cost. Managers may be reluctant to engage in the same level of tax avoidance as shareholders as they risk personal costs, penalties and reputational damage if the tax avoidance is detected and found to be illegal (Chen & Chu 2005). Owners therefore attempt to reduce agency costs by auditing, bonding and monitoring (Fama & Jensen 1983; Jensen & Meckling 1979). The question is whether any enhanced shareholder value from the use of target tax rates is a result of managers committing to their use, or whether it results from the influence of outside directors.

The oversight provided by outside directors is one of the main forms of firm monitoring (Fama 1980; Rozeff 1982). Outside directors not only provide superior monitoring (Byrd & Hickman 1992; Hermalin & Weisbach 1988; Rosenstein & Wyatt 1990; Xie, Davidson & DaDalt 2003), but their monitoring also influences key corporate decisions and constrains management self-interest (Fama & Jensen 1983). The inclusion of outside directors on a board is an effective management monitoring device (Fama & Jensen 1983; Hermalin & Weisbach 1988; Richardson, Lanis & Leung 2014). Therefore, it is posited that, for firms that pay dividends with tax credits, increased monitoring from the presence of additional outside directors will diminish any excessive accumulation of tax credits.

Further, outside directors provide expert strategic advice to both the board of directors and senior management (Adams & Ferreira 2007; Armstrong, Guay & Weber 2010; Finkelstein & Mooney 2003; Kim, Mauldin & Patro 2014; Mace 1986). The provision of independent expert advice and counsel to the board has been found to improve the quality of corporate decisions (Anderson & Reeb 2004; Dahya & McConnell 2005; Fama & Jensen 1983), and Chief Executive Officers (CEOs) are more likely to choose expert and experienced outside directors (Hermalin & Weisbach 1988). Outside directors are more likely to offer superior

advice to CEO's compared to their insider counterparts (Dalton et al. 1998; 1999) and this makes successful CEO's ideal outside directors elsewhere due to their expert knowledge (Fich 2005). The knowledge held by outside directors is seen as essential, not only to a firm's long-term success, but ultimately to its survival (Hillman & Dalziel 2003; Pfeffer & Salancik 1978).

Outside directors are typically experienced professionals and experts with broad expertise in a number of important areas, including business strategy, finance, and operations (Fich 2005; Linck, Netter & Yang 2008) and therefore, are expected to better understand the association between dividends payouts, tax payments and shareholder value. When faced with deciding on a tax strategy, outside directors are expected to bring knowledge of the association between a firm's dividend policy, tax credits and target tax rates, especially as target tax rates represent the maximization of shareholder wealth. They are also expected to understand the issues with an excessive accumulation of unused tax credits, and the wastage of shareholder wealth that may occur.

Hence, it is conjectured that outside directors will advise management whether to either pursue a target tax rate to provide sufficient tax credits for a planned dividend payout ratio (magnifying the association), or to increase the level of tax avoidance regardless of a target tax rate in order to reduce the balance of accumulated tax credits (diminishing the association). Therefore, it is argued that the presence of outside directors will either increase or decrease the association between target tax rates and tax avoidance, and the following hypothesis is posited:

> ***$H_4$:*** *A greater proportion of outside directors on the board of directors either magnifies or diminishes any association between the tax rate targets and the level of tax avoidance.*

An increased presence of outside directors will magnify any association between target tax rates and tax avoidance if managers are not committing to sufficient tax avoidance to prevent the accumulation of excess tax credits. On the other hand, a diminished association could be as result of outside directors advocating reduced tax avoidance due to the perceived costs of tax avoidance, such as tax audit risk or reputational concerns, exceeding the anticipated benefits. Of course, managers may already be committing to the optimal level of tax avoidance without the influence of outside directors.

## 3.3 Research design

### *3.3.1 Sample selection*

The hypotheses are tested using financial statement data from Morningstar's *Aspect Huntley* database of Australian listed companies that paid dividends with tax credits attached[58] between 2004 and 2015. It is merged with SIRCA Risk Measurement Service data for firm risk and market capitalization measures, and with Thomson Reuters *Connect 4* for data on outside directors. This period is selected (i) because it follows a period of changes to Australian imputation, which both extended the benefits of imputation to a greater proportion of shareholders and prevented the streaming of tax credits from those shareholders who cannot extract any value from the tax credits, and (ii), there is limited data available for outside directors (*Outside%*) before 2004. There have been no significant changes to dividend imputation in Australia since 2003, producing a period of stability in the Australian corporate tax laws and tax rates to test imputation effects.

There are 21,376 firm-year observations recorded in *Aspect Huntley* database during this period. Of these, 4,698 firm-year observations are unable to be matched to the SIRCA data. A further 3,202 firm-year observations are omitted for firms in Financial and Utilities

[58] Firms that pay dividends without tax credits attached, or do not pay dividends at all, are not included in the sample as this research is only interested in tax avoidance by firms that are using dividend imputation (i.e. by distributing tax credits with their dividends).

industries, as these industries are highly regulated and have different legislative requirements that determine their financial structures. The incentives for tax avoidance for firms making losses differ from firms making profits,[59] potentially cancelling out the power in the variation being examined and making inferences difficult (Omer, Molloy & Ziebart 1993; Rego & Wilson 2012; Zimmerman 1983). Therefore, a further 8,268 firm-year observations[60] are omitted for years when firms reported a net profit before tax of less than zero.[61] Data required for calculating all variables is missing for 2,981 firm-year observations. A further 743 firm-year observations are removed for firms that did not pay dividends during the sample period, plus 230 that paid dividends without tax credits attached. This leaves a sample of 1,254 firm-year observations, representing 247 firms that paid dividends with tax credits attached during the twelve-year period. Table 3.1 presents a summary of the sample selection process and the distribution of observations between industries and for the sample years.

### *3.3.2 Tax avoidance measure*

The measure of tax avoidance used in this chapter is the cash effective tax rate (*CashETR*) following Chen et al. (2010). While similar to a measure used by Dyreng, Hanlon and Maydew (2008), this measure retains special items in pre-tax income.[62] *CashETR* captures a broad range of tax planning activities that have both certain and uncertain outcomes (Baderstcher, Katz & Rego 2013) including those that are not associated with tax avoidance, such as large depreciation deductions (Khurana & Moser 2012), investments in municipal bonds (Khurana & Moser 2012; Kim, Li & Zhang 2011) and research and development tax credits (Treasury 2015). Measuring the effective tax rate using cash taxes paid rather than the

[59] When firms are making losses, there is an incentive to increase tax losses as they can be carried forward and used to offset future tax liabilities.
[60] The Australian stock market includes a large number of small firms engaged in mining exploration that rarely report profits and require regular capital injections.
[61] The value of variables in the observations omitted for years when firms reported a net profit before tax less than zero are still included in the three-year average measures used in the analysis.
[62] Dyreng, Hanlon and Maydew (2008) removed special items from the denominator in order to increase the number of non-loss observations (Hanlon & Heitzman 2010).

tax expense has the advantage of not being affected by changes in accounting estimates such as the valuation allowance or tax contingency reserve (Dyreng, Hanlon & Maydew 2008). The use of cash taxes paid identifies tax avoidance associated with permanent differences that can cause estimates of ETR's based on the current tax expense to be overstated (Dyreng, Hanlon & Maydew 2008). Cash ETR's have been widely used in the tax avoidance literature and are suitable for this research question. The *CashETR* as defined by Chen et al. (2010) is calculated as:

$$CashETR_{it} = \frac{Cash\ Tax\ Paid_{it}}{Pre{-}tax\ Income_{it}} \qquad (1)$$

Dyreng, Hanlon and Maydew (2008) examined whether single-year ETR's were able to predict the long-term capacity of firms to reduce their tax liabilities as many tax avoidance strategies require a long-term commitment to justify the costs. They estimated levels of tax avoidance over various multiple-year periods and compared these results to the single-year observations used in most prior research in order to evaluate the existence of long-term tax avoidance strategies. They found "*that annual cash effective tax rates are not very good predictors of long-run cash effective tax rates and, thus, are not accurate proxies for long-run tax avoidance*" (Dyreng, Hanlon & Maydew 2008, p.61). Dyreng, Hanlon and Maydew (2008) also argued that measuring a cash effective tax rate over long horizons achieves better matching between taxes paid and the related income, captures the reversal of temporary differences, and is not distorted by permanent differences. While the use of single-year estimates may increase the number of observations for statistical purposes, it leads to higher levels of volatility in ETR's, especially for ETR's based on single-year cash taxes paid (*CashETR*). Therefore, long-run cash effective tax rates using three-year averages are also used in this chapter to capture long-term tax avoidance strategies. The long-run cash effective tax rate is calculated as:

$$CashETR3yr_{it} = \frac{\sum_{n=0}^{2} Cash\ Tax\ Paid_{it-n}}{\sum_{n=0}^{2} Pre{-}tax\ Income_{it-n}} \quad (2)$$

### *3.3.3 Target tax rate*

The first explanatory variable is target tax rate (*TargetTR*) which estimates the rate at which firms need to pay tax on their earnings that maximizes shareholders wealth. That amount allows the firm to distribute the maximum rate of tax credits with their dividend payout but should not be exceeded as excess tax credits can be wasted. It is calculated as:

$$TargetTR_{it} = DPR_{it} * Statutory\ Tax\ Rate_{it} \quad (3)$$

As with the *CashETR*, the *TargetTR* is calculated for each firm for each period as well as three-year firm averages. As target tax rates are difficult to observe in other settings, there is no prior literature where this measure has been used.

### *3.3.4 Marginal costs and benefits*

In order to capture the differential impact of marginal costs and benefits of tax avoidance on the decision to increase the level of tax avoidance, an indicator variable (*LowTTR*) is included for those firms with a target tax rate below the median, as those firms should have more difficulty in achieving the higher level of tax avoidance required. An interactive term between *LowTTR* and *TargetTR* isolates any differential impact for firms with high or low *TargetTR*s.

### *3.3.5 Outside directors*

The other explanatory variable is the percentage of outside directors on the board (*Outside%*) which captures the impact of outside directors on the general level of tax avoidance. A negative coefficient on *Outside%* would indicate that outside directors are associated with corporate tax avoidance. An interactive term between *Outside%* and *TargetTR* isolates any differential impact from the presence of outside directors on the pursuit of *TargetTR*s.

*3.3.6 Research design*

The baseline model used to test of the association between the tax avoidance and target tax rates is estimated using an ordinary least squares regression. The dependent variable is *CashETR* with *TargetTR* and *Outside%* as the independent variables of interest. The model also includes variables to control for any impact from the global financial crisis (GFC) or dividend reinvestment plans, plus a series of control variables that have been used in prior tax avoidance research, including year and industry fixed effects.

$$TAV = \beta_0 + \beta_1 TargetTR_{it} + \beta_2 Outside\%_{it} + \beta_3 TargetTR_{it} \times Outside\%_{it} + \beta_4 PostGFC_{it} + \beta_5 DivReinvest_{it} + \sum_{y=6}^{k} \beta_y Controls_{it} + \sum_{k+1}^{j} \beta_k Industry_{it} + \sum_{j+1}^{l} \beta_j Year_{it} + \varepsilon_{it} \quad (4)$$

Where:

*TAV* = Alternatively, $CashETR_{it}$; $CashETR3yr_{it}$

$PostGFC_{it}$ = indicator variable equal to 1 if year *t* is greater than 2009, otherwise 0;

$DivReinvest_{it}$ = an indicator variable equal to 1 if firm *i* has a dividend reinvestment plan in year *t*, otherwise 0;

$Controls_{it}$ = an array of control variables that have been shown to impact measures of corporate tax avoidance in prior research and are defined below;

$Indust_{it}$ = indicator variable equal to 1 if firm *i* has a specified 2-digit industry code in year *t*;

$Year_i$ = indicator variable equal to 1 if firm *i* has data in the specified year.

$H_1$ will be confirmed if $\beta_1$ is positive and significant; $H_2$ will be confirmed if $\beta_1$ is positive and significant, and less than 1; and, $H_4$ is confirmed if $\beta_3$ is significant.

The control variables have been derived from the extant literature because they control for known determinants of variation in tax avoidance (Dyreng, Hanlon & Maydew 2008; Rego & Wilson 2012). *SIZE* is represented by the natural log of total assets as the size of a corporation has been associated with different levels of tax aggressiveness (Omer, Molloy & Ziebart 1993; Zimmerman 1983). However, there is conflicting evidence as to the direction of the effect (e.g. Stickney & McGee 1982; Zimmerman 1983). Early tax research also found that the lowest ETR's were associated with high leverage and high levels of capital intensity (Omer, Molloy & Ziebart 1993; Stickney & McGee 1982). *LEV* refers to a firm's leverage defined by the ratio of long term debt to total assets. *PPE* refers to the level of capital intensity is defined as net property, plant and equipment divided by total assets, and *INVENT* refers to the level of inventory intensity which is defined as closing inventory divided by total assets. It is expected that there will be a negative association between each of *LEV*, *PPE* and *INVENT*, and *CashETR*. Return on assets (*ROA*), measured as pre-tax income divided by total assets, is included to control for different levels of profitability, and the market-to-book ratio (*MTB)* is included to control for the different incentives to engage in tax avoidance for firms with high growth opportunities. There are inconsistent results regarding the effect of these variables on tax avoidance (e.g. Adhikari, Derashid & Zhang 2006; Gupta & Newberry 1997) making it difficult to predict the direction of the effect. Research and development costs (*R&D*) are a tax preferred expenditure allowing up to 150% deduction for approved expenditure in Australia, and therefore is positively associated with lower effective tax rates. *R&D* is defined as research and development expense divided by total assets. The *BETA* coefficient[63] for each firm is included each year to control for different risk tolerances between firms. Intangible assets (*INTAN*) have become a major source of tax avoidance through transfer pricing due to the lack of a transparent market for these items and the

[63] The beta coefficients are provided by the Australian School of Business, Centre for Research in Finance, Risk Measurement Service.

flexibility around their location for tax purposes. *INTAN* is defined as intangible assets divided by total assets and is expected to have a positive association with tax aggressiveness. As the *CashETR* decreases in tax avoidance, the expected association with these variables will be negative. A measure of discretionary accruals (*DA*) is included to control for the effect of earnings management, through the manipulation of accruals, on the denominator of the *CashETR* (Frank, Lynch & Rego 2009; Lennox, Lisowsky & Pittman 2010). It is measured using the performance adjusted, modified Jones (1991) model as defined by Kothari, Leonand and Wasley (2005). There is conflicting evidence on the association between discretionary accruals and tax avoidance (Erickson, Hanlon & Maydew 2004; Frank, Lynch & Rego 2009; Lennox, Lisowsky & Pittman 2013; Manzon & Plesko 2002). Therefore, there is no predicted direction of this effect.

The following variation of the baseline model is used to test the impact of marginal costs and benefits of tax avoidance on firms with high and low *TargetTRs* ($H_3$). It is estimated using an ordinary least squares regression. The dependent variable is *CashETR* with *TargetTR* and *LowTTR* as the independent variables of interest. *Outside%* is still included as a control but its interactive term is removed.

$$TAV = \beta_0 + \beta_1 TargetTR_{it} + \beta_2 LowTTR_{it} + \beta_3 TargetTR_{it} \times LowTTR_{it} + \beta_4 Outside\%_{it} + \beta_5 PostGFC_{it} + \beta_6 DivReinvest_{it} + \sum_{y=7}^{k} \beta_y \, Controls_{it} + \sum_{k+1}^{j} \beta_k \, Industry_{it} + \sum_{j+1}^{l} \beta_j \, Year_{it} + \varepsilon_{it} \quad (5)$$

$H_3$ will be confirmed if $\beta_3$ is negative and statistically significant.

The *CashETRs*, the *TargetTRs*, *LEV*, *PPE*, *INV*, *R&D* and *INTAN* have been winsorised between zero and one. While ratios outside this range can be legitimate values, they are outside the expected or normal range, and their inclusion may make interpretation of the results of the regression analysis problematic (Gupta & Newberry 1997). The non-winsorised

values for the *CashETR* range from a minimum of -1.692 to a maximum of 217.33. These large outliers can distort the means and the variation in these variables, thus having a significant impact on the results. In robustness checks, the elimination of the largest and smallest one per cent of observations in these variables produced results consistent with the winsorised data. *Sales Growth* and *DA* have been winsorised at the 1% and 99% level.

### *3.3.7 Summary statistics*

Summary statistics for the sample are presented in Table 3.2. On average, dividend paying firms pay the equivalent of 26.2% of their reported earnings in tax each year. The mean *TargetTR* of 18.6% is lower than the *CashETR*, which indicates all firms might not set a target level for tax payments in line with their dividend payout ratio. The median values for both the *CashETR* and the *TargetTR* are slightly lower than the mean indicating the sample is slightly skewed towards the higher values for both these variables. Outside directors make up just over 57% of board seats and only 5.5% of firms have a dividend reinvestment plan (*DivReinvest*). Average leverage is 19.6% which accords with the findings of Twite (2001) and is indicative of the effect of imputation on capital structures (Babcock 2000; Twite 2001).

The correlations between the variables used in the regression models are set out in Table 3.3, with Spearman's rank correlations at the top and Pearson's pairwise correlations below. Both the Spearman correlation coefficient of 0.254 and the Pearson correlation coefficient of 0.336 indicate a positive correlation between the *CashETR* and the *TargetTR* with both coefficients statistically significant. However, there is a negative correlation between *CashETR* and *ROA* which may indicate higher tax avoidance amongst more profitable firms, or higher tax avoidance in those years when firms make higher profits. Further, there is a positive correlation between *LEV* and *CashETR* which suggest that debt is not being used as a tax

shield amongst these firms. The positive and significant correlation coefficient of 0.258 between *DivReinvest* and *SIZE* suggests that larger firms are more likely to have dividend reinvestment plans, while the positive and significant correlation between *DivReinvest* and both *Outside%* and *PostGFC* suggest that dividend reinvestment plans are for the benefit of shareholders and have become more prolific since the GFC. The correlation between *ROA* and *SIZE* is negative and significant with a Spearman correlation coefficient of -0.274 which suggests that larger firms are less profitable. However, profitability does appear to have a significant effect on the market value of firms (Spearman correlation coefficient of 0.580). Less profitable firms also appear to have higher levels of debt. Other correlations are as expected from prior research and show no severe multi-collinearity issues for the regressions based on these variables.

## 3.4 Results

### *3.4.1 Primary empirical analyses*

The results from testing the hypotheses $H_1$, $H_2$ and $H_4$ are presented in Table 3.4.[64] The model (equation 4) uses an ordinary least squares regression with industry and year fixed effects.[65] Columns 1 and 2 have the *CashETR* as the dependent variable, while columns 3 and 4 have the long-run *CashETR3yr*. An adjusted R-squared of 0.17 indicates the model has explanatory power, and an F-statistic ranging from 7.265 to 9.833 designates strong statistical significance.

The results for the tests of both $H_1$ and $H_2$ are in columns (1) and (3) of Table 3.4. The coefficients on *TargetTR* are all positive and statistically significant at the 0.01 per cent level

[64] There is potential multicollinearity between the independent variables used in the models in Table 3.4. The means of the Variance Inflation Factors (VIFs) for the four models range from 5.3 to 5.5. The highest results amongst the individual variables are for the Industry dummies (fixed effects). These are similar to categorical variables and produce high VIFs. Therefore, these results indicate a low probability that multicollinearity between variables is inflating the variance in these models.

[65] The Hausman (1978) Test specifies a probability > $chi^2$ = 0.0063 (significant at 0.01 level) indicating the difference between fixed effects and random effects is not systematic and that fixed effects can be used.

for all specifications, thus confirming $H_1$. This result provides evidence that firms do pursue a target tax rate and adjust their tax payments towards their dividend payout ratio. $H_2$ predicted that the coefficient would be less than one due to constraints on the maximum level of tax avoidance and contrary incentives for tax avoidance due to accumulated tax credit balances. While the coefficient of 0.429 on *TargetTR* and 0.434 on *TargetTR3yr* indicates a strong association between the *CashETR* and the *TargetTR*, the coefficients are less than one as predicted by $H_2$. These results support the existence of constraints and limits on the ability of firms to reduce their tax payments in line with their tax rate targets, and of incentives for them to engage in tax avoidance despite having high target tax rates. These results also suggest a firm-level maximum to the amount of tax avoidance (or minimum level of tax payments) that is pursued or attained. This accords with results reported by McClure et al. (2018), whereby firms that did not pay dividends or paid dividends without tax credits, still paid an average cash effective tax rate of close to 11%, despite, *ceteris paribus*, having an incentive to reduce their tax payments to zero.

While the coefficients on *TargetTR* and *TargetTR3yr* are well below one, variation in the *TargetTR* still accounts for over forty-three per cent of the variation in the *CashETR*. There are two components to the *TargetTR*; the dividend payout ratio, and the statutory tax rate. As the statutory tax rate remains constant across all observations during the sample period, and the regression uses industry and year fixed effects to control for industry and time invariant factors, the main variation in *TargetTR*s is within the dividend payout ratios. Therefore, a firm that has a dividend payout ratio 10% higher than another firm pays, on average, approximately 4.3% more tax on the same level of earnings over a three-year period, *ceteris paribus*. This suggests that the dividend payout ratio is a significant determinant of the level of tax avoidance amongst Australian firms that engage in dividend imputation. A proportion of these firms appear to manage their tax payments to match the level of tax credits required

under their anticipated dividend payout ratio. These results indicate that a firm's target tax rate, and therefore its dividend payout, is positively and significantly associated with its cash effective tax rate.

The results for the test of $H_4$ are presented in columns (2) and (4) of Table 3.4. The coefficients on both *Outside%* and the interaction between *Outside%* and *TargetTR* are statistically insignificant for the annual *CashETR* in column (2) indicating that outside directors may have little impact on tax strategies on a short-term basis. However, the coefficient on the interaction between *Outside%3yr* and *TargetTR3yr* in column (4) is negative and significant at the 1% level indicating that *Outside%3yr* significantly diminishes the association between the *TargetTR3yr* and *CashETR3yr*. This result for the long-term measures suggests that the presence of outside directors impacts the level of tax avoidance at a strategic level and implies that outside directors may increase the use of long-term tax avoidance strategies in order to align them with long-term dividend payout ratios (i.e. they use tax targets as part of their dividend policy). The statistically significant coefficient confirms $H_3$, as the presence of outside directors significantly diminish the association between *CashETR3yr* and *TargetTR3yr*. It suggests that outside directors may have most influence in increasing tax avoidance when there is an excessive accumulation of undistributed tax credits, by advising management that they can pay less tax than the target by distributing the accumulated tax credits and therefore preventing potential wastage.

Additionally, the results from estimating equation (4) provide no evidence of a change to the level of tax avoidance among these firms since the global financial crisis. However, the existence of a dividend reinvestment plans (*DivReinvest*) has a significantly negative association with the (*CashETR3yr*), and as with outside directors, the result is only statistically significant for the long-run measures. This suggests that dividend reinvestment

plans may be used to pay higher dividends to distribute tax credits, while effectively retaining cash, but there is little economic impact as less than eight per cent of firms have a dividend reinvestment plan.

The results from testing the hypotheses $H_3$ are presented in Table 3.5.[66] The model (equation 5) uses an ordinary least squares regression with industry and year fixed effects. Column 1 reports the *CashETR* as the dependent variable, while column 2 reports the long-run *CashETR3yr*. Adjusted R-squared of 0.22 and 0.19 indicates the model has explanatory power, and an F-statistic of 8.75 to 10.51 designates strong statistical significance.

The coefficient on the interactive term, *Int: TargetTR*LowTTR* is negative and significant confirming *H3*. This indicates that firms with lower target tax rates have more difficulty achieving their target and that the marginal costs of tax avoidance increase at a greater rate than marginal benefits. This is likely due to easily accessible or hard to detect schemes already being utilized.

### *3.4.2 Sensitivity and robustness tests*

A series of further tests were undertaken to ensure the robustness of the results from the primary analyses. The first test employs a different specification for *CashETR*. The cash ETR specified by Dyreng et al. (2008) is the same as *CashETR* (Chen et al. 2010) except it removes Special Items from pre-tax income. The results are displayed in Table 3.6.[67] The coefficients on *TargetTR* and *TargetTR3yr* remain positive and statistically significant ($p<0.001$) but compared to the main regression, the magnitude of the coefficients is reduced to a range between 0.254 to 0.307, suggesting that special items may be a vehicle through

[66] The mean VIFs for the models used in Table 3.5 are 5.3. As most of the higher VIFs are due to the categorical nature of the Industry dummy variables, the mean VIF indicates a low probability that multicollinearity between the independent variables is inflating the variances.

[67] The mean VIFs for the models used in Table 3.6 range from 5.3 to 5.5. As most of the higher VIFs are due to the categorical nature of the Industry dummy variables, the mean VIF indicates a low probability that multicollinearity between the independent variables is inflating the variances.

which much of the suspected management of tax payments is occurring. Interestingly, with this specification of the cash ETR, the coefficient on *Outside%* is no longer statistically significant. This suggests that the presence of outside directors may increase the use of special items in long-term tax avoidance strategies. However, while this is an interesting result, further examination is beyond the scope of this chapter.

The process whereby firms decide on the level of their dividend payout is not a random process. Firms may decide on a payout ratio due to other factors, or even due to tax considerations themselves, meaning the results may be biased by unobserved, correlated variables. Therefore, a two-stage, least squares regression is used to address these concerns and the results are displayed in Table 3.7.[68] Four instrumental variables (risk, capital expenditures, growth opportunities, and the earned-contributed equity mix) are regressed on *TargetTR*, with the residual used in place of *TargetTR* in the second stage. In the first stage, all instrumental variables are statistically significant at the 0.001 level. A coefficient of 0.453 on the residual in the second stage is statistically significant ($p<0.000$) and confirms the main results.[69]

Propensity score matching (PSM) seeks to alleviate concerns that the observed difference between two groups is due to the method of selection rather than the treatment effect. PSM uses an array of observed variables to predict the probability that a particular observation will be in the treatment group. It uses those variables to match the high probability observations to other observations that have a low probability of experiencing the treatment, as a control group. However, the models used in this chapter do not divide the sample into groups as the

[68] The mean VIFs for the model used in Table 3.7, Panel A (first stage of 2SLS) is 1.0. For Panel B (second stage) it is 5.51. As the second stage includes interactive terms and most of the higher VIFs are due to the categorical nature of the Industry dummy variables, the mean VIF indicates a low probability that multicollinearity between the independent variables is inflating the variances.

[69] The Durbin-Wu-Hausman test of endogeneity indicates that the null hypothesis (that the variables are endogenous) can be rejected at the 5% level (Chi2=6.160; F-stat=4.674).

variables of interest are continuous variables. Therefore, there is no probability that observations are misallocated due to selection bias.

Although the baseline regression model controls for the known factors that affect the level of taxes paid by Australian corporations and their dividend payout choices, it is possible that there are other underlying factors affecting the decision to pay dividends with tax credits attached. If these other factors drive the decision, this could provide an alternative interpretation of the association between the payment of dividends with tax credits and the level of tax avoidance. To alleviate statistical concerns from the serial dependence of regression errors, the main baseline regression model is re-estimated using the Fama and MacBeth (1973) method. Specifically, year fixed effects are dropped from the specification and the revised models are estimated for each year. The average coefficients are then tested for statistical significance using a *t*-test. The results are displayed in Table 3.8.[70] Overall, the Fama-MacBeth regression results remain consistent with the baseline regression results. This test provides some assurance that the inferences from the baseline analysis are informative.

### 3.4 Conclusions

This research sets out to evaluate whether Australian firms that pay dividends with tax credits attached also target the level of tax payments. This target provides sufficient tax credits for proposed dividend payments, while also avoiding wastage, or the accumulation of excess tax credits. With dividend payout ratios providing important signals to tax-induced dividend clienteles, particularly those who can obtain value from the tax credits, a firm's dividend

[70] The mean VIFs for the models used in the Fama-MacBeth regression model displayed in Table 3.8 range from 19.41 for Column 1 and Column, to 23.04 for Column 3. These models contain interactive terms and most of the higher VIFs are due to the categorical nature of the Industry dummy variables. There is a high level of potential multicollinearity between Size and the Industry dummies. However, the overall mean VIFs indicate a low probability that multicollinearity between the independent variables is inflating the variances in the main baseline model.

policy can remain fixed, or at least smoothed, for reasonably long periods of time. On the other hand, the underlying earnings and cash tax payments can be much more volatile from year to year. Along with the dividend payout ratio, the tax credits themselves contain incremental information as to the future prospects of the firm (Coulton, Ruddock & Taylor 2014). Mature, stable firms with sustainable future cash flows tend to have dividend payout ratios that remain relatively stable or grow from one year to the next, but rarely decline. This creates an incentive to manage the level of tax payments in order to provide the maximum level of tax credits able to be distributed with dividends, but not to pay any more, as any taxes paid in excess of the amount that can be distributed may be wasted.

There is evidence that the Australian dividend imputation regime encourages firms to increase both dividend initiations and the payout ratios (Pattenden & Twite 2008), as well as to increase the amount of taxes they pay (McClure et al. 2018). An argument put forward to explain those results is that the incentives within the imputation system encourage firms to pay dividends in order to distribute tax credits which are valued by their shareholders. This explanation overlooks the significant effect that the existence of tax-induced dividend clienteles may have on dividend policy. Evidence of such an effect is provided by some of Australia's largest firms, such as BHP Billiton, Rio Tinto and Telstra suffering adverse reaction from analysts, commentators and investors when they announced reductions in their dividend payouts (Hoyle 2016). Therefore, this chapter provides a compelling argument that the desire to provide dividends with the maximum level of tax credits, as part of a firm's dividend policy, can drive the level of tax avoidance when dividend imputation is being used to improve shareholder wealth.

In setting a target for the amount of tax required to maximise the level of tax credits that can be distributed, the target tax rate is a function of the proposed dividend payout ratio and the

statutory corporate tax rate. If companies do set a target for the amount of taxes paid, there will be a significant association between a firm's cash effective tax rate and their target tax rate. Testing this proposition has produced evidence that such management of the tax affairs does occur for a significant number of firms. The effects are both statistically and economically significant, with a ten per cent increase in the target tax rate producing a 4.34 percentage point increase in the cash effective tax rate. Also, as hypothesized the coefficient of the target tax rate is less than one indicating that constraints on the maximum level of tax avoidance and divergent incentives for tax avoidance due most likely to accumulated tax credit balances exist. Thus, overtime firms accumulate tax credits and pay them at some future point in time, which enables them to avoid more tax than the target suggests.

Another contribution of this chapter is the analysis of the impact of marginal costs and marginal benefits on corporate tax avoidance. As Hanlon and Heitzman (2010) argued, tax efficiency is tax decisions that maximize the after-tax wealth of shareholder. Therefore, tax avoidance should be pursued when marginal benefits exceed marginal costs. However, very little research has investigated the changes in costs and benefits of tax avoidance as the level of tax avoidance increases. We provide evidence that marginal costs increase more than the benefits, producing an upper limit to corporate tax avoidance.

Finally, in the presence of better monitoring and advising of management by way out outside directors the association between the long-term target tax rate and effective tax rate significantly diminishes. This indicates that management on their own are not willing to be as tax avoidant as necessary to maximize shareholder wealth and that in the long-term outside directors influence management to use up any accumulated tax credits and to avoid more tax given a particular target tax rate.

The results produced in this chapter have raised other issues that are outside the scope of this enquiry and require further investigation. The unexpected association that a number of control variables displayed with *CashETR* are contrary to the direction found by prior studies in non-imputation environments. The majority of those studies were undertaken in the U.S. which has a classical dividend taxation system, and therefore, the conflicting results may be a dividend imputation effect. Further, the metrics used in this literature have only been applied to a cross-section of Australian firms that pay dividends with tax credits attached. These metrics can also be calculated under a classical dividend taxation system which could provide a useful control group for these findings. A further line of enquiry arises from the reduction in the significance level and the magnitude of the coefficient for *TargetTR* when the special items are removed during sensitivity testing of the baseline model. Additionally, a more refined examination is required into the behavior of the marginal costs and benefits of corporate tax avoidance. Finally, future research might investigate specifically the impact of accumulated tax credits on the level of tax avoidance and in general why firms accumulate tax credits in the first place.

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**Table 3.1**

Sample selection

This table reports the sample selection process, with a final sample consisting of 1,254 firm-years from 247 firms during the period 2004–2015.

| ***Selection criteria*** | ***N*** | ***Year*** | ***N*** | ***Industry*** | ***N*** |
|---|---|---|---|---|---|
| Observations | 21376 | 2004 | 83 | Energy | 77 |
| Non-matched | 4698 | 2005 | 94 | Materials | 167 |
| | 16678 | 2006 | 100 | Industrials | 402 |
| Regulated | 3202 | 2007 | 111 | Consumer Discretionary | 296 |
| | 13476 | 2008 | 117 | Consumer Staples | 78 |
| Loss reported | 8268 | 2009 | 98 | Healthcare | 82 |
| | 5208 | 2010 | 119 | Information Technology | 92 |
| Missing data | 2764 | 2011 | 109 | Telecommunications | 51 |
| | 2444 | 2012 | 111 | Real Estate | 9 |
| Dividend not paid | 799 | 2013 | 116 | | |
| | 1645 | 2014 | 105 | | |
| No tax credits | 335 | 2015 | 91 | | |
| **Final sample** | **1310** | | **1254** | | **1254** |

**Table 3.2**

Summary statistics of firm characteristics and control variables

The sample consists of 1,254 firm-year observations from 274 firms listed on the Australian Stock Exchange between 2004 and 2015 inclusive.

*CashETR* is cash taxes paid divided by reported income; *TargetTR* is the dividend payout ratio (DPR) times the statutory tax rate; *Outside%* is the percentage of outside directors on the board; *Post-GFC* is an indicator variable equal to 1 if year *t* is greater than 2009, otherwise 0equal to 1; *DivReinvest* is an indicator variable equal to 1 if firm *i* has a dividend reinvestment plan in year *t*, otherwise 0; *SIZE* is the natural log of total assets as the size of a corporation; *LEV* is the ratio of long term debt to total assets; *PPE* is to the level of capital intensity is defined as net property, plant and equipment divided by total assets, and *INVENT* is closing inventory divided by total assets; *ROA* is pre-tax income divided by total assets; *MTB* is market price divided by book price; *R&D* is research and development expense divided by total assets; the *BETA* coefficient for each firm is included each year to control for different risk tolerances between firms; *INTAN* is intangible assets divided by total assets; *DA* is measured using the performance adjusted, modified Jones (1991) model as defined by Kothari, Leon and Wasley (2005); *CashETRs*, the *TargetTRs*, *LEV*, *PPE*, *INV*, *R&D* and *INTAN* have been winsorised between zero and one and *Sales Growth* and *DA* have been winsorised at the 1% and 99%.

| *Variables* | *Obs.* | *Mean* | *Std,dev* | *Min.* | *p25* | *Med.* | *p75* | *Max.* |
|---|---|---|---|---|---|---|---|---|
| *CashETR* | 1254 | 0.267 | 0.208 | 0.000 | 0.134 | 0.255 | 0.341 | 1.000 |
| *TargetTR* | 1254 | 0.186 | 0.145 | 0.000 | 0.105 | 0.178 | 0.234 | 1.000 |
| *Outside%* | 1254 | 0.571 | 0.118 | 0.143 | 0.500 | 0.571 | 0.667 | 0.833 |
| *Post-GFC* | 1254 | 0.519 | 0.500 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 |
| *DivReinvest* | 1254 | 0.077 | 0.266 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 |
| *SIZE* | 1254 | 19.656 | 1.777 | 14.999 | 18.320 | 19.472 | 20.792 | 24.423 |
| *ROA* | 1254 | 0.089 | 0.071 | -0.242 | 0.043 | 0.070 | 0.116 | 0.446 |
| *BETA* | 1254 | 1.066 | 0.671 | -0.900 | 0.610 | 0.980 | 1.410 | 4.680 |
| *TANG* | 1254 | 0.227 | 0.215 | 0.000 | 0.050 | 0.154 | 0.363 | 0.943 |
| *MTB* | 1254 | 2.587 | 2.485 | 0.020 | 1.110 | 1.769 | 3.106 | 24.369 |
| *LEV* | 1254 | 0.193 | 0.151 | 0.000 | 0.065 | 0.188 | 0.296 | 0.937 |
| *PPE* | 1254 | 0.227 | 0.215 | 0.000 | 0.050 | 0.154 | 0.363 | 0.943 |
| *INVENT* | 1254 | 0.091 | 0.120 | 0.000 | 0.002 | 0.032 | 0.157 | 0.541 |
| *R&D* | 1254 | 0.005 | 0.021 | 0.000 | 0.000 | 0.000 | 0.000 | 0.215 |
| *INTANG* | 1254 | 0.250 | 0.231 | 0.000 | 0.037 | 0.188 | 0.411 | 0.903 |
| *DA* | 1254 | 0.020 | 0.124 | -0.150 | -0.141 | 0.049 | 0.150 | 0.150 |

**Table 3.3**

Correlation matrix

This table presents the correlation matrix with Spearman's rank correlations above the diagonal, and Pearson's pairwise correlations below. Coefficients in bold type indicate the correlation is statistically significant at the 5% level. Detailed definitions of variables can be found in Table 3.2.

| Variables | *CashETR* | *TargetTR* | *Outside%* | *PostGFC* | *DivReinvest* | *ROA* | *BETA* | *TANG* | *SIZE* | *MTB* | *LEV* | *INVENT* | *R&D* | *INTAN* | *DA* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *CashETR* | | **0.254** | -0.029 | -0.041 | 0.049 | **-0.125** | 0.021 | 0.004 | 0.028 | **0.062** | **0.099** | 0.018 | 0.001 | **0.221** | **-0.108** |
| *TargetTR* | **0.336** | | **0.075** | 0.004 | **0.056** | **-0.196** | **-0.134** | **-0.064** | **0.114** | **0.111** | 0.051 | -0.036 | 0.043 | **0.109** | **-0.087** |
| *Outside%* | -0.028 | **0.057** | | **0.063** | **0.144** | **-0.154** | **-0.062** | 0.041 | **0.404** | **-0.071** | **0.113** | **0.062** | **0.075** | 0.041 | 0.011 |
| *PostGFC* | -0.021 | 0.042 | **0.057** | | **0.133** | 0.021 | **0.066** | **-0.064** | **0.057** | **-0.122** | **-0.105** | **-0.059** | 0.037 | **0.091** | 0.007 |
| *DivReinvest* | 0.054 | 0.040 | **0.140** | **0.133** | | **-0.056** | **-0.075** | **-0.068** | **0.240** | 0.008 | **-0.145** | **-0.078** | 0.005 | **0.132** | -0.028 |
| *ROA* | **-0.204** | **-0.222** | **-0.157** | -0.050 | **-0.066** | | **0.060** | 0.048 | **-0.274** | **-0.580** | **-0.389** | **-0.102** | 0.042 | **-0.079** | **0.183** |
| *BETA* | -0.004 | **-0.087** | **-0.067** | 0.053 | **-0.064** | 0.052 | | **-0.059** | **0.083** | -0.034 | **-0.068** | -0.031 | -0.033 | 0.011 | **0.087** |
| *TANG* | -0.027 | -0.023 | 0.020 | **-0.066** | **0.063** | **-0.073** | -0.032 | | **0.107** | -0.032 | **0.325** | **0.259** | 0.021 | **-0.270** | 0.021 |
| *SIZE* | 0.019 | **0.117** | **0.401** | 0.051 | **0.258** | **-0.281** | **-0.057** | **0.111** | | 0.009 | **0.367** | 0.054 | 0.038 | **0.187** | **-0.113** |
| *MTB* | -0.016 | 0.022 | **-0.058** | **-0.058** | -0.025 | **0.519** | **-0.059** | **-0.065** | **-0.073** | | **-0.063** | **-0.129** | **0.084** | 0.025 | **0.060** |
| *LEV* | **0.077** | 0.046 | **0.089** | **-0.123** | **0.139** | **-0.379** | **-0.057** | **-0.298** | **-0.337** | **-0.079** | | **0.095** | 0.055 | **0.185** | **-0.119** |
| *INVENT* | 0.023 | -0.031 | 0.019 | -0.039 | **-0.066** | **-0.090** | -0.036 | -0.007 | -0.038 | -0.031 | -0.011 | | **0.187** | **-0.212** | **-0.069** |
| *R&D* | 0.032 | 0.039 | 0.040 | -0.022 | -0.009 | **-0.180** | -0.042 | **-0.127** | **-0.085** | **-0.269** | **-0.066** | 0.026 | | 0.031 | -0.009 |
| *INTAN* | **0.149** | 0.050 | 0.029 | **0.094** | **0.160** | **-0.134** | -0.016 | **-0.384** | **-0.182** | -0.011 | **-0.136** | **-0.283** | -0.008 | | **-0.084** |
| *DA* | **-0.095** | -0.050 | 0.004 | -0.015 | -0.020 | **-0.196** | **-0.069** | -0.025 | **-0.093** | **-0.075** | **-0.078** | **-0.059** | -0.025 | **-0.101** | |

**Table 3.4**

Firm-year level analyses of firms' target tax rates and tax avoidance

This table presents the results from estimating equation (4) using an OLS regression with industry and year fixed effects and robust standard errors. "*", "**", and "***" indicate statistical significance at the 5%, 1% and 0.1% level respectively. Detailed definitions of variables can be found in Table 3.2.

| | | (1) | | | (2) | | | (3) | | | (4) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *CashETR* | | | *CashETR* | | | *CashETR3yr* | | | *CashETR3yr* | | |
| Variables | *Pred* | *Coef.* | *t-stat.* | | *Coef.* | *t-stat.* | | *Coef.* | *t-stat.* | | *Coef.* | *t-stat.* | |
| *Constant* | | 0.431 | 4.737 | *** | 0.437 | 4.871 | *** | 0.471 | 5.740 | *** | 0.409 | 4.534 | *** |
| *TargetTR* | + | 0.429 | 6.373 | *** | 0.477 | 6.833 | *** | | | | | | |
| *Outside%* | +/- | | | | -0.055 | -1.080 | | | | | | | |
| *Int:Outside%*TargetTR* | +/- | | | | -0.040 | -1.580 | | | | | | | |
| *TargetTR3yr* | + | | | | | | | 0.434 | 7.135 | *** | 0.571 | 6.900 | *** |
| *Outside%3yr* | +/- | | | | | | | | | | 0.064 | 1.242 | |
| *Int:Outside%3yr*Target3yr* | +/- | | | | | | | | | | -0.224 | -3.001 | ** |
| *Post-GFC* | + | 0.005 | 0.153 | | 0.003 | 0.106 | | -0.031 | -1.146 | | -0.020 | -0.827 | |
| *DivReinvest* | + | 0.036 | 1.621 | | 0.036 | 1.643 | | 0.050 | 3.130 | ** | 0.053 | 3.253 | ** |
| *SIZE* | +/- | -0.014 | -3.842 | *** | -0.013 | -3.206 | ** | -0.012 | -3.964 | *** | -0.009 | -2.274 | * |
| *ROA* | +/- | -0.508 | -4.271 | *** | -0.503 | -4.265 | *** | -0.312 | -3.579 | *** | -0.294 | -3.188 | ** |
| *BETA* | +/- | 0.015 | 1.721 | | 0.015 | 1.653 | | 0.002 | 0.211 | | 0.010 | 1.102 | |
| *MTB* | +/- | 0.006 | 2.359 | * | 0.006 | 2.230 | * | 0.002 | 0.880 | | 0.002 | 0.940 | |
| *LEV* | - | 0.002 | 0.054 | | 0.006 | 0.136 | | -0.004 | -0.101 | | -0.026 | -0.626 | |
| *INVENT* | - | 0.136 | 2.910 | ** | 0.138 | 2.947 | ** | 0.171 | 4.543 | *** | 0.158 | 3.848 | *** |
| *PPE* | - | 0.038 | 1.191 | | 0.040 | 1.246 | | 0.024 | 0.896 | | 0.028 | 0.999 | |
| *INTANG* | - | 0.151 | 4.942 | *** | 0.148 | 4.844 | *** | 0.141 | 5.227 | *** | 0.146 | 4.996 | *** |
| *R&D* | - | 0.453 | 1.952 | | 0.478 | 2.050 | * | 0.325 | 1.245 | | 0.315 | 0.971 | |
| *DA* | +/- | -0.075 | -1.622 | | -0.069 | -1.507 | | -0.004 | -0.106 | | 0.005 | 0.124 | |
| Observations | | 1254 | | | 1254 | | | 1234 | | | 985 | | |
| R-squared | | 0.193 | | | 0.199 | | | 0.188 | | | 0.197 | | |
| Adjusted R-squared | | 0.173 | | | 0.177 | | | 0.167 | | | 0.171 | | |
| F-Stat. | | 7.404 | | | 7.265 | | | 9.833 | | | 8.302 | | |
| Industry & Year Fixed Effects | | Yes | | | Yes | | | Yes | | | Yes | | |

**Table 3.5**

Firm-year level analyses of firms' target tax rates and tax avoidance for low target tax rate firms

This table presents the results from estimating equation (5) using an OLS regression with industry and year fixed effects and robust standard errors. "*", "**", and "***" indicate statistical significance at the 5%, 1% and 0.1% level respectively. Detailed definitions of variables can be found in Table 3.2.

| | | (1) | | | (2) | | |
|---|---|---|---|---|---|---|---|
| | | *CashETR4* | | | *CashETR4(3yr)* | | |
| | *Pred* | *Coef.* | *t-stat.* | | *Coef.* | *t-stat.* | |
| *Constant* | | 0.353 | 3.895 | *** | 0.440 | 5.612 | *** |
| *TargetTR* | + | 0.620 | 6.407 | *** | 0.503 | 6.114 | *** |
| *LowTTR* | + | 0.115 | 4.933 | *** | 0.025 | 1.589 | |
| *Int:TargetTR*LowTTR* | + | -0.754 | -7.160 | *** | -0.146 | -2.855 | ** |
| *Outside%* | +/- | -0.077 | -1.539 | | 0.023 | 0.500 | |
| *Post-GFC* | + | -0.009 | -0.321 | | -0.032 | -1.214 | |
| *DivReinvest* | + | 0.033 | 1.683 | | 0.051 | 3.299 | *** |
| *SIZE* | +/- | -0.011 | -2.797 | ** | -0.012 | -3.708 | *** |
| *ROA* | +/- | -0.443 | -3.848 | *** | -0.276 | -3.331 | *** |
| *BETA* | +/- | 0.013 | 1.514 | | 0.004 | 0.527 | |
| *MTB* | +/- | 0.006 | 2.424 | * | 0.002 | 1.004 | |
| *LEV* | - | -0.005 | -0.118 | | -0.002 | -0.068 | |
| *INVENT* | - | 0.164 | 3.490 | *** | 0.182 | 5.082 | *** |
| *PPE* | - | 0.049 | 1.582 | | 0.030 | 1.202 | |
| *INTANG* | - | 0.146 | 4.800 | *** | 0.148 | 5.806 | *** |
| *R&D* | - | 0.467 | 2.119 | * | 0.330 | 1.288 | |
| *DA* | +/- | -0.073 | -1.596 | | -0.004 | -0.098 | |
| Observations | | 1254 | | | 1254 | | |
| R-squared | | 0.240 | | | 0.209 | | |
| Adjusted R-squared | | 0.219 | | | 0.187 | | |
| F-Stat. | | 8.749 | | | 10.51 | | |
| Industry & Year Fixed Effects | | Yes | | | Yes | | |

**Table 3.6**

Alternative firm-year level analyses of firms' target tax rates, tax aggressiveness and outside directors

This table presents the results from estimating equation (4) using an OLS regression with industry and year fixed effects and robust standard errors. This analysis uses the Dyreng, Maydew and Thornock (2010) specification for *CashETR*. Subscripts "*", "**", and "***" indicate statistical significance at the 5%, 1% and 0.1% level respectively. Detailed definitions of variables can be found in Table 3.2.

| | | (1) | | | (2) | | | (3) | | | (4) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *CETR(Dyreng)* | | | *CETR(Dyreng)* | | | *CETR53yr* | | | *CETR53yr* | | |
| Variable | *Pred* | *Coef.* | *t-stat.* | | *Coef.* | *t-stat.* | | *Coef.* | *t-stat.* | | *Coef.* | *t-stat.* | |
| *Constant* | | 0.365 | 4.800 | *** | 0.378 | 4.961 | *** | 0.413 | 5.086 | *** | 0.430 | 4.691 | *** |
| *TargetTR* | + | 0.254 | 4.235 | *** | 0.297 | 4.614 | *** | | | | | | |
| *Outside%* | +/- | | | | -0.091 | -1.772 | | | | | | | |
| *Int:Outside%*TargetTR* | +/- | | | | -0.036 | -3.137 | ** | | | | | | |
| *TargetTR 3yr Av.* | + | | | | | | | 0.274 | 4.850 | *** | 0.307 | 4.354 | *** |
| *Outside% 3yr av.* | +/- | | | | | | | | | | 0.019 | 0.425 | |
| *Int:Outside%3yr*Target3yr* | +/- | | | | | | | | | | -0.070 | -1.912 | |
| *Post-GFC* | + | -0.015 | -0.598 | | -0.017 | -0.682 | | -0.052 | -2.269 | * | -0.043 | -2.179 | * |
| *DivReinvest* | + | 0.019 | 1.043 | | 0.020 | 1.103 | | 0.028 | 2.075 | * | 0.030 | 2.150 | * |
| *SIZE* | +/- | -0.012 | -3.326 | *** | -0.009 | -2.410 | * | -0.008 | -2.984 | ** | -0.006 | -1.902 | |
| *ROA* | +/- | -0.238 | -2.367 | * | -0.238 | -2.366 | * | -0.169 | -1.945 | | -0.193 | -2.211 | * |
| *BETA* | +/- | 0.006 | 0.721 | | 0.005 | 0.603 | | 0.001 | 0.201 | | 0.004 | 0.548 | |
| *MTB* | +/- | 0.004 | 1.785 | | 0.004 | 1.581 | | 0.003 | 1.290 | | 0.003 | 1.201 | |
| *LEV* | - | 0.033 | 0.731 | | 0.034 | 0.782 | | -0.002 | -0.057 | | -0.027 | -0.729 | |
| *INVENT* | - | 0.142 | 3.236 | ** | 0.144 | 3.280 | ** | 0.151 | 4.340 | *** | 0.148 | 3.741 | *** |
| *PPE* | - | 0.038 | 1.212 | | 0.039 | 1.257 | | 0.028 | 1.260 | | 0.047 | 1.861 | |
| *INTANG* | - | 0.130 | 4.462 | *** | 0.126 | 4.325 | *** | 0.128 | 5.344 | *** | 0.128 | 4.901 | *** |
| *R&D* | - | 0.424 | 2.007 | * | 0.468 | 2.180 | * | 0.115 | 0.567 | | 0.243 | 0.966 | |
| *DA* | +/- | -0.050 | -1.180 | | -0.043 | -1.003 | | 0.003 | 0.077 | | -0.001 | -0.031 | |
| Observations | | 1254 | | | 1254 | | | 1234 | | | 985 | | |
| R-squared | | 0.113 | | | 0.121 | | | 0.127 | | | 0.125 | | |
| Adjusted R-squared | | 0.091 | | | 0.098 | | | 0.105 | | | 0.097 | | |
| F-Stat. | | 4.980 | | | 4.991 | | | 6.132 | | | 5.081 | | |
| Industry & Year Fixed Effects | | Yes | | | Yes | | | Yes | | | Yes | | |

**Table 3.7**
2SLS regression of target tax rates and tax aggressiveness
Subscripts "*", "**", and "***" indicate statistical significance at the 5%, 1% and 0.1% level respectively. Detailed definitions of variables can be found in Table 3.2.

*Panel A: First stage*

| | | *TargetTR* | | |
|---|---|---|---|---|
| Variable | *Pred* | *Coef.* | *t-stat.* | |
| *Constant* | | 0.216 | 25.340 | *** |
| *BETA* | +/- | -0.020 | -3.520 | *** |
| *RE/SEQ* | + | 0.000 | 14.170 | *** |
| *CAPEX* | - | -0.157 | -3.460 | *** |
| *SALES_GR* | - | 0.000 | -22.510 | *** |
| Observations | | 1,239 | | |
| R-squared | | 0.016 | | |
| F-Stat. | | 169.95 | | |

*Panel B: Second stage*

| | | *CashETR* | | |
|---|---|---|---|---|
| Variable | *Pred* | *Coef.* | *t-stat.* | |
| *Constant* | | 0.502 | 5.610 | *** |
| Targ(ivresid) | + | 0.453 | 6.800 | *** |
| Outside% | +/- | -0.072 | -1.400 | |
| PostGFC | + | 0.000 | 0.000 | |
| *DivReinvest* | + | 0.026 | 1.160 | |
| *SIZE* | +/- | -0.010 | -2.440 | * |
| *ROA* | +/- | -0.517 | -4.350 | *** |
| *MTB* | +/- | 0.005 | 2.040 | * |
| *LEV* | - | -0.001 | -0.030 | |
| *INVENT* | - | 0.125 | 2.670 | ** |
| *PPE* | - | 0.001 | 0.040 | |
| *INTANG* | - | 0.136 | 4.450 | *** |
| *R&D* | - | 0.457 | 1.930 | |
| *DA* | +/- | -0.079 | -1.710 | |
| Observations | | 1,239 | | |
| R-squared | | 0.199 | | |
| F-Stat. | | 7.36 | | |

**Table 3.8**

Fama-MacBeth regressions

Subscripts ***, **, * denote coefficients significantly different from zero at the 0.1%, 1% and 5% level, respectively.

Detailed definitions of variables can be found in Table 3.2.

| | | (1) | | | (2) | | | (3) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | *CashETR* | | | *CashETR* | | | *CashETR* | | |
| Variables | *Pred* | *Coef.* | *t-stat.* | | *Coef.* | *t-stat.* | | *Coef.* | *t-stat.* | |
| *Constant* | | 0.336 | 3.584 | ** | 0.336 | 5.036 | *** | 0.437 | 4.596 | *** |
| *TargetTR* | + | 0.935 | 4.136 | ** | 0.935 | 9.506 | *** | 0.477 | 11.050 | *** |
| *Outside%* | +/- | 0.052 | 0.563 | | 0.052 | 0.923 | | -0.055 | -1.066 | |
| *Int:Outside%*TargetTR* | +/- | -0.871 | -2.129 | | -0.871 | -5.972 | *** | -0.040 | -2.615 | ** |
| *Post-GFC* | + | 0.000 | . | | 0.000 | . | | 0.003 | 0.108 | |
| *DivReinvest* | + | 0.027 | 1.267 | | 0.027 | 1.923 | | 0.036 | 1.691 | |
| *SIZE* | +/- | -0.011 | -3.033 | * | -0.011 | -4.238 | ** | -0.013 | -3.260 | ** |
| *ROA* | +/- | -0.439 | -2.222 | * | -0.439 | -5.117 | *** | -0.503 | -4.725 | *** |
| *BETA* | +/- | 0.020 | 1.425 | | 0.020 | 1.979 | | 0.015 | 1.736 | |
| *MTB* | +/- | 0.003 | 0.970 | | 0.003 | 2.046 | | 0.006 | 2.036 | * |
| *LEV* | - | 0.007 | 0.147 | | 0.007 | 0.355 | | 0.006 | 0.139 | |
| *INVENT* | - | 0.124 | 2.905 | * | 0.124 | 3.171 | ** | 0.138 | 2.759 | ** |
| *PPE* | - | 0.049 | 0.900 | | 0.049 | 1.619 | | 0.040 | 1.262 | |
| *INTANG* | - | 0.139 | 3.823 | ** | 0.139 | 10.420 | *** | 0.148 | 4.956 | *** |
| *R&D* | - | 0.779 | 2.760 | * | 0.779 | 7.103 | *** | 0.478 | 1.719 | |
| *DA* | +/- | -0.122 | -2.857 | * | -0.122 | -6.041 | *** | -0.069 | -1.527 | |
| Observations | | 1254 | | | 1254 | | | 1254 | | |
| R-squared | | 0.377 | | | 0.377 | | | 0.199 | | |

# Chapter 4

## Conclusions

The objective of this thesis is to consider a regulatory response to corporate tax avoidance, and particularly, how dividend imputation impacts corporate tax strategies. Consideration is given to how dividend imputation impacts the incentives for corporate tax avoidance, and this is considered across firm generally, as well as for firms paying dividends with imputation credits.

Initially, Chapter 2 considers whether dividend imputation impacts the level of corporate tax avoidance. The evaluation of differences in the level of corporate tax avoidance across firms paying dividends with tax credits, those paying dividends without tax credits, and those not paying dividends at all reveals that firms distributing tax credits with their dividends engage in lower levels of tax avoidance. Dividend imputation alters the balance between the costs and benefits of tax avoidance as it can provide the same level of benefits as tax avoidance without incurring the potential and associated costs. Firms that utilise dividend imputation, through the distribution of tax credits with their dividends, have an average cash effective tax rate up to 16.9 percentage points higher than firms that pay dividends without tax credits, and up to 14.7 percentage points higher than firms that do not pay dividends at all. Accordingly, this provides strong evidence that dividend imputation is effective in mitigating corporate tax avoidance in Australia.

A further question arising from Chapter 2 is whether the costs and benefits of corporate tax avoidance remain homogenous when imputation is available. This is an implicit assumption in both Lasfer (1996) and Amiram, Bauer and Frank (2016) who also examined the impact of

dividend imputation. This assumption leads to the logical conclusion in the extant literature that in an environment with dividend imputation, not all firms will engage in tax avoidance, as it is ineffective in increasing shareholders' wealth when dividend imputation is available (Amiram, Bauer & Frank 2016; Lasfer 1996). Evidence from Chapter 2 suggests that (1) the costs and benefits of tax avoidance are heterogeneous, likely due to the effects of tax-induced dividend clienteles, and (2) some firms in Australia still pursue tax avoidance, regardless of whether they utilise dividend imputation.

Chapter 3 recognises this variation in corporate tax avoidance across firm paying dividends with imputation credits, and considers whether dividend imputation encourages managers to use target tax rates that, in theory, should maximise shareholder benefits. The results from Chapter 2 indicate a wide, cross-sectional variation in the proxies for tax avoidance between firms that utilise imputation, despite these firms facing similar tax avoidance incentives. Prior research indicates that Australian dividend imputation encourages firms to increase both dividend initiations and payout ratios in order to distribute tax credits which are valued by their shareholders (Pattenden & Twite 2008). When combined with the evidence from Chapter 2, that dividend imputation can provide the same benefits as tax avoidance without incurring the associated costs, it would suggest strong incentives for all firms that utilise dividend imputation to refrain from tax avoidance. However, Chapter 3 provides evidence that the incentives generated by dividend imputation do not fully extinguish the incentives for corporate tax avoidance. Targeting a rate of tax payments in line with planned dividend policy occurs for a significant number of firms. Overall, a ten per cent increase in the target tax rate is estimated to produce a 4.34 per cent increase in the cash effective tax rate, with the result being both statistically and economically significant. The evidence from Chapter 3 indicates that firms are

cognisant of the relationship between tax payments and their planned dividend payouts, and any tax avoidance undertaken in these circumstances is to maximise shareholder benefits. The results from Chapter 3 extend the findings of Pattenden and Twite (2008) and further contribute to the literature on financial targeting.

Also considered in Chapter 3 is the impact of marginal costs and benefits on corporate tax avoidance. In theory, firms should engage in tax avoidance when marginal benefits exceed marginal costs, as this would maximise shareholder wealth (Hanlon and Heitzman, 2010). However, the results from Chapter 3 indicate that with dividend imputation, marginal costs increase at a higher rate than marginal benefits, thereby producing an upper limit to corporate tax avoidance (or a lower limit to ETR's). Together with evidence from Chapter 2, that the costs of tax avoidance are heterogeneous, these findings it suggests that the upper limit for corporate tax avoidance will not be uniform across the corporate sector, but unique to each firm. Hanlon and Heitzman (2010) suggest that tax avoidance should be pursued when marginal benefits exceed marginal costs as it maximises shareholder wealth, yet little research had investigated whether the relationship between costs and benefits of tax avoidance changes as the level of tax avoidance increases. This is the first research to examine the interaction of the marginal costs and benefits of corporate tax avoidance, and therefore, this research contributes to the both the literature on the marginal analysis of firm behaviour and to the tax aggressiveness literature.

The third aspect of dividend imputation investigated by this thesis is whether the presence of outside directors increases shareholder wealth when dividend imputation is available. Chapter 2 considers whether the presence of outside directors impacts the association between dividend imputation and tax avoidance. Outside directors are expected to ensure the protection of shareholder interests (Anderson & Reeb 2004; Dahya & McConnell 2005), and an implied

assumption in Lasfer (1996) and Amiram et al. (2016), that firms maximise shareholder wealth by abstaining from tax avoidance when dividend imputation is available, predicts a negative effect from the presence of outside directors. However, the results in Chapter 2 indicate a positive association between outside directors and tax avoidance for all firms, including those that utilise dividend imputation. Further, evidence from Chapter 3 indicates that over a longer, three-year period, the presence of outside directors significantly diminishes the association between target tax rates and effective tax rates. This implies that the level of tax avoidance management willingly undertake is not as aggressive as shareholders would prefer. This thesis extends Lasfer (1996) and Amiram et al. (2016) by revealing that incentives for tax avoidance still exist for firms that utilise dividend imputation. The positive association between outside directors and the level of tax avoidance implies that tax avoidance is undertaken in the best interests of shareholders, even when dividend imputation is available and being utilised.

While the results in this thesis indicate a strong influence of dividend imputation on the level of tax avoidance, it is acknowledged that there are limitations to this study. First, in Chapter 2 there are concerns of endogeneity, reverse causality and selection bias. While propensity score matching alleviates the concerns over selection bias, no strong instruments could be found to perform two-stage, least-squares estimation, and therefore, endogeneity concerns still exist. A second limitation is the small sample size and the lack of data on some key attributes. This is especially true for the restricted sample used in Chapter 3 that reduces the power of some tests. For instance, the impact of tax-induced dividend clienteles in Chapter 2 is difficult to assess, as clienteles are not directly observable. The paucity of available ownership data makes inferences from the foreign ownership tests problematic beyond a signalling an effect, despite there being strong theoretical support for the existence of a foreign-shareholder clientele in Australia (Henry

2011). However, these limitations do not detract from the strong results in this thesis, particularly the impact of dividend imputation on the level of tax avoidance and the adoption of target tax rates. The results from Chapter 2 and Chapter 3 are robust to a broad array of sensitivity tests.

This thesis contributes to both the contemporaneous public discourse on corporate tax avoidance, and to the extant tax aggressiveness literature, by extending the research examining the effectiveness of the regulatory response to corporate tax avoidance. It identifies the potential for dividend imputation to mitigate the incentives for firms to engage in tax avoidance strategies by better aligning shareholders' interests with those of the tax authorities (Bellamy 1994). This thesis also contributes to the literature on the impact of dividend imputation, including the value of tax credits, and to the literature on the determinants of corporate dividend policy. It also contributes significantly to the growing research into the marginal costs and benefits of corporate tax avoidance. This thesis utilizes an ideal setting to observe these effects and at the same time address inherent problems in the extant literature, including unsubstantiated assumptions.

This thesis makes a further contribution to the literature on targeting behaviour by producing evidence of an economic and statistically significant association between cash effective tax rates and target tax rates, thereby adding tax strategies to the list of targets known to be used by firms, such as capital structure, leverage, and dividend payouts. This thesis provides a compelling argument that the desire to provide dividends with the maximum level of tax credits, as part of a firm’s dividend policy, can be a major determinant of the level of tax avoidance undertaken when dividend imputation is being used to improve shareholder wealth. However, it must be noted that dividend imputation does not completely extinguish the incentives for corporate tax avoidance.

Finally, this thesis makes a contribution to the current policy debate in Australia, where a Treasury review of the Australian taxation system has made a direct reference to the abolition of dividend imputation (Treasury 2015). While, Treasury conjectures that dividend imputation may encourage Australian firms to pay tax in Australia, it also suggests that imputation provides little net benefit to Australia. A potential reason for this tension is the paucity of rigorous empirical research in this area. Hence, this research contributes to the debate by demonstrating that dividend imputation contains an incentive for corporations pay tax in order to be able to pass credits onto the shareholders, and thereby produces economically significant constraints on corporate tax avoidance.

There are a number of suggestions for further research outlined in this thesis as follows:

- Variation in tax avoidance across firm not paying dividends with tax credits;
- The impacts of other regulatory responses to corporate tax avoidance, including transparency initiatives such as the Tax Laws Amendment (Combatting Multinational Tax Avoidance) Act 2015.

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