Corporate Tax Strategy under the Australian Dividend Imputation System

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Declaration

I, Catherine Mary Ikin, hereby declare that, except where otherwise acknowledged in the customary manner, and to the best of my knowledge and belief, this work is my own, and has not been submitted for a higher degree at any other university or institution.

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Abstract

Prior tax and accounting studies in the United States find that companies adopt strategies to aggressively minimise corporate tax, provided the expected tax benefits exceed the financial reporting costs. Also, where managers are remunerated on targets based on after-tax earnings or stock value they are likely to pursue more aggressive tax strategies.

This thesis extends this line of research to the Australian dividend imputation system in a period of tax rate reductions. In this system, corporate profits are ultimately taxed at the personal tax rates of shareholders and corporate tax becomes a prepayment of shareholder tax on dividend income. As corporate tax is not necessarily viewed as a cost, managers are likely to focus on maximising before-tax profit, distributing franked dividends (i.e., dividends that carry credit for corporate tax paid) and have little incentive to engage in costly tax-avoiding strategies. Tax rate reductions during the period 1999 to 2003 provide a setting to examine corporate tax strategies when faced with the opportunity to avoid tax.

This thesis uses the ratios of three effective tax rate measures to the statutory tax rate as the proxies for tax strategy and uses regression analysis to test four hypotheses using the data of 491 publicly-traded Australian companies. The first hypothesis predicts that companies distributing franked dividends have more conservative tax strategies than those that do not. The second hypothesis predicts that companies under close scrutiny by the Australian Taxation Office are also likely to have more conservative strategies than those that are not. Consistent with incentives to maximise

before-tax profit, the third hypothesis predicts that managers remunerated with share options do not implement more aggressive tax strategies as predicted in a classical system of company tax. The fourth hypothesis predicts that managers continue to pursue conservative tax strategies in the years before tax rate falls and do not pursue aggressive tax strategies as observed under a classical tax system. All four hypotheses are strongly supported by empirical evidence.

One important tax policy implication of the findings from this study is that it provides empirical support for the notion that Australia's dividend imputation system protects the integrity of corporate tax revenue and this is an advantage compared to the classical system that taxes profits twice.

Table of Contents

List of Tables

List of Acronyms

AASB	Australian Accounting Standards Board
AFR	Australian Financial Review
ASX	Australian Stock Exchange
ATO	Australian Taxation Office
BRW	Business Review Weekly
ETR	Effective Tax Rate
GAAP	Generally Accepted Accounting Principles
IRS	Internal Revenue Service
ITAA	Income Tax Assessment Act
NZ	New Zealand
PAYG	Pay As You Go
SAC	Statement of Accounting Concepts
STR	Statutory Tax Rate
UK	United Kingdom
US	United States

CHAPTER 1 – INTRODUCTION

1.1 Background to the research

Variation in the effective tax rates (ETRs) of companies is the focus of empirical research that is largely United States (US) based (Yin, 2003). Although it explains some of the variation, the reasons are not conclusive (Dyreng, Hanlon & Maydew, 2010). ETR is a ratio measure of tax and accounting profit. Tax liability is computed by applying the statutory tax rate (STR) to taxable income based on tax law. However, taxable income and tax liability reported in corporate tax returns are not available to the public, so ETRs can only be computed using accounting numbers. The numerator of ETR can be total tax expense, current tax expense or tax paid, and the denominator is pre-tax accounting profit. ETRs of companies can differ because some companies are better placed than others to take advantage of favourable tax breaks provided in tax law.

Prior research suggests that aggressive tax strategies, in addition to differences in tax and accounting rules, partly explain variation in ETRs (Desai, 2003; Graham and Tucker, 2006). Earnings management (the use of accounting techniques to smooth or manipulate reported accounting profit) is suggested as another source of variation (Phillips, Pincus and Rego, 2003; Hanlon, 2005). Prior research also confirms that individual company characteristics such as size, industry and extent of foreign operations account for the differences in ETRs (Gupta and Newberry, 1997; Rego, 2003; Harris and Feeny, 2003; Tran & Yu, 2008). There remains unexplained variation. This thesis explores the extent to which managerial

incentives to avoid tax play a role in variation of ETRs. These incentives are likely to be different in Australia where there is a dividend imputation system, rather than a classical system of company taxation (as in the US) that taxes the company on profits, then again taxes shareholders on these profits when distributed as dividends. In this classical system where profit is double-taxed, company tax is a cost to be managed by companies. This is different to the system of company tax operating in Australia.

Australia has a dividend imputation system that taxes profits at the company level. The tax paid by a company is then attached to the dividends as a tax credit to the shareholders when distributed so company tax is a pre-payment of shareholder tax, rather than a real cost. Incentives to avoid company tax under the dividend imputation system are therefore likely to be different from those under the classical system. There is no empirical research that explores this difference. Prior research does explore the effect of a dividend imputation system on capital market valuation of shares (Brown & Clarke, 1993), its effect on formation of dividend clienteles (Bellamy, 1994) and its effect on dividend payout policy of companies (Pattenden & Twite, 2008). This thesis explores the effect of incentives to avoid tax in Australia's dividend imputation system of company tax.

1.2 Meaning of tax strategy

In this thesis, tax strategy is defined as corporate decisions to pursue (or not to pursue) reductions in company income tax, although not to explicitly evade tax. Company tax can be reduced through tax planning, undertaking tax favoured investments, tax shelters, and lobbying to gain tax benefits.

Due to ambiguity in tax law, some tax avoidance schemes may be held to be illegal upon scrutiny by the tax office or court decisions. Tax strategy also covers this type of non-compliance. The sample of companies used in this thesis is large publicly held companies. Directors and managers in these companies are less likely to engage in outright tax evasion due to criminal implications in company and tax laws and/or stronger corporate governance than might be the case in privately held companies. For this reason tax strategy does not include outright tax evasion, such as deliberate omission of taxable income.

Aggressive tax strategy has been defined by McBarnet (2005) as the bullish attitude to opportunities in tax law and the culture of creative compliance that underlies it. Braithwaite (2005) documents the growth in sophisticated tax strategies offered by elite accounting firms in Australia and the US and the accompanying growth in tax consulting fees of companies. Transactions that are engineered to generate tax losses, to exclude income, wealth or capital gains from taxation, or defer income to a later year are some examples. The result of aggressive tax strategies is less tax per dollar of profit, i.e., a lower ETR rate. The ratio between a company's ETR and the STR is a measure of tax strategy. Companies with a conservative tax strategy have a high ETR and hence an ETR/STR ratio approaching unity, and those with aggressive tax strategies have a low ETR and hence an ETR/STR ratio falling short of unity.

1.3 Research hypotheses

Theoretically, in a dividend imputation system, it is irrelevant who pays tax on company profits, the company or the shareholder, since the cash flow received by the shareholder is the same. Intuitively this implies that managers are likely to maximise profit before-tax, pay tax and impute company tax paid to shareholders with distribution of dividends. If an aggressive tax strategy is pursued by managers, the company will pay less tax, but its dividends will carry less imputed tax credit. Companies distributing franked dividends (i.e., dividends that carry imputed tax credit) must have paid tax on their profits and are more likely to pursue conservative tax strategies. It therefore seems likely that tax strategy will vary depending on whether dividends are paid and whether they carry imputed tax credits. To test this assertion, the first hypothesis predicts that companies distributing franked dividends are more likely to have conservative, rather than aggressive tax strategies.

Incentives to avoid tax may also differ between companies depending on the level of scrutiny and risk of audit by the Australian Taxation Office (ATO). The ATO audited 89% of the top 100 share-market listed companies in 2004 yielding $1.6 billion extra revenue (*Australian Financial Review(AFR)*, 5 Aug 2005). For the three and a half years to March 2002, a project targeting international profit shifting by medium to high tax risk companies resulted in more than $2 billion in tax adjustments, claimed to be a billion in extra tax for every million spent on the project (Braithwaite, 2005). Company managers' incentives to avoid tax may be affected by this tax office scrutiny and whether a company falls under this scrutiny or not may account for

some of the variation in ETRs. The second hypothesis predicts that companies under close ATO scrutiny are more likely to have conservative tax strategies than those not under close scrutiny.

Rewarding managers with share options as part of their remuneration package contractually aligns the interests of shareholders and managers. In a classical system of company tax, managers have incentives to maximise profits after-tax, as share valuation models use profit after-tax to project future share price. Prior research confirms they therefore have incentives to minimise tax costs (Phillips, 2003). However, this prediction does not hold in a dividend imputation system where managers have incentives to maximise profit before-tax, pay company tax as required by tax law, then impute the company tax to shareholders with dividend distributions. Share prices are likely to reflect that shareholders use tax credits to reduce their income tax liability and are therefore likely to value profits that have been taxed. Since there is no prior research that tests this assertion, this thesis specifically examines whether rewarding managers with share options leads to conservative tax strategies in a dividend imputation system. The third hypothesis predicts that remuneration based on share options is likely to lead to conservative tax strategies, rather than aggressive tax strategies as in a classical tax system.

Variation in ETRs can eventuate for the same companies in different time periods from external one-off opportunities arising, for example, from tax rate changes. Prior research confirms that managing accounting income has a greater priority than managing taxable income, since meeting or beating

earnings targets has a favourable capital market outcome (Kasznik and McNichols, 2002; Erickson, Hanlon and Maydew, 2004). However, tax-induced earnings management has been documented in a one-off period of tax rate change (Guenther, 1994; Davenport & Tran, 2004). If both taxable income and accounting profit are deferred to a lower taxed year, this suggests tax savings outweigh the costs of reporting lower accounting earnings.

Changes to business tax were announced by the Australian Government on 21 September 1999 (Commonwealth of Australia, 1999). The changes included two reductions in the company tax rate in the 2001 and 2002 financial years. If tax is not a real cost to the company but a prepayment of shareholder tax, managers are unlikely to have incentives to shift income to a lower taxed year. A fall in STRs means future imputation credits for shareholders will fall. Therefore, managers may have incentives to maximise imputation credits before the tax rate fall. For these reasons, managers may not pursue windfall company tax savings. This research is set around the years of company tax rate falls so that observations can be made to assess whether companies manage accruals for one-off tax savings. The fourth hypothesis predicts that companies do not pursue aggressive tax strategies in the years before a STR fall.

1.4 Motivation and contribution

Anecdotal evidence from the business community is mixed about the effect of dividend imputation on management decisions. One source suggests that dividend policy remains a financing decision and franking of dividends is

not necessarily an influence on managerial behaviour (*Business Review Weekly (BRW), 2004*). In this article opinions were canvassed from the capital market about the effect of dividend imputation on management decisions. A director on seven large Australian company boards says he has never seen dividend imputation as a big factor in decision-making:

> I can't think of any time when we have sat back and said: 'We can't do that [because of dividend imputation].' I think it is way down the line (*BRW*, 26 Feb-3 March, 2004, pp. 82-83).

A different opinion is expressed by a tax partner in a paper presented at a conference of tax practitioners and academics:

> …many companies with a significant Australian resident shareholding will structure their affairs to take into account the value of franking credits to their shareholders. It's great to see Australian companies paying Australian tax (Madden, 2006, p. 195).

There is also a difference of opinions in the business community about the level of tax avoidance by large companies. The financial press reports that top companies face audit over profit shifting:

> The number and value of international-related party dealings is growing, reflecting the globalisation of the Australian economy. They were estimated to exceed $150 billion this year [2003], the ATO said (*AFR*, 13 November 2003, p. 11).

However, in the same article, an Ernst & Young partner said many Australian companies were not making the most of transfer pricing in their tax planning. He said this was perhaps because:

> Most Australian companies have Australian shareholders who benefit from franking credits, so there is an incentive for Australian companies to pay tax in Australia and benefit shareholders.

There is little published academic research on the effect of management incentives to avoid tax in a dividend imputation system and how this might differ to a classical system of company tax. It is important to establish empirically whether a dividend imputation system does mitigate managers' incentives to avoid tax. There is some support for the proposition that ETRs of New Zealand companies are associated with franked dividend payouts (Wilkinson, Cahan & Jones, 2001). An Australian study finds gross dividend payout is positively correlated with the ETR and franked dividends (Pattenden & Twite, 2008). This thesis tests whether ETR measures are positively related to the distribution of franked dividends, to ATO audit scrutiny and to share option remuneration. It also provides evidence about the extent to which managers give up the opportunity to save tax by shifting income when STRs fall. If companies distributing franked dividends are less tax aggressive than those that do not, this is of interest to capital market participants, economic and tax policy advisers in Australia and to countries considering a dividend imputation system.

1.5 Research method and findings

Company tax liability is a confidential matter between a company and the ATO. Prior US research confirms that tax information constructed from annual reports of companies provides a reliable indication of company tax liabilities (Plesko, 2003; Lisowsky, 2009). This is because published annual reports show the results of operations for the same underlying economic transactions from which taxable income is derived. Fundamental differences between tax and accounting rules are reconciled in a tax note to company financial statements. Proxies for tax strategy can be derived from

the tax disclosures in company annual reports. In this thesis, tax strategy is proxied by the ratio between a company's ETR and the STR, where ETR is the quotient of tax expense or tax paid divided by accounting profit before tax.

An empirical analysis is undertaken in this thesis to test reasons for variation in tax strategy using multivariate regression modelling. Data used is collected from annual reports of Australian companies listed on the Australian Stock Exchange (ASX) for the period 1999-2003 from the *Aspect* and *Connect4* databases. Regression modelling explains variation in a dependent variable by variation in independent variables, holding constant the impact of the other independent variables. Three ETR measures are used as proxies for tax strategy, the dependent variable: total ETR (Tran & Porcano, 1997, Yin, 2003; Tran & Yu, 2008; Frank, Lynch & Rego, 2009), current ETR (Mills, Erikson & Maydew, 1998; Harris & Feeny, 2003; Rego, 2003; Tran & Yu, 2008) and tax paid ETR (Dyreng, Hanlon & Maydew, 2008).

Independent variables used to explain variation in tax strategy are dividend payout ratio and extent of franking, tax office scrutiny, type of managerial remuneration and year. Independent variables to control for known variability in ETRs from prior research are also constructed from data in annual reports.

Results from empirical regression analysis support all four hypotheses, giving support to the expectation that managers do have different incentives

to avoid tax in a dividend imputation system of company tax compared to the classical tax system which is still adopted in the US. Companies distributing franked dividends and under close tax office scrutiny are more likely to have a conservative tax strategy. Contrary to a classical system of company tax, in a dividend imputation system share option remuneration does *not* lead to aggressive tax strategies. Finally, changes in tax law over the period 1999-2003 that reduced the STR did not result in companies aggressively pursuing windfall tax savings in years before the tax rate falls.

1.6 Outline of the thesis

Chapter 1 of this thesis has introduced the research hypotheses and the research design. The remainder of the thesis is arranged in the following order. Chapter 2 reviews prior empirical tax research from economics, finance and accounting that is relevant to this thesis. Chapter 3 outlines the Australian institutional environment surrounding large listed companies in the 1999-2003 financial years' period. Using existing theory for companies in this environment, Chapter 4 develops four testable hypotheses. The research method used to test these hypotheses is outlined in Chapter 5. The results of the regression analysis described in Chapter 5 are presented in Chapter 6. The conclusions of this thesis and their implications are presented in Chapter 7.

CHAPTER 2 – LITERATURE REVIEW

2.1 Introduction

Tax strategy has been defined as the opportunistic but legal choices managers take that affect the ratio of tax to accounting profit. Prior research is biased towards tax avoidance studies that reduce this ratio and its focus is on how to measure an ETR and its determinants. There is little empirical evidence on the cross-sectional variation in tax avoidance between companies (Dyreng, Hanlon & Maydew, 2010). Book-tax gap research explores the gap between accounting profit and taxable income to assess tax avoidance and is a complementary measure to ETR in assessing tax strategy.

This chapter provides an analysis, synthesis and evaluation of research on different incentives to avoid tax in a classical system versus a dividend imputation system of company tax. The chapter starts with an initial review of two streams of tax avoidance research, studies of the book-tax gap and studies of ETRs. Based on this prior research the chapter then considers four factors found to influence managers' tax strategies: double taxation of company profits and dividend policy, tax office scrutiny, performance-based remuneration based on profit after-tax, and tax-induced earnings management.

The first stream of research considers the determinants of the gap between book income (accounting profit) and taxable income. The second stream of research considers the determinants of variability in ETRs between

companies and over time (ETR studies). Because management incentives to minimise tax can vary significantly between the classical system of company tax and a dividend imputation system (discussed later in this thesis), this review separates prior evidence (largely from the US) where a classical system applies from studies examined in a dividend imputation system (Australian and New Zealand studies). Several studies from the United Kingdom (UK), where a partial imputation system applies, are also referred to briefly. Following this review the chapter then considers prior research on the above four factors found to influence managers' tax strategy in a classical system of company tax and alternatively, in a dividend imputation environment.

This literature review explains the origins of the research questions asked in this thesis and from which hypotheses are developed in Chapter 4. A concise appraisal of all the research papers discussed is provided in Appendix A (pp. 175-196).

2.2 Book-tax gap literature under the classical system of company tax

This literature explores the magnitude and sources of the difference between accounting profit under generally accepted accounting principles and taxable income under income tax legislation. These studies examine the years 1982-2001 following publication of research by the US Treasury in 1999 suggesting this gap had widened and may be the result of increased tax avoidance. Treasury used tax return data to calculate the ratio of book to taxable income for the period 1991-1996 for a sample of large companies. It estimated that the ratio grew from 1.25 during the period 1990-1994 to

1.86 in 1996. Academic research (detailed below) confirmed these results but found alternative explanations for its increase other than tax avoidance.

Using financial statement data to compare taxable income and accounting profit for the years 1988-1999, Manson and Plesko (2002) confirm that the gap increases but is partly the result of tax-favoured investment in capital goods and research and development.

When tax return data are matched with financial statement data for the period 1991-1998, Mills, Newberry and Trautman (2002) find an increasing book-tax ratio from 1.07 in 1991 to 1.63 in 1998, and the gap widened particularly in the financial services and communications industries, suggesting the impact of tax breaks given to these industries.

Desai (2003) also shows that it is not only the permanent differences between tax and book income that account for the gap but also timing differences in recognizing revenue and expense under accounting and tax rules. When accounting profit disclosed in annual reports is compared with taxable income calculated from these reports for public companies over the period 1982-2000, the gap widens during the 1990s. The largest cause of this gap is the different recognition criteria for employee stock options: the expense is recorded for accounting purposes but not for tax until options are exercised. He also includes an analysis of the effect of earnings management on the gap. Aggressive earnings management is one explanation of a widening gap if accounting profit is managed without affecting tax currently payable on profits. When adjustments for earnings

management and known differences between tax and accounting rules such as employee stock options are made, however, there are still unexplained differences and he concludes that increased tax sheltering activity cannot be dismissed as one reason for the shortfall.

Based on company data over the period 1993-2001, Desai and Dharmapala (2006) develop a measure of tax avoidance based on the component of the book-tax gap not attributable to accounting accruals. This measure is used to investigate the link between tax avoidance and stock option remuneration. The theory posited in this paper suggests an interaction between corporate governance, incentive-based remuneration, tax avoidance (or sheltering) and theft by managers. Theft is the diversion of company resources for private use. When a company is weakly governed, tax avoidance is complementary to management theft because it helps managers to hide company resources from shareholders. An increase in incentive compensation can thus reduce both tax sheltering and theft. When a company has strong governance and therefore theft by managers is less likely, an increase in incentive compensation will increase tax avoidance to enhance share value. This suggests that increased tax avoidance can enhance or lower share value depending on the level of corporate governance. Results confirm that in companies with weak corporate governance, stock option incentive-based compensation was negatively related to the measure of tax avoidance, but not in well-governed companies.

Consistent with the above, Wilson (2009) uses large book-tax difference to identify tax avoiders. He finds that aggressive tax sheltering companies

with strong corporate governance exhibit positive abnormal returns. These results may explain the findings of other researchers suggesting a conflict in managers' incentives between minimising tax and maximising share value. Hanlon (2005) finds that companies for the period 1994-2000 with the largest book-tax differences have lower earnings persistence. This evidence suggests that large book-tax differences are seen as a "red flag" by investors and that they reduce their expectation of future earnings persistence.

When a sample of 44 large tax avoiders was matched with a similar sample of companies over the years 1975-2000, Graham and Tucker (2006) found that the annual deductions generated by the tax shelters in their sample were more than three times as large as interest deductions for comparable companies. This suggests that aggressive tax avoidance can be so successful in reducing tax that these taxpayers do not bother to use debt financing to generate interest expense as a tax deduction.

My evaluation of the book-tax gap literature from the US classical company tax environment is that it explains some determinants of cross-sectional difference in tax strategy and suggests some companies are more prepared than others to pursue aggressive tax strategies. My research questions concern the role of managers' incentives to avoid tax and whether these incentives are different in a dividend imputation environment.

2.3 Book-tax gap literature under the dividend imputation system of company tax

The only Australian book-tax gap research study is a detailed analysis of tax notes in annual reports of 46 companies over the period 1984-1993, to address the issue of book-tax alignment (Tran, 1998). This study highlights specific book-tax differences reported by Australian companies and shows that the book-tax income gap is largely caused by deliberate government policies and the different objectives and principles of the tax system and the financial reporting system.

In Australia, capital gains became taxable for assets purchased after September 1985 and a dividend imputation system was introduced in 1987, removing double taxation of dividends for individual shareholders. No research has been undertaken to test the effect of these changes on tax strategy of managers. Since shareholders invest for a return in the forms of dividends and capital gain on selling the shares, the tax differential between dividends and capital gains is likely to affect the dividend payout policies and tax strategies of companies. This thesis specifically explores managers' incentives to avoid tax in a dividend imputation environment.

2.4 Effective tax rate literature under the classical system of company tax

An ETR is a measure of tax expressed as a percentage of accounting profit and can be used as a relative measure of tax avoidance. There is a large body of ETR research in accounting and public finance literature that largely examines the determinants of differences in ETR between firms and

over time (Callihan, 1994; Dyreng, Hanlon & Maydew, 2008). Conflicting results of early studies are analysed and explained by later researchers but gaps remain in explaining ETR differences.

One explanation for differences is the ETR metric itself. The "measure" of tax used by researchers is total tax expense (Stickney & McGee, 1982; Zimmerman, 1983) or only the current portion of tax expense (Gupta & Newberry, 1997; Mills, Erickson & Maydew, 1998; Yin, 2003; Rego, 2003) or tax paid (Dyeng, Hanlon & Maydew, 2008). Accounting profit is adjusted in some studies (Stickney & McGee, 1982) or operating cash flows used instead of profit (Zimmerman, 1983; Gupta & Newberry, 1997). When means, maximums and minimums of five ETR measures used in prior studies over the years 1980-1983 are compared, there are significant differences between them (Omer, Molloy & Ziebart, 1991). Different methodologies also produce conflicting results (Callihan, 1994).

Attempts to find the "best" ETR measure have concluded that ETR is an imperfect measure (Wilkie & Limberg, 1993) and since there is significant difference between measures, researchers can include several measures to ensure robustness of results.

There is also discussion in the literature about the suitability of using numbers from financial statements rather than tax returns to measure ETR (Plesko, 2003). The confidentiality of tax return data means it is usually the case that researchers rely on publicly available tax information in annual financial reports in their analysis of ETRs. Recent research that examines

the association between current US tax expense in annual reports and the tax liability actually reported in US tax returns, concludes that the publically available tax expense gives a reliable estimate of actual tax liability (Lisowsky, 2009). Although the latter is not an ETR study, it confirms the reliable use of publicly available data in ETR research.

One objective of ETR research is to explain the combination of factors that result in cross-sectional differences in ETRs. Again, there are conflicting results. Early research suggests capital intensity (investment in depreciable assets), leverage and natural resource firms have reduced ETRs while foreign operations and size are less important (Stickney & McGee, 1982). However, Zimmerman (1983) shows that the largest fifty US companies have a greater ETR than other firms, suggesting size is a determinant.

Empirical results show that profitability is a confounding factor in ETR studies. Wilkie (1988) points out that mathematically, if reconciliation items between accounting profit and taxable income are held constant but profit increases, then ETR also increases. Since this work, studies of ETRs have included a measure of profitability to ensure reliability of results.

Longitudinal studies examine why ETRs vary, not only cross-sectionally, but for the same company over time. Again, there are mixed results from this research. Using data from the 1980s, Gupta and Newberry (1997) find no distinct relation between ETR and size; but the negative association with capital intensity and the positive association with profitability of prior studies are confirmed.

A longitudinal study using UK data finds a positive relation between ETR and size for companies in 1968-1979, weaker in 1980-1993 and negative in 1978 and 1982 (Holland, 1998).

In a later study using US data for the years 1990-1997, Rego (2003) finds that the extent of foreign operations has a negative relation with ETR and concludes that the prior contradictory findings about the relation of ETR and firm size are likely due to model misspecification (i.e., omission of "foreign operations" as an explanatory variable). However, when only multinational corporations are considered, she finds that higher levels of US pre-tax income are associated with lower ETRs, but higher levels of foreign pre-tax income are associated with higher ETRs.

An ETR reflects tax preferences or strategies of companies and different research results for size and profitability may be explained, for example, by whether large companies are under scrutiny from government or public bodies or whether they have more funds available to seek tax planning advice. One US study, for example, finds a negative relation between tax planning costs and ETRs (Mills, Erickson & Maydew, 1998).

Whether the ETR falling over time reflects aggressive tax minimisation is a big driver of ETR research, particularly in a period of large public company failures. A longitudinal study of US listed companies during 1995-2000 finds that ETRs did fall during this six year period, but that this was largely due to different accounting and tax treatments of employee stock options

(Yin, 2003). However, some aggressive tax minimisation cannot be ruled out as an explanation for the remaining decline in ETRs.

A conclusion of the book-tax income gap and ETR literature reviewed thus far is that prior studies rely on large book-tax differences and low ETRs to indicate tax avoidance by companies. This gives confidence in using ETR measures in this thesis as proxies for tax strategy.

My evaluation of the above literature is that results are inconclusive with respect to the exact determinants of ETR, although conflicting results may suggest that managers employ different strategies in response to different incentives. This is the focus of my research – to test how these incentives affect the ETR. Since Australian companies are the focus of this study, prior Australian ETR research, which relies on the wider ETR studies referred to above, is reviewed.

2.5 Effective tax rate literature under the dividend imputation system of company tax

Australian ETR research uses both tax return data (Wickerson, Reddan & Khan, 2001; Harris & Feeny, 2003) and annual report data (Tran, 1997; Tran & Yu, 2008) to test prior results of ETR research in other countries.

A statistical analysis of ETRs of more than 500 ASX listed companies for the years 1983-1993 confirms US results that industries given favourable tax treatments have lower ETRs (Tran, 1997). The research also shows that firm size has a negative relation with ETRs (Tran & Porcano, 1997). Both

studies use average ETRs for the period 1983-1993 in the analysis. These results are confirmed in a later study using annual ETRs for company years 1994-2004 (Tran & Yu, 2008). A further result of the latter study is that the difference between ETR and STR has narrowed over the period and it is suggested that this may be the result of tax law changes following the Australian Government's Business Tax Review in 1999.

Changes in tax law invariably change incentives and therefore tax strategy can change. My study tests whether tax strategy did change in 2000 and 2001, the years before the STR fell in two steps. My study additionally uses an indicator variable for each of the years 1999 to 2003, to better reflect possible changes in tax strategies over the period of tax rate changes.

In response to an Australian Government Senate Committee request to provide supporting evidence for the assertion by the Commissioner of Taxation that company tax collections had grown at a rate greater than gross domestic product, research was undertaken by the ATO. A number of ETR measures were developed by tax officials using tax return data to analyse the tax performance of large companies during the 1990s (Wickerson, Reddan & Khan, 2001). The trend analysis shows a general upward trend in ETRs over the period, but a downward trend in the ETR measured as tax payable/total profit. There is volatility around the year of a tax rate increase in 1996. No reasons are given in the study for the overall improvement in the ETR or why this trend differs to similar research studies in the US.

One intuitive reason may be the audit programs of the ATO. My study develops and tests such an assertion. The volatility around a year of tax rate increase (33% to 36%) may suggest taxable income shifting to the lower taxed year. My research study also tests incentives to shift income when the tax rate falls in 2001 (36% to 34%) and 2002 (34% to 30%).

When data sourced from tax returns are used by Harris and Feeny (2003) to model ETRs of large Australian companies, the results confirm the size effect found by Tran (1997) and Tran and Yu (2008). There is also evidence from this study suggesting companies with foreign operations, research and development expenditure, and capital intensive companies have lower ETRs. The study includes a variable measuring what Harris and Feeny (2003) call "unobserved heterogeneity" (Harris & Feeny, 2003, p. 953). The analysis confirms the importance of this variable in explaining why the ETR of a company differs from the STR. This finding confirms the suggestion from US research that unobserved "firm-specific characteristics" are likely to be related to ETRs and with other independent variables (Gupta & Newberry, 1997, p. 4).

My thesis suggests that one explanation for the unobserved "firm-specific characteristics" or "unobserved heterogeneity" from previous research is different underlying managerial incentives to aggressively minimise tax. In particular, I examine whether incentives arising from the institutional environment in which the company operates are relevant factors.

One aspect of the institutional environment of interest to my research study is the effect on managerial incentives of a dividend imputation system in Australia. In this environment, company tax becomes a prepayment of shareholder tax, imputed to the shareholders as a tax credit when dividends are distributed. Company profit is taxed once, not twice, as in the classical system. Incentives to avoid tax may be different from a classical system because company profits are ultimately only taxed at the personal tax rates of shareholders. Dividends on which tax has already been paid are likely to be of value to investors and this may change dividend policy of companies. Prior research on the role of dividend policy is analysed below, first in the classical system and then in a dividend imputation system.

2.6 Taxes, dividend policy and corporate finance literature (classical system)

In a review of research about how tax affects company decisions to maximise its value, it is concluded that companies facing high tax rates are more likely to make decisions to get tax benefits that lower their ETRs (Graham, 2003). However, there are no conclusions about whether tax is the most important factor, or why tax benefits are not more aggressively sought, or how much shareholder taxes are considered by managers in dividend payout policy. Finance theory posits that dividend policy is irrelevant for the determination of market prices as firm value equals the present value of future operating cash flows (Modigliani & Miller, 1958; Miller & Modigliani, 1961). Dividend policy is influenced by a company's investment opportunities, its capital-structure mix and the availability of internally generated capital (Peacock, et al., 2003).

The value of a share is equal to the present value of future dividends and investors are indifferent to their total return being received as dividends along the way or a capital gain when they sell the share. This claim has remained robust. Even if there is a tax differential between income from dividends and realization of capital gains or between shareholders, investors become a clientele for the company that has a dividend payout policy that suits their preference (Dhaliwal, Erickson & Trezevant, 1999).

The theory of tax clienteles predicts that investors buy shares that suit their preference for capital gains or dividends. Support for the theory is given by Dhaliwal, Erickson and Trezevant (1999). This study found that when companies initiated a dividend over the period 1982-1995, the percentage ownership of institutional shareholders, who preferred high dividend shares, increased.

Further, a survey of 384 executives of US companies by Brav, Graham, Harvey and Michaely (2005) found that dividend payout policy had little impact on investor clientele and it was not used as a tool by management to alter company ownership. Results also show that tax considerations played a secondary role and that differential tax of dividends and capital gains was not a dominant factor in decisions about whether to pay or increase dividend distributions.

In this classical setting where the company is taxed on its profit and shareholders are taxed on this profit again when received as dividends,

company tax is seen as a cost and managers have incentives to aggressively minimise company tax. This is because dividends are paid from after-tax profit, and the lower the tax, the greater is the potential dividend that can be paid to shareholders. In companies with relatively low dividend payouts, managers also have incentives to minimise tax. They will want to maximise share value and valuation models use after-tax profits. There are further incentives to do so if managers are in receipt of performance-based remuneration in the form of share options.

The empirical evidence shows, however, that tax avoidance is not always rewarded by the market (Hanlon, 2005), although this is not necessarily always the case in companies with high levels of corporate governance (Desai & Dharmapala, 2006). Incentives to avoid tax may also differ in companies paying out dividends and those that retain profits for future growth. In any case, in a classical system, there is no empirical evidence that dividend policy is affected by the tax preferences of investors. However, there is such evidence in a dividend imputation system.

2.7 Taxes, dividend policy and corporate finance literature (dividend imputation system)

Results from research conducted in dividend imputation environments may be at odds with the evidence from the classical tax environments (e.g., the US) that investors choose shareholdings to suit their tax preference. A research study using British data over the period 1955-1981 found that companies with institutional investors decreased dividend payouts when dividend taxes increased (Poterba & Summers, 1984). A later British study

using data for 1973-1983 confirmed these results (Lasfer, 1996). An Australian study had similar findings. Based on a 1992 survey of Australian managers, Anderson (1993) found that 80% of them said they responded to the dividend preference of their shareholders.

Following the introduction of dividend imputation in Australia in 1987, empirical research documents that dividend payout ratios increased from 31% in 1986 to 50% in 1990 (Nicol, 1992). Later research for the period 1987-2001 documents an increase in the average dividend payout to 60% of profits (Kenny, 2001). When the increase is further analysed, payout ratios for companies paying unfranked dividends declined while payout ratios for companies paying franked dividends rose.

Researchers had predicted that dividend clienteles would change following the introduction of dividend imputation (Hamson & Ziegler, 1990). This prediction was upheld in research over the period 1985-1992 (Bellamy, 1994). This study supports the existence of dividend clienteles and the increase in franked dividend payouts relative to unfranked dividend payouts.

However, there is conflicting evidence of the existence of dividend clienteles in the Australian dividend imputation environment. A capital market research study, over the period 1973-1991, models share price before and after dividend imputation (Brown & Clarke, 1993). There is support for the existence of a clientele effect across dividend yield pre-imputation but this is not supported after dividend imputation. The

conclusion is thus made that investors prefer capital gains even after the removal of double taxation on dividends.

One conclusion that can be drawn from the prior research on the effect of tax on dividend payout is that franked dividends are more valuable to shareholders than unfranked dividends. This means shareholders who can use imputation credits prefer franked dividends while those that cannot may prefer capital gains. A more relevant conclusion from this literature for my study is that company managers have different incentives to minimise tax, depending on whether dividends are being distributed or not. If they are, shareholders will value franked, rather than unfranked distributions. Support for this supposition comes from the two studies outlined below.

Unlike Australia, New Zealand extends franking credits to dividends distributed to non-resident portfolio shareholders. A study using New Zealand companies over the period 1991-1995, tests the effect of dividend imputation on tax minimisation at the time when the imputation credit was extended to non-residents (Wilkinson, Cahan & Jones, 2001). Some support is found for the expectation that ETRs are related to franked dividend payouts. There is no Australian research that specifically tests whether the levels of dividend payout and franking is related to ETRs. Australian research that examined changes in dividend policy around the time of the introduction of a dividend imputation system (1982-1997) found that dividend initiations, dividend payouts, and dividend reinvestment plans increased following imputation (Pattenden & Twite, 2008). This study included ETR and franked dividends as determinants of dividend payout

policy and results showed a significant positive relation between these determinants. My research study explores reasons for this result. In particular, it tests whether managers are influenced by the tax preference of their shareholders and thus whether there are incentives to be conservative or aggressive in their tax strategies.

2.8 Incentive effect of tax office scrutiny (accounting policy choice literature)

Conflicting findings in prior ETR literature show that large companies can either have higher or lower ETRs relative to small companies. Such results are expected if large companies face different tax risks as some will have more to lose or gain than others in their pursuit of tax minimisation or avoidance. A review of selected accounting policy choice literature highlights how the choice of an accounting policy can influence the incidence of company tax.

In a large, public company, strategic investing, operating and financing decisions are made by managers as agents for capital providers as principals. Agency theory suggests that to align these two interests, shareholders and creditors incur costly contracting to ensure managers operate in their interests. Managers, in their turn, can choose accounting policies to meet these contract hurdles while acting in their own self interest (Jensen & Meckling, 1976). In a principal-agent relationship where managers act on behalf of the shareholders, maximising profits and minimising tax might seem the ideal management strategy. However, if tax

is avoided in an over-aggressive way, it is the shareholders of the company who suffer the cost of audit and fines.

Similarly, if the government tax revenue collection agency sees that company profits are excessive when compared to taxable income declared, costly audits may ensue with details of transactions required to be provided to tax collecting authorities. To avoid these costs, managers may adopt certain accounting techniques to lower accounting profits and thus avoid scrutiny for audit. There is empirical evidence that large firms have higher ETRs than smaller ones (Zimmerman, 1983). This result is contrary to Australian ETR research previously discussed that finds larger firms have lower ETRs (Tran & Porcano, 1997; Harris & Feeny, 2003). The result of a higher ETR is explained in terms of lowering the costs of scrutiny and transfer of wealth from the company. Australian results of lower ETRs are explained as large companies are better able to use tax incentives that reduce tax. These opposite results may also suggest companies respond differently to risks of audit.

A study of listed New Zealand companies in 1984 examines the effect of scrutiny of ETRs on accounting policy choice by managers (Wong, 1988). At the time of the study, New Zealand companies enjoyed export tax credits given to exporters. There are two methods of accounting for export tax credits. The tax credit can be deducted from sales or income tax. The study shows that politically sensitive companies (those whose ETRs are under scrutiny) adopt the method of accounting for export tax credits (the credit to sales method) that raises their reported ETR to that of non-politically

sensitive smaller companies. These companies are thus able to retain their export tax credits.

In a similar study of US companies over the period 1981-1984, researchers investigated whether political scrutiny of ETRs influenced accounting policy choice (Northcut & Vines, 1998). At that time, political groups used ETRs to argue that some large companies were avoiding tax and used this result to argue against lowering the US company tax rate in the Tax Reform Act of 1986. Results suggest that this political scrutiny of ETRs causes companies with low ETRs to choose income-decreasing accruals with low book-tax conformity. Book-tax differences are used to measure tax avoidance, although only part of the difference may be the result of aggressive tax minimisation, as previously discussed in the review of the book-tax gap literature.

Prior research does support the size of the book-tax gap being a "red flag" for tax audit. Using a sample of audited companies from the US Internal Revenue Service (IRS) over the period 1982-1992, analysis shows that there is a positive relation between tax adjustments by the IRS and book-tax differences (Mills, 1998). A similar study replicating this research using a similar sample of New Zealand companies over the period 1991-2000 found a similar positive relation between adjustments and book-tax differences (Cho, Wong & Wong, 2006).

Although macro-level trend analysis suggests a general upward trend in ETRs of Australian companies over the period 1992-1998 (Wickerson,

Reddan & Khan, 2001), audits by the ATO have realized large amounts of unpaid company tax.

The growth in sophisticated tax strategies offered by elite accounting firms in Australia and the US during the 1990s has been documented in interviews with tax professionals, as has the growth in tax consulting fees of companies (Braithwaite, 2005). The response of the ATO to this documented cost of tax avoidance is the Large Business and Tax Compliance group, specifically set up to audit company groups with more than $100 million in turnover (Carmody, 2005). Targeted company groups include not only large listed companies but also Australian subsidiaries of foreign multinationals and large Australian private companies. The sample included in this thesis is restricted to companies listed on the ASX operating in Australia with predominantly Australian shareholders. Results of audits of these large company groups, published by the ATO, do not differentiate the three types of company groups and should therefore be read with this in mind. Tax realized in audits of large corporations in the 2003-2004 financial year was over $1.6 billion (*AFR*, 5 Aug 2005). One of the "red flags" the ATO uses in choosing audit targets is those showing low ETRs and using aggressive transfer pricing agreements (Granger, 2003, p. 33).

The above published audit success may explain mixed research findings of ETRs and large companies in classical and dividend imputation environments. Prior Australian research finds a negative relation between large companies and ETRs (Tran & Porcano, 1997; Harris & Feeny, 2003; Tran & Yu, 2008). In classical environments the relation between size and

ETRs is either positive, negative or none (Gupta & Newberry, 1997; Zimmerman, 1983; Rego, 2003; Stickney & McGee, 1982). Clearly, some companies are prepared to take more risks than others in minimising tax. If it is larger companies that are under scrutiny, managers may be less prepared to take these risks. This research study tests the relation between close ATO scrutiny and tax strategy of Australian companies.

2.9 Incentive effect of after-tax remuneration literature

Agency theory suggests that to align shareholders interests and managers interests, the agent's compensation or remuneration can be tied to observable outcomes (Watts & Zimmerman, 1986). In a classical system of company tax, this is likely to be after-tax profit as this is the reward accruing to shareholders for their investment and from which dividends are paid or funds re-invested for future profits. In the longer term, compensation can also be tied to increases in share price in the form of share options given now but exercisable in the future at a potentially higher share price. This aligns shareholders long term interests with those of their agents. Managers will have incentives to implement accounting and tax strategies that maximise after-tax profit, since this is the amount that accrues to shareholders and is used to model future profit and share price. Agency theory thus predicts that managers will implement tax strategies to minimise tax expense and maximise after-tax profit. Support for this prediction is provided from some prior research studies.

Phillips (2003) surveyed tax and executive managers over the period 1995-1997 to investigate the relation of compensation and effective tax rates and

found that remuneration of tax managers, based on after-tax profit, was associated with lower ETRs. Compensating the chief executive officer on an after-tax basis, however, shows no significant relation with ETR.

However, later research by Rego and Wilson (2010) found that tax aggressiveness was positively associated with equity based compensation for both tax executives and chief executive officer. The difference in results may be due to conflicting incentives faced by the two levels of executives.

A situation where an aggressive tax strategy is more likely to be pursued is where tax departments of companies are treated as profit centres and their tax managers are evaluated on the basis of tax savings or value added to the company. Robinson, Sikes and Weaver (2010) provide evidence from a 1999 survey of chief financial officers. They test the association between the tax department evaluated as a profit centre and ETR. The results show that those companies where the tax department is evaluated as a profit centre rather than as a cost centre have significantly lower ETRs.

Recent research illustrates the importance of this managerial influence on tax strategy. Dyreng, Hanlon and Maydew (2010) test the association between individual top executives and ETRs of companies over the period 1992-2006. They tracked 908 executives across firms over time. Their results show that individual executives play a significant role in determining the level of tax avoidance that firms undertake and the magnitude of the executive effects on tax avoidance is large.

I am not aware of any Australian research that tests the relation between managerial remuneration and tax avoidance. I expect that, in a dividend imputation system, company tax is not a real cost because company tax can be imputed to shareholders through dividend distribution. Because of this, managers will be more likely to maximise before-tax profit, rather than after-tax profit.

Empirical evidence (Brown & Clarke, 1993) indicates that in the early years of imputation (up to the early 1990s) companies were not fully adapted to the system. It can be argued that in the 2000s, listed Australian companies with predominantly Australian operations and Australian shareholders, are fully aware of the value of imputation to shareholders. Tax paid by the company is actually tax paid on behalf of shareholders, especially since 1 July 2000 when shareholders can claim a refund of any excessive imputation credits. Managers of these companies are therefore expected to maximise before-tax profit, rather than after-tax profit.

Incentive compensation using share options encourages managers to do whatever increases share value. Under a classical system there is evidence that this may not be aggressive tax avoidance (Desai & Dharmapala, 2006; Hanlon, 2005). I expect that the same is true in an imputation system. Again, I am not aware of any research evidence using Australian companies that sheds light on this expectation.

My evaluation of the literature testing the effect of performance-based remuneration on tax strategy is that, in a classical system of company tax,

executive remuneration based on after-tax profit, is more likely than not to result in an aggressive tax strategy. I expect that the opposite is true in a dividend imputation system. Perusal of annual reports shows that the remuneration of executives of Australian companies is based on a range of benchmarks. This research study attempts to find an answer to the question of whether rewarding managers of companies with share options is a factor affecting tax strategy among companies.

2.10 Tax-induced earnings management literature

The book-tax gap literature reviewed previously suggests earnings management as a determinant of the book-tax income gap (Desai, 2003). Earnings management has been a popular area of accounting research for over twenty years. The argument for its presence is that given opportunity and discretion in accounting policy choice in deriving accounting numbers, accounting profit can be "managed" to meet profit forecasts and other benchmarks, although evidence of earnings management has proved elusive to academic researchers. A review of this literature suggests that earnings management does exist to influence share market perceptions, to increase compensation of managers, to avoid violating debt covenants with lenders and to avoid regulation (Healy & Wahlen, 1999). Research results also suggest that managers of companies receiving share option remuneration, have strong incentives to boost share price and therefore to engage in managing earnings to meet or beat market analyst expectations (Dechow & Skinner, 2000).

There are other rewards in meeting market expectations. Research that asks how important it is to meet earnings targets finds that for US companies over the period 1986-1993, those that meet profit expectations have significantly higher earnings forecasts and realized profits than companies that do not (Kasznik & McNichols, 2002). This finding suggests that investors may perceive companies that consistently meet forecasts to be less risky.

There is research that finds that the incentive to meet set targets can involve real economic sacrifices, not merely accounting manipulation. Based on a 2003 survey of 400 US executives, followed up by 22 interviews of chief financial officers, Graham, Harvey and Rajgopal (2005) found that 78% of the sample of managers would sacrifice long-term value to smooth earnings. In the survey responses, 80% of the managers strongly agreed that they would decrease discretionary spending (delay maintenance), while 55.3% would delay starting a new project they expect to be profitable, and 40.4% would bring revenues to account now rather than next period. Analysis suggests that managers take these steps because they think short-run volatility in share price will affect cost of capital, leading to loss of their reputation in the labour market and in the mind of equity analysts. Such financial reporting costs are likely to conflict with aggressive tax minimisation strategies. If tax expense is aggressively managed, reported profit may be reduced (for example, by deferring income and/or accelerating expenses). This outcome may not be consistent with the goal of maximising or smoothing profit.

Earnings management can influence the timing of actual economic events or its recognition as a recorded transaction (Graham, Harvey & Rajgopal, 2005). Smoothing accounting profit can take the form of both deferral and/or acceleration of income and expense. This manipulation of current accruals affects both accounting profit and taxable income. The question then arises as to which is most important and whether there are different answers to the question across companies. The question has been discussed and reported in academic research known as the book-tax trade-off literature. This name arises since it is suggested that costs of not meeting profit expectations may conflict with strategies that reduce reported profit for tax savings and this creates a trade-off between them.

Almost all of the book-tax trade-off studies have been undertaken in the US and show substantial evidence over a 20 year period of research, that companies forego tax savings to reduce financial reporting costs (Shackelford & Shevlin, 2001). The imputation system of company tax may change this outcome for Australia. This is because for those companies that benefit from imputation, company tax is not a real cost, but a pre-payment of shareholder tax, so there is no point for these companies to engage in costly arrangements to save tax. The trade-off between failing to meet profit forecasts and saving tax may therefore be irrelevant. However, there are likely to be some companies in a dividend imputation environment for whom saving tax is a priority. For example, some companies have low dividend payouts, or have foreign shareholders unable to use the imputation credits. An advertised fall in the STR is likely to be an attractive opportunity to reap windfall tax savings. Prior research studies from

companies operating under a classical system are therefore outlined, as well as an Australian study.

A research study that documents the book-tax trade-off in a classical system uses the example of accounting for stock options to show strong support for the trade-off of net tax benefits for a better financial reporting outcome (Matsunaga, Shevlin & Shores, 1992). Following changes in US tax law in 1986, companies could convert incentive stock options to non-qualified options. The disposal of these options results in both a reduction in reported accounting profit and a tax deduction. Results show that few companies convert, despite the opportunity of a tax deduction. These few companies are those with the strongest earnings so they may expect little "market" effect. It is estimated in this study that the mean company tax benefit foregone is $551,000 to avoid a 2.3% reduction in reported earnings.

Another research study documents companies that pay tax on non-existent earnings, so great is the desire to overstate reported earnings to meet forecasts (Erickson, Hanlon & Maydew, 2004). A sample of companies accused of accounting fraud by the Securities and Exchange Commission between 1996 and 2002 is analysed by researchers. The fraud typically includes inflating revenues, inventory and other assets. For a sample of 27 companies accused of overstating earnings by a mean amount of $124.5 million, a mean of $11.84 million is paid in tax on this fraudulent amount. The researchers suggest that companies overpay tax to reduce the chance of outsiders discovering their overstatement of accounting earnings. However, the optimal tax strategy suggested by the book-tax trade-off literature is not

always one where avoiding tax is a secondary aim. When STRs fall, for example, maximising share value and minimising tax can coincide.

Several tax induced earnings management studies followed the change in tax rates contained in The Tax Reform Act of 1986 in the US. This Act reduced the legal company tax rate from 46% to 34%, leading to an expected large reduction in tax expense. Using accrual models from the earnings management literature, Guenther (1994) examined whether firms deferred income in response to a tax rate change. The results suggest that current accounting accruals were used in the period prior to the tax rate change to defer revenue to the low tax period and to accelerate expenses in the current high tax period. These current accruals (receivables, payables, accruals and prepayments) affected both taxable income and financial accounting profit. Large companies were more willing to report reduced income and those companies with higher debt/equity ratios were less willing to do so. Similar results were reported in research using changes in fourth quarter gross profit and selling, general and administrative expenses in the years around the tax rate fall (Scholes, Wilson & Wolfson, 1992). On average, the 812 sample companies saved around $500,000 in tax by deferring sales for one quarter. The results also confirmed the result that smaller companies are less opportunistic tax savers. Both studies document the use of negative current accounting accruals to effect tax-induced earnings management for windfall gains when the tax rate falls. Results also suggest that companies are different to each other in responding because they face different risks. This difference in response is illustrated in the following two studies.

Lopez, Regier and Lee (1998) confirmed the results of Guenther (1994) by using a more robust earnings management model and a variable to reflect a firm's propensity to engage in tax minimisation. Tax aggressive firms were those with relatively higher explicit tax subsidies (either because of accelerated depreciation deductions or tax exempt income). Interestingly, tax aggressive firms were found to make greater negative discretionary current accruals shifts in the year preceding the tax rate change than other firms.

On the other hand, a tax rate fall has little impact on the tax induced earnings management behaviour of loss firms. Yin and Cheng (2004) contrast the responses of profit and loss companies. The results show that non-tax incentives explain more variation in current accruals of loss firms. This result perhaps suggests that profit companies use negative current accruals to take advantage of tax savings because the financial reporting costs are lower than for loss companies.

There are several published Australian research studies testing the response of companies to tax law changes. In 1996, the STR rose from 33% to 36%. Tax law allows inventory to be valued at cost, market or replacement value each year. This is different to accounting standards that require inventory to be valued at the *lower* of cost or market each year. To shift taxable income from the higher taxed year to the previous lower tax year, companies can choose to value at the higher of cost or market in the year prior to the tax rate increase. In the year of the tax rate increase, inventory valuation can be

reverted back to the lower of cost or market. Davenport and Tran (2004) examined the deferred tax assets of Australian companies over the period 1994-1997 and found that companies with inventory holdings shifted taxable income from 1996 to 1995 by electing to value inventory at the higher of cost or market in 1995 for tax purposes. The reported inventory levels of these companies also significantly increased in 1995.

The Australian STR fell in two steps from 36% to 34% in 2001 and from 34% to 30% in 2002. There is no published research testing tax induced earnings management following this tax rate fall. A comparison of the ETRs of Australian companies over the period 1994-2004 found that the book-tax difference narrowed over the period as a result of tax reform measures following the Review of Business Taxation in 1999 (Tran & Yu, 2008). However, the study does not specifically test for tax induced earnings management. My thesis tests whether companies seek windfall tax savings by shifting income to the lower taxed years. Although companies tried to save tax in 1996, this does not necessarily mean that companies would again do so in 2000 and 2001, years before the STR falls. As noted earlier, from 1 July 2000, excessive imputation credits can be refunded to shareholders. This means domestic company tax and domestic shareholder tax become more completely integrated.

The book-tax trade-off literature has been reviewed generally, but more particularly to highlight prior research that finds evidence of tax-induced earnings management when tax rates change. These studies document the use of current accruals to shift income to lower taxed years. However, there

are other strategies to reap one-off tax savings. For example, planned asset sales can be brought forward or deferred to realize profit or loss on their sale in the most tax effective year. Similarly merger and acquisition plans can be implemented to realize any associated gains and losses on doing so in the preferred tax year. This thesis attempts to include all tax strategic transactions in answering the question of whether there is significant shifting of income in the years around the tax rate falls of 2001 and 2002. ETRs are used to reflect this rather than current accounting accruals.

2.11 Summary

The literature review contained in this chapter evaluates prior work that is relevant to this study. It guides development of further research questions coming out of prior literature. Prior research does not fully explain the variation existing between the ETRs of companies. Results from book-tax gap and ETR research suggest a large part of the variation is the result of permanent differences between tax and accounting rules. Differences in recognition of income and expense under tax and accounting rules also account for differences. The influence of managerial incentives on differences in ETRs between companies has largely not been addressed in prior literature. This leads to opportunities for further research.

Most prior literature on tax avoidance comes from a classical system of company tax. Management incentives to avoid tax are expected to be different in a dividend imputation system, where the tax a company pays is actually a pre-payment of shareholder tax, rather than a cost to be managed.

This chapter outlines areas where managerial incentives in a dividend imputation system differ to incentives under a classical system of company tax. These incentives may play a role in cross-sectional variation of ETRs. Prior literature in these areas suggests fruitful exploration of further questions. First, there is no research that specifically tests managers' incentives to avoid tax when distributing dividends in an imputation system. Second, while there is published research documenting both opportunity of tax avoidance and the costs of tax audit in doing so, there is none asking whether the level of risk of an ATO audit is also explanatory in ETR differences. Third, prior literature finds performance-based remuneration based on after-tax profit, including share options, influences managers to be more aggressive in minimising tax in a classical tax system. This hypothesis has not been tested using Australian companies in a dividend imputation system. Fourth, research testing tax-induced earnings management in times of tax rate change suggests some companies do take opportunities to save windfall tax when STRs fall. Managers' incentive to do so in a dividend imputation system has not been tested.

The context of the study in this thesis is the Australian institutional environment in a period of tax rate fall (1999-2003). While Chapter 2 outlines the origins of research questions to be addressed in the study from prior literature, Chapter 3 proceeds with an outline and discussion of the Australian institutional settings in which these questions are addressed. Chapter 4 develops the four hypotheses addressing the research questions in the context of this institutional environment.

CHAPTER 3 – INSTITUTIONAL ENVIRONMENT

3.1 Introduction

The tax avoidance literature reviewed in Chapter 2 suggests a number of determinants of variation in ETRs of companies. These include tax favoured treatments of certain income and expenses in tax law, differences in recognition of revenue and expense under accounting and tax rules, aggressive or conservative tax strategy, and earnings management to smooth accounting profit. An understanding of the institutional arrangements governing the imposition of tax and its collection is therefore important in explaining this variation.

This chapter describes in detail the institutional environment surrounding the taxation of Australian companies in the 1999-2003 period covered by this research study. The research questions ask how this environment affects managerial incentives to avoid tax and how this is different to a classical system of company tax.

This thesis tests hypotheses in the Australian institutional setting. The following features of the setting are outlined in this chapter.

1. The dividend imputation system introduced in 1987 that ended double taxation of company profits. It explains the changes this has brought to share ownership, dividend yield and its effect on incentives to avoid tax.

2. The basics of the *Income Tax Assessment Acts* (*ITAA*) *1936* and *1997* (Acts) are outlined. Companies are taxed at a flat rate on their taxable income.
3. The tax disclosure requirements and accounting standards that large companies must comply with when preparing published financial reports are described. Due to the confidential nature of corporate tax returns, the data used in my study are data from corporate annual financial reports.
4. ETRs used in prior literature to measure tax strategy are defined.
5. The business tax reforms announced by the Treasurer of the Australian Government on 21 September 1999 resulting in a number of new taxation regimes for companies over the period 1999-2003 are outlined. Although they contained a reduction in the statutory rate of company tax, removal of other favourable provisions compensated for the expected loss in tax revenue.

Most of the above provide the setting in which Australian companies develop their tax strategies that may be different to each other and indeed, to companies operating in a classical system of company tax. This chapter also discusses and illustrates how and why tax strategies are different to each other, and concludes with a summary.

3.2 Dividend imputation system of company tax (Part 3-6 *ITAA 1997*)

This section includes a discussion of imputation or franking credits arising from the introduction of a dividend imputation system, associated changes to capital gains tax and superannuation funds and an outline of the nature of

Australia's capital market. This is because at the time a dividend imputation system was introduced as a tax policy, a tax on capital gains had barely begun and compulsory superannuation did not exist. All of these changes affected the composition of the capital market and in turn, managements' incentives to avoid tax. The section concludes with an explanation of how changed incentives affect tax strategy.

3.2.1 Imputation (franking) credits

Australia had a classical system of company tax from 1940. A company was taxed as a separate taxpayer and shareholders were taxed on dividends received from the company without any recognition of the tax paid by the company on income generating the dividends. An inter-corporate dividend rebate (section 46, *ITAA 1936*) meant dividends received by corporate shareholders were tax free. The 1987 imputation system replaced the classical system of taxing profits twice by imputing to non-corporate shareholders the company tax already paid on the dividend received. The imputation credit is added to the dividend income of the shareholder (dividend income is assessed for tax at the gross amount) and the shareholder is entitled to a tax offset for the imputation credit. Dividends are only imputed to the extent of the Australian tax paid, called the franking amount, such that the higher the rate of Australian company tax paid the greater the tax offset will be. The section 46 rebate, however, exempted from tax all dividends received by corporate shareholders that are public companies, whether tax had been paid by the company paying the dividend or not.

Changes to business tax were announced by the Australian Government on the release of the tax review report, *Review of Business Taxation, A Tax System Redesigned* on 21st September 1999. One of these changes was the phased removal of the inter-corporate dividend rebate. It does not apply to unfranked dividends paid outside wholly-owned company groups after 30 June 2000 or to franked dividends after 30 June 2002. From 1 July 2002 corporate recipients of franked dividends, like other taxpayers, gross up dividends received by the franking credit and receive a tax offset equal to the amount of the franking credit. Intra-group dividends are ignored within consolidated groups where the wholly-owned group is consolidated for tax purposes. Another important change to the imputation system is that from 1 July 2000, if the franking credit received exceeds the tax payable by non-corporate shareholder, the shareholder is entitled to a refund of the excess (section 67-25, *ITAA 1997*).

The dividend imputation regime described above is attractive to shareholders investing for a dividend return on investment. Company tax paid becomes a pre-payment of shareholder tax and company profits are ultimately taxed at the shareholders' personal tax rates. As such, there are no incentives for Australian companies to engage in costly tax-avoiding arrangements. They simply pay Australian company tax as required by law, then pass the tax credit onto shareholders with dividend distributions.

Not all shareholders benefit from Australia's dividend imputation system. Franked dividends are tax driven and some companies pay insufficient tax to fully frank dividends. This is because, first, they may have tax-exempt

income or because they are the recipients of other preferential tax policies. Dividends will be only partly franked depending on the amount of tax paid by the company. Second, franking credits can only come from company tax paid in Australia. Where profits are earned from operations in foreign countries and tax is paid elsewhere, Australian company tax will be reduced by foreign tax credit/offset and dividends will not carry franking credits. Third, foreign investors do not have access to franking credits although they are exempt from withholding tax on franked dividends before they are sent overseas. Companies with foreign income and/or with foreign shareholders are likely to pursue strategies that maximise share price and capital gain returns to shareholders.

3.2.2 Companies and capital gains tax

On 20 September 1985 the Australian Government introduced a capital gains tax, removing the tax free status of capital gains from share ownership. Realized gains for all taxpayers became assessable income. The gain was calculated with the cost of the asset indexed using a consumer price index so that only "real" gains were assessable income. In September 1999 changes were made to tax legislation. Indexation was removed for all taxpayers and replaced with a 50% discount for individual taxpayers and 33⅓% for superannuation funds. The discount was not extended to companies. The removal of indexation effectively removed the advantage of capital gains over ordinary income profits for companies.

3.2.3 Dividend imputation and superannuation funds

Australian superannuation funds have large shareholdings in Australian companies. From July 1988 a flat rate of tax of 15% on superannuation and pension fund earnings was introduced. At the same time the benefits of dividend imputation were extended to these funds as shareholders. In 1988 the flat rate of company tax was 49% compared to 15% for superannuation funds. This meant that if they received fully franked dividends they had extra credits to offset against other fund income. From 1 July 1992 compulsory superannuation contributions were legislated. Australian employers paid a minimum of 3% of each employee's salary to a superannuation fund. This percentage contribution has grown to 9%. The effect of this has been that Australian superannuation funds allocate more than half of their equity to Australian shares and this represents a quarter of total market capitalisation of listed Australian shares on the ASX (Chessell, 2006).

3.2.4 Dividend imputation and the capital market

Australia's capital market is small by world standards. Only 1,499 companies were listed on the ASX at the end of June 2001 (ASX, 2001). A large proportion (51%) of its citizens own shares, 29% of this ownership held through superannuation and managed funds (ASX, 2003). A large percentage of shares in Australian companies are owned by these institutional investors. As such they can have a significant influence on share price and dividend payout policy. Prior research (Nicol, 1992) confirms that payout ratios rose in response to the introduction of dividend imputation in Australia and they have remained high. Research shows a

ratio of 65% franked to 35% unfranked dividends (Kenny, 2001). One reason for this is that franked dividends in particular are desired by shareholders: individuals, companies and institutional investors. Superannuation funds and shareholders with marginal tax rates less than the company tax rate derive additional benefits. Income of superannuation funds is taxed at 15% which means they can use excess franking credits to offset the tax on other fund income.

3.2.5 Dividend imputation and tax strategy

Given a preference for franked dividends by Australian shareholders, Australian companies distributing dividends are likely to distribute dividends that are fully franked. Such companies are less likely to adopt aggressive tax strategy as they must pay close to the statutory rate of company tax on profit distributed as dividends to shareholders. Companies that have not paid tax close to the statutory rate will be unable to fully frank dividends. It is therefore expected that there will be a difference in tax strategy between companies depending on the extents of their foreign operations and foreign ownership. In particular, a company with Australian shareholders expecting fully franked dividends will be less tax strategic than one with foreign shareholders not expecting franked dividends.

3.3 Income tax assessment acts

Australia has a self assessment regime for the collection of income tax, whereby taxpayers self assess their liability according to tax law. Liability for income tax is determined by the amount of taxable income, a residual concept outlined in the provisions of the *ITAA 1997*.

Income tax = [(assessable income – deductions) * tax rate]

– tax offsets (s. 4-10 *ITAA 1997*)

Income is assessable when derived (Division 6 *ITAA97*) and outgoings and losses are deductions when incurred (Division 8 *ITAA97*). The notions of assessable income, deductions, the timing of derivation of income and incurrence of deductions have been left to interpretation by the judiciary. Realized capital gains are assessed as income. Income is "derived" when it comes in to the taxpayer, deductions are "incurred" when there is an outgoing or a definite obligation connected with deriving the income. Although there is some similarity with the accounting notions of earning income and incurring expenses, the judiciary makes the final decision and accounting rules are only a source of reference. Accounting rules do not require certainty but "more probable than not" for recognition, and "matching" of revenue and expense is not a rule in tax law. Accounting standards allow 'property, plant and equipment' to be valued using either a "cost" or "revaluation" model. However, market valuations are not relevant under tax law where depreciation deductions must be based on cost, never market value. Companies will implement tax strategies to comply with tax provisions but they will assess their income tax liability in accordance with the provisions of tax law, paying only as much tax as the law requires.

Choices are made at year-end about the extent of accelerating deductions, deferring income, writing off bad debts and obsolescent inventory and other tax transactions. When assets are acquired the diminishing value (reducing balance) method can be chosen for maximum depreciation allowances as early as possible (Division 40 *ITAA97*). Assets acquired before 21/9/1999

can use broad-banding to substantially accelerate depreciation deductions over a shorter time span. Companies engaged in research and development and the mining industry can claim immediate deductions for capital expenditure, otherwise denied under deduction provisions. A tax loss can be carried forward indefinitely and offset against future profits (s. 36-15 *ITAA97*).

Before 1 July 2002, individual companies were separate taxpayers calculating taxable income and submitting separate tax returns, even if they were members of a consolidated group for financial reporting. Members of wholly owned groups of companies could transfer losses between members before declaring their individual taxable income. Capital assets could also be "rolled over" between group members without triggering a capital gains tax event. Multinational companies could strategically locate operations and structure capital and profit sharing to take advantage of lower tax rates. From 1 July 2003 provisions that allowed the intra-group transfer of tax losses and foreign tax credits ended with the introduction of tax consolidation for wholly-owned groups.

Provisions in the income tax Act outlined above provide some discretion to companies when self assessing their tax liability. General and specific anti-avoidance provisions in the tax Acts to protect Australia's income tax revenue may limit tax-avoiding arrangements. General anti-avoidance provisions provide discretion for the Tax Commissioner to re-characterise transactions to what they would have been if tax had not been avoided. Section 456 *ITAA36* attributes to Australian owners, income derived and

retained by offshore entities. Division 13 is directed against transactions between residents and non-residents that affect the level of income arising in each jurisdiction from the level it would be if they dealt at arms length. This division allows the Commissioner to reallocate income or adjust deductions by substituting an arm's length consideration. The general value shifting regime attacks non-arms length transactions between related parties.

In addition to specific anti-avoidance provisions found throughout the income tax Acts, a general anti-avoidance provision, Part IVA *ITAA36*, seeks to cancel any transactions entered into by taxpayers to avoid tax. The legislation works by identifying a scheme giving a tax benefit to a taxpayer that is entered into for the sole or dominant purpose of receiving the tax benefit. The interpretation of tax avoidance provisions have been left to the judiciary although tax rulings (not legally binding) are provided by the ATO to give guidance. These rulings set out the Tax Commissioner's interpretation of tax law.

The ATO administers the income tax Acts. The integrity of the self assessment system is maintained by tax audits of targeted groups of taxpayers. Tax law contains provisions giving wide powers to the Commissioner of Taxation to audit (sections 263, 264, 170 *ITAA36*) and penalties for non-compliance (Part 4-25, Sch 1 *Taxation Administration Act 1953*). The provisions of the income tax Acts do give discretionary choice to taxpayers and they self assess their income tax liability subject to the risk of audit and its associated penalties. It is assumed that companies will do this using provisions in the tax Acts that ensure their tax liability is limited

to what is due under the Acts and no more. Almost two-thirds of company tax is collected from large companies. The size of this tax revenue and the complexity of their business transactions is the reason large companies are specifically targeted for compliance attention (Carmody, 2005).

The tax assessed and paid by companies is a confidential matter between the company and the tax office. Tax returns are lodged with this office and are not available on public record. However, under Australian accounting standard AASB 1020: *Accounting for Income Tax (Tax-Effect Accounting)*, companies must disclose tax information since it is thought to be useful to shareholders and other users of annual reports.

3.4 Accounting standards and disclosure requirements of annual reports

Although the same underlying transactions form the basis for both confidential tax returns and publicly available audited annual reports, each is produced using different legal codes. Company tax is assessed, as outlined in the previous section, in accordance with the *ITAA 1997*. Financial statements are prepared at the end of the financial year in accordance with Australian accounting standards given legal status by the *Corporations Act 2001*. Two sets of books are not kept however. Company tax returns are prepared some months after the end of the financial year. There is a reconciliation calculation, taking the accounting profit number from the income statement as the starting point, adding and subtracting items of difference in calculating accounting profit and taxable income. An extract from the company income tax return (form C), showing this

reconciliation process, is shown in Appendix B (pp. 197-200) for the financial year ended 30 June 2003. What follows is an explanation of this reconciliation process. Tax disclosure requirements of the relevant accounting standard are then discussed to illustrate differences in tax and accounting legal codes and the difficulties in extracting tax information from annual reports.

3.4.1 Reconciliation of accounting profit or loss to taxable income or loss

Reconciliation of accounting profit with taxable income is necessary because the liability to pay tax is based on taxable income according to the income tax assessment Acts, not generally accepted accounting principles (GAAP). Under the accounting conceptual framework definition of expense given in SAC4: *Definition and Recognition of the Elements of Financial Statements*, an expense is an outflow that reduces equity; it does not say that expenses are incurred in the process of earning income. Under this definition, income tax is an expense, rather than an appropriation of profit. This expense is calculated after adjustment to accounting income for those items of revenue and expense that are included in one or other of accounting profit or taxable income but never in both. These items are known as permanent differences.

Permanent differences arise when accounting income is tax exempt, for example capital gains on assets purchased before 20 September 1985. Expenses recognised for accounting purposes that are not allowable tax deductions, such as entertainment expense, depreciation of the revalued

portion of assets, or goodwill amortisation and writedown, also give rise to permanent differences. Allowable tax deductions in excess of costs incurred (for example, the 125% deduction for qualifying research and development expenditure) are not recognised as accounting expenses and also give rise to a permanent difference. Tax expense in the annual report is calculated by applying the STR to accounting profit adjusted for permanent differences.

3.4.2 Tax and the annual report

Accounting standards prescribe the requirements for the structure and content of annual reports. From 1 January 2005 Australia adopted international accounting standards. The following discussion follows disclosure requirements in standards before that date. AASB 1034: *Financial Report Presentation and Disclosures* prescribed general requirements for the structure and content of financial reports. Income tax expense was reported in the statement of financial performance in accordance with AASB 1018: *Statement of Financial Performance*. AASB 1020: *Accounting for Income Tax (Tax Effect Accounting)* prescribed income tax disclosure in annual reports. Income tax expense calculated on accounting profit adjusted for permanent differences needs to be further adjusted for timing differences to compute tax liability, because the timing of recognition of some items of revenue and expense differs between GAAP and the *ITAA*.

Timing differences arise due to, for instance, differences in accounting depreciation and tax depreciation of depreciating assets, and provision for some expenses in deriving accounting profit that are denied under tax law as

they are not yet "outgoings", such as provisions for bad debts, long service leave pay, and warranties. Under the tax Acts such expenses are deductible when the outgoing is made. Tax expense is therefore divided into a current portion and a deferred portion. Current tax liability is shown in the Balance Sheet in accordance with AASB 1040: *Statement of Financial Position* as a current liability, and deferred tax, the net amount expected to be paid at some future time is a non-current liability. Current tax expense, being the tax liability due for the current period is theoretically tax payable under the *ITAA*. There may be further adjustments to tax payable to the tax office if there are tax credits like foreign tax paid and franking credits and other offsets. The reconciliation process described above is outlined in Table 3.1.

Table 3.1: Difference in derivation of tax expense and tax paid

Corporations Act 2001	***Income Tax Assessment Act 1997***
Revenue – Expenses	Assessable Income – Allowable Deductions
= Accounting Profit	= Taxable income
Adjusted for permanent differences such as: - concessional tax deductions - tax exempt income, including dividends that attract s.46 rebate and franking credits + non allowable deductions such as: - goodwill amortisation/write-down - depreciation of re-valued portion of assets - entertainment expense	
=Adjusted accounting profit	
x STR	x STR
= Tax Expense:	
Deferred tax expense	
+ Current tax expense	= Tax payable
	- Tax offsets (credits and rebates)
	= Net tax payable for the year

Tax paid is disclosed in the Statement of Cash flows in accordance with AASB 1026: *Statement of Cash Flows*. Company tax is paid in four pay-as-you-go (PAYG) instalments and a final balance being the difference between the actual tax liability and the four PAYG instalments. The first instalment paid in an accounting period is the fourth quarterly instalment payment for the previous accounting period. The other three quarterly payments are for current year income based on the previous year's results. This means disclosed current tax expense and deferred tax expense relate to the present year's accounting profit but disclosed tax paid has elements of the present and past year's accounting profit. In an annual report to shareholders then, income tax disclosures prescribed by accounting standards normally include an income tax expense, a current tax liability and a deferred tax liability, and a cash tax paid (cash outflow).

3.5 Effective tax rate (ETR) measures

The different tax and accounting rules contained in the *ITAA* and GAAP discussed above explains why companies may have tax liabilities different from applying the STR to accounting profits. Permanent and timing differences may arise naturally due to differences between accounting and tax rules, or may be created by adoption of aggressive tax strategy. It is for the latter reason that ETRs can be used to measure the relative tax strategy of managers in companies. Companies with concessional tax deductions, deriving exempt income under the income tax acts, with tax credits and rebates to offset against tax payable, and deferring their tax liability to the future have lower ETRs than companies that do not.

Taxable income, on which tax liability is calculated, is derived by the reconciliation process described above whereby accounting profit is first adjusted for permanent differences in tax law and accounting rules. The tax expense calculated on accounting profit adjusted for permanent differences is then adjusted for timing differences. Timing differences arise as income and expense can be recognised and incurred in different years under tax and accounting rules. Total tax expense is the result of adjusting accounting profit for permanent differences only and applying the STR to the adjusted accounting profit. Current tax expense is calculated when accounting profit is adjusted for both permanent differences and timing differences, and applying the STR. Thus, total tax expense includes both current and deferred tax expense. This is represented in equation form below.

Total tax expense = (AP ± Permanent differences) × STR

Current tax expense = (AP ± Permanent differences ± Timing differences) × STR

Where AP = accounting profit

If the above 2 equations are divided by accounting profit, two measures of ETRs result.

ETR1 = Total tax expense / accounting profit = (1 ± PD/AP) × STR

ETR2 = Current tax expense / accounting profit = (1 ± PD/AP ± TD/AP) × STR

Where PD = permanent differences; TD = timing differences.

Thus ETR1 is a function of permanent differences between accounting profit and taxable income, scaled by accounting profit. The smaller the net

permanent differences the closer ETR1 will approach the STR. ETR2 is a function of permanent and timing differences between accounting profit and taxable income, scaled by accounting profit. The larger the relative size of these differences the further apart ETR2 will be from the STR (unless permanent and timing differences offset each other).

It follows that one reason for the variation in ETRs between companies is because they have different net permanent and timing differences.

A third ETR based on cash flow is a novel alternative to accrual measures of income tax. Due to the PAYG instalment arrangement and the time lag of tax collection, an ETR using tax paid in a year is likely to be different to ETR2 that uses current tax expense. Companies pay annual tax liability in quarterly instalments. As noted, the first quarterly payment in a financial year (due in July) is the final tax instalment for the previous year. The following three quarterly instalments relate to the current year (due in October, January/February, April). Company tax paid in a year also includes the final balance for the previous year minus the sum of the four quarterly instalments (payable/refundable in January/February) when the tax return is lodged. The net tax payable for the year in Table 3.1 does not therefore represent the tax that is actually paid in the year. However, tax paid in a year can be a reasonable cash proxy of net tax payable for the year. Hence, company tax paid divided by accounting profit gives a third ETR measure. Tax paid is disclosed in the annual cash flow statement. While this may not all relate to current year profit, it does provide a proxy for a tax cash flow measure and a third ETR measure.

ETR3 = Tax paid / accounting profit.

A cash flow ETR also avoids the complexity inherent in using accrual tax numbers because they are also used to measure discretionary accruals in earnings management of accounting profit.

3.5.1 Company tax strategy

One element of corporate tax strategy is how conservatively or aggressively a company uses permanent and timing difference opportunities to reduce or defer tax. Permanent differences arise because there are items of income that are tax exempt under the *ITAA*. They also arise as some expenses are specifically excluded as a deduction. These items will be included in computing accounting profit but never in taxable income. On the other hand, the *ITAA* allows extra deductions, such as the 125% deduction for research and development expense. The extra deductions will be included in deriving taxable income but never in accounting profit.

Timing differences occur when a deductible expense for tax is recognised before the expense is recognised for accounting profit. For example, diminishing value depreciation is claimed as a tax deduction, while straight line depreciation is expensed for reporting of accounting profit. When expenses are accrued before being claimed as tax deductions, this also creates a timing difference. Provisions for long service leave and allowances for bad debts are expensed when estimated, while tax law allows a deduction when the leave is paid and the debt becomes bad. As timing differences reverse over time, ETR3 will be affected by these changes.

Australian taxation legislation allows tax losses to be carried forward to reduce taxable income in future years (Division 165 *ITAA97*). The accounting standard for income tax applicable for the years of this study is the 1989 version (the income statement approach). AASB 1020: *Accounting for Income Tax (Tax-Effect Accounting)* requires the recognition of a deferred tax asset arising from unused tax losses when it "is virtually certain" that future income will be available to offset against the tax losses (paragraph .03). Whether the tax benefits from past losses are recognised as deferred tax assets (or future income tax benefits) is therefore dependant on whether the companies are sure that they can generate assessable income to utilise the tax losses.

Whether permanent and timing differences are discretionary choices for companies is a matter of argument. If they are largely non-discretionary, then ETRs do not provide a good relative measure of conservative/aggressive tax strategy. However, I argue that many of these differences can be discretionary. Tax law and accounting rules differ but whether choices are made to take advantage of tax free or tax advantaged investment opportunities is discretionary. Further, realization of a tax-free capital gain will mean accounting profit and taxable income differ but the time of realization is discretionary. Tax law is used to implement government policy. Examples are the 125% deduction for research and development and accelerated capital allowances to encourage capital investment. The permanent and timing differences arising from these investments are arguably discretionary, since tax is deferred to the future

when the profits from the investments are available only if the decision to undertake new investment is made.

Thus, it is reasonable to assume that tax strategies are implemented by companies in line with their particular institutional and economic characteristics and that the discretionary choices made will be reflected in their ETRs. For this reason, tax strategy is measured in this study using ratios of ETR1 and STR, ETR2 and STR, and ETR3 and STR. Ratios of ETRs are calculated for comparative purposes as the STR fell over the period of study following business tax reforms.

3.6 Business tax reforms

Business tax reforms implemented over the period 1999-2003 are outlined in this section. Then five reform measures relevant to incentives to avoid tax are discussed. These are the falls in the statutory rate of company tax, changes to the capital allowance regime, changes to capital gains tax, removal of the dividend rebate and changes to prepaid expenses.

The policy document *A New Tax System* circulated by the Treasurer of the Australian Government in August 1998 spelt out the strategy for business tax reform. Business was consulted on the goal of moving from a 36% to a 30% company tax rate subject to maintaining revenue neutrality. The task of business tax reform was contracted out to the private sector under the chairmanship of John Ralph, a director of a number of Australian listed companies. The report of the Ralph review committee was released by the Treasurer on 21 September 1999 (Commonwealth of Australia, 1999). Tax

changes legislated over the following three years are summarised in Table 3.2 showing the date of effect of these changes. Although the overriding brief of these changes was sustainment of company tax revenue, the changes provided opportunities for windfall tax savings for companies.

Table 3.2: Timing of company business tax reforms

	21 September 1999	**30 September 1999**	**1 July 2000**	**1 July 2001**	**1 July 2002**
Replacement of accelerated depreciation and removal of balancing charge rollover relief	✓				
Removal of depreciable assets from Capital Gains Tax regime	✓				
Removal of 13 month rule for prepayments	✓				
Prevention of loss asset transfers within a company group	✓				
Indexation of capital gains frozen – replacement discount regime not applicable to companies		✓			
Company tax rate falls to 34% for 2000-2001 year			✓		
Removal of inter-corporate dividend rebate on unfranked dividends received by public companies			✓		
Commencement of 10% Goods and Services Tax and Pay As You Go regime			✓		
Company tax rate falls to 30% from 2001-2002 year				✓	
New tax law for all depreciating assets				✓	
Tax consolidation introduced					✓

3.6.1 Company tax rate

The key change to business tax accepted and legislated by the government was to lower the company tax rate from 36% to 34% for the 2000-2001 income year, and to 30% from the 2001-2002 income year. Given this window of opportunity, companies might shift taxable income from a higher tax year to a lower tax year.

However, lowering the tax rate was accompanied by tax law changes. One of these changes was the removal of accelerated depreciation for plant and equipment.

3.6.2 Capital allowance regime

A new uniform capital allowance system based on the effective life of assets was applied to all depreciable assets acquired or constructed from 1 July 2001. Rates of depreciation applied between 21 September 1999 and 1 July 2001 were the rates applying to assets under the new regime, i.e., 100% divided by effective life of the item for prime cost (straight line) method, or 150% divided by effective life for diminishing value (reducing balance) method. Accelerated annual depreciation rates that existed from 1992 until 21 September 1999 were based on effective life adjusted by a 20% loading and were broadbanded into one of seven rates. Under this regime the effective life estimate could not be varied. For depreciable assets acquired after 21 September 1999, taxpayers are permitted to re-assess effective life and these must be recalculated if the cost of the asset increases by at least 10% during any income year. This means that if an asset is expected to

have a shorter effective life than originally thought, the rate of depreciation can be increased from the time of the reassessment.

3.6.3 Capital gains tax

Indexation of the cost base of company assets was frozen on 30 September 1999. Although a 50% capital gains tax discount was introduced for individuals it was denied to companies. The removal of indexation effectively removed the advantage of capital gains over ordinary income profits for companies. Another change was the changed tax treatment of dividends received by companies.

3.6.4 Dividend rebate

The 1987 imputation system replaced the classical system of taxing company profits twice by imputing to non-corporate shareholders the company tax already paid on the dividend received. The section 46 rebate (s.46 *ITAA36*), however, exempted from tax all dividends received by public companies, whether tax had been paid by the company paying the dividend or not. Changes to business tax announced on 21 September 1999 included the phased removal of this inter-corporate dividend rebate. It no longer applies to unfranked dividends paid outside wholly-owned company groups after 30 June 2000 or to franked dividends after 30 June 2002. From 1 July 2002 company recipients of franked dividends, like other taxpayers, gross up the dividend received by the franking credit in assessing income and receive a tax offset equal to the amount of the franking credit in calculating liability. However, company shareholders are not entitled to refund of *excess* franking credits, unlike individual shareholders (s 67-25(1C), (1D)

ITAA97). Companies are, however, able to convert their excess franking credits into tax losses (s 36-55 *ITAA97*). These can be used to offset profits in future income years.

3.6.5 Prepayment of expense

Since 1988, taxpayers must amortise prepayments for services lasing longer than 13 months over the lower of the period of the services and 10 years. Taxpayers were able to incur an expense in the last month of the tax year and immediately deduct the part of the outgoing relating, not only to June, but to the remaining 12/13ths that related to the following tax year. The business tax reforms announce in September 1999 saw amendment to this 13-month prepayment rule from 1 July 2001. No immediate deduction for prepayments is available. They must be apportioned over the service period to which they relate.

The business reform measures described above were announced in September 1999 before their implementation. The changes were phased in giving ample opportunity for tax planning. With tax rates falling in future years and generous tax regimes closing, the more tax strategic companies could ensure they took every opportunity to limit their tax liability. One way to do this was to defer income and accelerate deductions in tax years before the tax rate fell.

3.7 Differentiating aggressive and conservative tax strategies

A tax strategy that defers income and accelerates deductions may affect taxable income and accounting profit to the same extent as they are based on

the same set of economic transactions. They may therefore leave ETRs as the proxy for tax strategy unchanged. However, this only happens if permanent and timing differences change in the same proportion as the shifts in income/profit. This will not necessarily be the case as explained by Wilkie (1988). Where permanent and timing differences are not proportionally related to accounting profit, ETR can change simply because accounting profit changes.

Further, an aggressive tax policy will not only defer income to the lower taxed year but will also opportunistically implement one-off transactions to reduce tax. For example, undertaking investments to derive income that is concessionally taxed, results in a permanent difference. Similarly, some transactions can be undertaken to generate immediate deductions for tax and future expenses for accounting purposes will result in negative timing differences in the year of the transactions. Both these arrangements will magnify the tax savings and this will be reflected in the tax strategy measures. Past losses will be most effective if they are purchased in merger and acquisitions in higher taxed years. If tax strategy measures are observed to fall in years before STR falls, this will be indicative of a more aggressive, rather than a conservative tax strategy. A study over years when the STR falls gives an opportunity to inform on the relative tax strategies of companies, using ETR measures as the indicators.

Given the use of ETR as a reliable proxy measure of assessing tax strategy, the degree of relative aggression or conservatism can be traced by a company's use of permanent and timing differences between accounting

profit and taxable income. This is because the difference in tax strategy explains to a certain extent why ETRs may differ between companies.

3.8 Summary

This chapter describes the institutional tax environment in which large, profitable Australian companies operate. Important factors associated with this environment include, first, a dividend imputation system of company tax, where company profit is taxed once, not twice as in the classical system. Incentives to aggressively avoid tax may therefore be mitigated in this environment. A second factor is the income tax assessment Acts operating in Australia, giving strong audit powers to the tax collecting body. Of importance to this study are the STR changes implemented in the period 1999-2003, providing an opportunity for companies to make windfall tax savings.

ETRs are used in prior empirical studies to assess tax strategies and differentiate the tax conservative from the tax aggressive companies. The institutional settings in which Australian companies operate are outlined in this chapter. ETRs are also used in this study as a way of assessing the tax strategy of companies, particularly in years when the tax rate falls. Variability in tax strategy of Australian listed companies over the period 1999-2003 is investigated in this study using ETR measures to do so. The next chapter develops hypotheses to test explanations of this variability in terms of managerial incentives with reference to the institutional environment outlined in this chapter.

CHAPTER 4 – HYPOTHESES DEVELOPMENT

4.1 Introduction

Research questions emerging from prior literature discussed in Chapter 2 suggest management incentives may play a role in explaining different tax strategies between companies. It also suggests that management may have different incentives to avoid tax in a classical system of company taxation compared to a dividend imputation system. The institutional environment for Australian companies outlined in Chapter 3 therefore places these incentives in context. These questions include the following. In a dividend imputation system of company tax, what is the effect on tax strategy of:

1. dividend payout ratio and franking percentage of dividends;
2. tax office scrutiny;
3. managerial remuneration based on share options, and
4. company tax rate changes?

This chapter develops four testable hypotheses to answer these questions for the Australian institutional environment. In particular, these hypotheses test incentives for companies to pursue aggressive or conservative tax strategies in a period of company tax rate changes. These four hypotheses provide the focus of the remaining chapters of this thesis.

4.2 The relation between dividend payout, extent of franking and tax strategy

Company profits are not legally required to be distributed to shareholders as dividends. Dividend payout policy is a financial decision dependent on a

number of factors, including available cash, financing choices and investment opportunities. Shareholders invest for a return in the form of dividend income during the holding period and capital gain when shareholdings are realized.

In a perfect capital market (i.e., investors behave rationally, there are no transaction costs or taxes, and information is available to all), shareholders have no preference for a dividend income or a capital gain. The total cash flow of the investment is the same. The explanation for this is that when profits are distributed as dividends there is less in retained profits to build future profits and capital gains. If no dividend payments are made, more retained earnings are left, leading to greater capital gains. Overall shareholder wealth is unchanged (Modigliani & Miller 1958; Miller & Modigliani 1961).

When tax is introduced as a friction in this perfect capital market, shareholder preference for dividends can be affected. One reason is differential taxation of dividends and capital gains. In a classical system of company taxation, company profits are taxed. When after-tax profit is distributed as dividends, shareholders again pay tax on their dividend income. In other words, company profits distributed as dividends are taxed twice. To ensure maximum returns to shareholders, managers of companies have incentives to treat company tax as a cost and maximise after-tax profits for the benefit of shareholders. This creates incentives for managers to engage in aggressive tax strategies.

A dividend imputation system eliminates the double taxation of company profits distributed as dividends and thus reduces management incentives to pursue aggressive tax strategies (Wilkinson, Cahan & Jones, 2001). If a company listed on the ASX makes $1 pre-tax profit, it pays tax at the corporate tax rate (t_c), leaving an after-tax profit of $1 - t_c$. If the whole after-tax profit is paid out as a franked dividend, it carries an imputation credit of $(1 - t_c) \times [t_c/(1 - t_c)] = t_c$ which is the corporate tax paid. A resident shareholder who receives a franked dividend includes both the dividend received ($1 - t_c$) and the imputation credit (t_c) as assessable income and pays tax at their marginal tax rate (t_i), then claims the imputation credit as a tax offset. The net tax payable by the shareholder is:

$$[(1 - t_c) + t_c] \times t_i - t_c = t_i - t_c$$

and the total income tax of company and shareholder is:

$$t_c + t_i - t_c = t_i$$

which is the tax at the marginal tax rate of the shareholder alone. This means that company profits are ultimately only taxed at the shareholders' marginal rates of tax.

Therefore, in a dividend imputation system such as Australia, company tax is a temporary withholding tax and has no impact on after-tax returns ($1 - t_i$) of shareholders. Tax paid by a company in this system is a pre-payment of shareholders' income tax and not a real cost as in the classical system. Managers will therefore maximise before-tax profit and should have no incentives to implement costly aggressive tax strategies. Companies that have paid Australian income tax have incentives to distribute profits as franked dividends as soon as possible to allow shareholders to maximise the

present value of imputation credits. Franked dividends are therefore preferred to capital gains as a return on investment since if taxable capital gains are realized when shares are sold, shareholders are taxed without any offset by imputation credits. In other words, double taxation may apply to capital gains, but not dividends.

A strategy adopted by companies to counter the lower level of retained earnings due to increased dividend distributions is to use dividend reinvestment plans to raise new equity capital. Bellamy (1994) and Pattenden and Twite (2008) provide evidence for the increased use of dividend reinvestment plans after the dividend imputation system was introduced.

To maximise the present value of imputation credits to shareholders, companies have incentives to distribute franked dividends as soon as possible. Bellamy (1994) and Pattenden and Twite (2008) found evidence that companies paying dividends with imputation credits increased their payout ratios to ensure that imputation credits were passed on to shareholders. Shareholders also prefer franked dividends (dividends paid out of taxed earnings) to unfranked dividends (dividends paid out of untaxed earnings) not only because franked dividends carry imputation credits but also because company earnings that are taxed are perceived by investors to be more persistent than earnings that are not (Hanlon, 2005).

Further, empirical evidence shows that companies, especially mature companies with sustainable earnings, do have defined dividend policies and

that these policies are put in place for the long term with managers opting for a stable dividend policy. This is because shareholders perceive fluctuating dividends negatively (Brav, Graham, Harvey & Michaely, 2005). Therefore, companies that distribute franked dividends in one year have incentives to adopt a conservative tax strategy to ensure that they pay sufficient tax to frank dividends in the following year. This leads to hypothesis H1.

H1: Companies that distribute franked dividends adopt a more conservative tax strategy than companies distributing unfranked dividends or not distributing dividends.

4.3 The relation between tax office scrutiny and tax strategy

Tax audit activity and the powers of the ATO under tax legislation are outlined in Chapter 3. Almost two-thirds of company tax is paid by large corporations, defined by the ATO as corporate groups with a turnover exceeding $100 million (Carmody, 2005). Around 34% of net tax office collections are paid by large business (Granger, 2006). To protect this revenue, the ATO has a Large Business and Tax Compliance program. The program is due to the large size of tax revenue collected from this sector, the complexity of its business transactions and the competitive and ever-changing global environment in which it operates. The intense scrutiny in risk assessment and audit of large company groups is justified by the ATO because "we continue to finalise income tax audits with some significant compliance adjustments" (Granger, 2006, p. 2). This supports evidence documented in Chapter 2 that companies do pursue aggressive tax strategies (Desai, 2003; Braithwaite, 2005).

The ATO publishes results of its past year audit program and releases its annual compliance program to ensure large companies are aware of its plans. The financial press also reports these releases in the public interest. For example, 89% of the top 100 listed companies were under some kind of audit in 2003-2004 (*AFR*, 5 Aug 2005). The audit program yielded $1.6 billion in revenue from large corporations.

For large listed companies, the risk of an unfavourable tax audit carries with it the potential payment of additional tax, fines and unfavourable publicity. All these can lead to additional cash outflows, downward profit forecasts and lower share prices. It follows that the risk of tax audit and its consequences give incentives to targeted companies to temper an aggressive tax strategy.

Companies subject to high levels of government or public scrutiny are also more likely to suffer higher political costs (Jensen & Meckling, 1976). Companies under high risk of tax office audit have cost pressures that will influence the tax strategy adopted. In an effort to avoid additional payments to the tax office in extra tax and fines, potential loss of reputation, fall in share price and future inflow of resources, companies will want to signal a more conservative tax strategy than companies not subject to the *Large Business and Tax Compliance* program.

The response of large companies to the increased tax scrutiny by the ATO and the media is likely to be a rise in tax risk management and perhaps to

pursue a more risk averse strategy. Factors taken into account by the ATO in their audit risk process include variation in income tax from industry patterns or past years, a history of aggressive tax planning by the group and *low* ETRs (Granger, 2003).

There is prior evidence from the literature that companies use accounting accruals to increase ETRs to avoid scrutiny (Wong, 1988; Northcut & Vines, 1998). The effect of scrutiny on ETRs has not been tested using Australian companies. The wide powers of the Commissioner of Taxation under the Income Tax Assessment Act and the activity of the *Large Business and Tax Compliance* division in the ATO are likely to affect managers' incentives to pursue aggressive tax strategies. This leads to hypothesis H2.

H2: Companies under close scrutiny by the ATO have a more conservative tax strategy than companies that are not under close scrutiny by the ATO.

4.4 The relation between remuneration based on share options and tax strategy

Under the classical system of company tax, tax is a cost and managers have incentives to minimise tax on company profit if their remuneration is based on after-tax profit. A more aggressive tax strategy will ensue. Rewards based on performance in achieving after-tax, rather than before-tax profit, is an attempt to align the interests of shareholders and managers as saving tax results in a greater share of profits accruing to investors.

The imposition of income tax on company profit diminishes the return to shareholders so it follows that if remuneration is based on after-tax profit, managers have incentives to adopt a tax strategy that minimises income tax (Phillips, 2003). In a classical institutional setting where company profit is taxed in both company and shareholder hands it is logical to minimise tax and to reward managers for doing so. There is evidence that equity based compensation (an after-tax profit metric) is positively associated with tax aggressiveness (Rego & Wilson, 2010).

In a dividend imputation system, the incentive to minimise company tax is mitigated because company tax is not a real cost and shareholders expect fully franked dividends. For Australian resident shareholders, company tax is a pre-payment of tax on their dividend income. They prefer companies to distribute profits with imputation credit rather than retain them. If profits are retained and they sell their shares and realise taxable capital gains, they are taxed on these gains, without imputation credit as tax offset.

Managers of companies distributing franked dividends maximise before-tax profit, rather than after-tax profit as in the classical system of company taxation. Since payment of company tax is valued by shareholders, investors are more likely to pay a higher price for shares in companies that pay franked dividends out of taxed earnings. To align the interest of managers with that of the shareholders, companies reward managers by equity based remuneration such as share options. For the purpose of attracting investors to increase the value of their share options, managers

adopt conservative tax strategies to ensure companies pay tax to frank dividends. This leads to hypothesis H3.

H3: In a dividend imputation system, companies that reward managers with share options adopt conservative tax strategies.

4.5 The relation between company tax rate falls and tax strategy

When tax is considered a cost, the ultimate tax strategy is to minimise taxable income and minimise tax liability. Since the underlying economic transactions are often the same for tax and accounting, reducing taxable income often also reduces accounting earnings and results in financial reporting costs. Empirical evidence suggests that companies give earnings management a priority as maximising accounting income has a favourable capital market outcome (Kasznik & McNichols, 2002; Erickson, Hanlon & Maydew, 2004).

When tax rates fall, empirical evidence using US data shows that companies have incentives to minimise tax liabilities prior to the tax cut. This is called tax-induced earnings management since both accounting earnings and taxable income are minimised (Guenther, 1994). This result suggests that when tax rates fall, minimising tax takes precedence over the financial reporting costs since the one off saving in tax cash flow is perceived as a benefit to shareholders. Timing of transactions is the single most responsive strategy to change the incidence of tax liability. If it is known that income will be taxed at a lower rate in the following year, companies will defer income to the lower taxed year and accelerate expenses and losses to the

higher taxed present year. This earnings management of current accruals will reduce both accounting earnings and tax expense.

The announcement of a fall in the company tax rate from 36% to 34% for the 2000-2001 income year, and 30% for the 2001-2002 income year provides an opportunity to test tax-induced earnings management using Australian data. Under a dividend imputation system, tax is not a real cost but a prepayment of shareholders' tax. Hence companies are unlikely to undertake costly arrangements to shift income and deductions across time. Further, future shareholders' imputation credits will fall in line with the tax rate falls. Companies may therefore have incentives to maximise imputation credits to shareholders before the tax rate fall. This leads to hypothesis H4.

H4: In a dividend imputation system, tax strategy is not significantly more aggressive in the years preceding falls in the statutory tax rate.

4.6 Summary

This chapter develops four testable hypotheses for companies operating in the Australian institutional environment in the years 1999-2003. They predict:

1. that companies paying fully franked dividends adopt more conservative tax strategies than companies paying unfranked dividends or no dividends;
2. that companies under close scrutiny by the tax office adopt more conservative tax strategies than companies that are not;

3. that companies rewarding managers with share options adopt conservative tax strategies, and
4. that companies do not use aggressive tax strategies to take advantage of opportunistic windfall tax savings arising from falls in the company tax rate in years before the tax rate falls.

Chapter 5 describes the research design and the data collected to test the four hypotheses developed in this chapter.

CHAPTER 5 – RESEARCH DESIGN

5.1 Introduction

This thesis undertakes an empirical analysis of the managerial incentives affecting corporate tax strategy of Australian listed companies over the period 1999 to 2003. The research method used to test the hypothesised relationships developed in Chapter 4 is described in this chapter. The selected sample of companies used for testing is outlined. The dependent and independent variables in the multiple regression models used to test the hypotheses are described in detail. A brief summary concludes the chapter.

5.2 Research method

This thesis predicts relationships between tax strategy and incentives arising from dividend payout policy, tax office scrutiny, remuneration based on share options and company tax rate falls. The primary analysis uses an ordinary least squares regression method to test the hypotheses outlined in Chapter 4. The dependent variable, tax strategy, is not directly observable and is estimated using three alternate ETR measures based on total tax expense, current tax expense and tax paid in a year, expressed as a proportion of accounting profit before tax. The independent variables to test hypotheses one to four are the payout ratio and franking percentage of dividends, risk of tax office scrutiny, share option remuneration paid to executives, and years, respectively.

In addition, previous research has shown that ETRs can vary with size, foreign operations, research and development expense, capital intensity,

profitability and industry. The analysis in this thesis includes the above variables to control for these known determinants of ETRs which are used as proxies for tax strategy.

5.3 Sample selection

Since corporate tax returns are confidential between the tax office and corporate taxpayers, the effects of dividend payout policy, tax office scrutiny, management remuneration based on share options, and tax rate falls on corporate tax strategy is tested using publicly available corporate financial reports. The sample comes from databases of large Australian listed companies with publicly available, annual, full financial statements. In particular, data was collected from annual reports of Australian companies listed on the ASX for the period 1999-2003 from the *Aspect* and *Connect4* databases. In total, 984 companies were identified from *Aspect* matching the condition of a market capitalisation of greater than $30 million. This cut-off represented 70% of listed companies and 99% of the total value of listed companies on the ASX. This initial list was compared with the *BRW* top 500 companies in 2003 to ensure inclusion in the sample of all major companies. The *BRW* top 500 covered the largest Australasian listed companies, by market capitalisation based on close of trade on April 11, 2003. This comparison resulted in only three additional companies being added, ensuring all *BRW* top 500 Australian companies were included in the sample.

Foreign companies were removed because only a small portion of their profits are subject to Australian tax. Residency is defined in section 6(1),

ITAA 1936 to include companies incorporated, or having their central management and control, in Australia. Resident companies pay Australian tax on income from worldwide sources and are entitled to foreign tax credits. Foreign companies only pay Australian tax on income sourced in Australia.

Listed trusts were also removed. Trusts are not taxpayers; trust income is taxed in the hands of beneficiaries or unit holders of the trust, under sections 95-102, *ITAA 1936*.

Companies reporting accounting losses in *all* years of the research period were also removed as tax is only paid on taxable income derived in any year. Losses can be carried forward and used to offset future taxable income, but cannot be carried backward and do not give rise to any refund of prior years' tax as in the US.

Data was missing for some companies because they were newly listed but had not operated for a full year and annual reports were absent.

This procedure resulted in 491 companies with data available for analysis. A summary of the procedure is shown in Table 5.1.

Table 5.1: Summary of sample selection criteria

	Number of companies
Companies identified from *Aspect* and *BRW*	987
Exclusions: Foreign companies	(80)
Trusts	(88)
Losses in all years	(288)
No data available	(40)
Number of companies remaining in the final sample	491

Company names and ASX codes of companies analysed in this thesis are included in Appendix C (pp. 201-210).

Data was not available for all these companies in all years as some were delisted or became new listings during the period. Others were subject to mergers and acquisitions. Deletions were made for years of no data and in years with accounting losses. (Loss companies were previously deleted from the sample if there were losses in *every* year.) Years of no tax expense were also deleted as this research is limited to companies with a tax liability in any of the five years of interest. The final sample after these adjustments includes 1669 company-year observations for the 491 companies.

The analysis includes three proxy measures of tax strategy. All tax strategy measures are based on variants of ETRs described in Chapter 3. The sub-sample using an ETR calculated (a) with total tax expense, consisted of 1669 observations, (b) with current tax expense, 1483 observations (as current tax expense is unable to be calculated for some years), and (c) with tax paid, 1457 observations (as tax paid in a year was not available for all years). These sub-samples were examined for extreme values and the tax

strategy variables trimmed at the high end. Very large ETRs can result mathematically because accounting profit can be relatively small in comparison to tax, due for example, to non-deductible expenses and losses. All three tax strategy measures with a value greater than or equal to two were eliminated from the sub-samples. The three sub-samples used in the analysis are presented in Table 5.2.

Table 5.2: Summary of sub-samples for each measure of tax strategy

	Total tax expense ETR (ETR1)	**Current tax expense ETR (ETR2)**	**Tax paid ETR (ETR3)**
Total observations in sub-sample	1669	1483	1457
ETR $\geq$ 2 discarded	53	91	108
Number of observations in sub-sample analysed	1616	1392	1349

The years covered in the analysis are 1999 to 2003, a period of tax rate changes. Only 150 companies (31% of the total) have observations in each of these years. However, company-year observations are relatively evenly distributed over the five year period. Table 5.3 shows the distribution of company-year observations in each year of the study.

Table 5.3: Frequency of observations by year

	Total tax expense ETR (ETR1)	Current tax expense ETR (ETR2)	Tax paid ETR (ETR3)
1999	307	255	256
2000	340	290	284
2001	329	284	270
2002	315	278	258
2003	325	285	281
Total number of company-year observations	1616	1392	1349

The restrictions described above limit the sample to those companies that derive taxable income in a full financial year and publish annual reports. The resulting sample represents listed large and profitable companies. The results of the empirical analysis must therefore be interpreted with this sample selection bias in mind.

5.4 Measurement of variables

5.4.1 Dependent variables

Tax strategy is not directly observable and is represented in this thesis by three variants of ETR expressed as a proportion of the STR. Since the STR changed over the sample period, and pooled observations are used, this relative measure allows tax strategy to be compared over the years of the sample period. Thus, the proxies for tax strategy are:

$$\text{Ratio 1} = \text{ETR1/STR} \quad (1)$$

where ETR1 = total tax expense/accounting profit before tax

$$\text{Ratio 2} = \text{ETR2/STR} \quad (2)$$

where ETR2 = current tax expense/accounting profit before tax

$$\text{Ratio 3} = \text{ETR3/STR} \quad (3)$$

where ETR3 = tax paid in any year/accounting profit before tax

and where STR = statutory tax rate in any year.

The first measure, Ratio 1, uses total tax expense ETR to highlight the effect of permanent differences between accounting profit and taxable income as a tax strategy. If there are no permanent differences, Ratio 1 equals unity. When Ratio 1 is lower (higher) than unity, accounting earnings are greater (smaller) than taxable income due to net positive (negative) permanent differences. A positive permanent difference is more valuable than a positive timing difference as tax is permanently avoided. A prior research study illustrates that permanent differences generate most of the aggressive tax strategies in the sample used (Wilson, 2009). The measure is also used in other ETR studies (Frank, Lynch & Rego, 2009; Tran & Yu, 2008; Yin, 2003; Tran & Porcano, 1997). However, it does not take into account deferring tax to the future. Therefore prior research also uses a measure reflecting both permanent and timing differences between accounting profit and taxable income.

Inclusion of deferral of tax expense to a future date leads to a second measure of tax strategy. Ratio 2 uses current tax expense ETR to measure the effect of timing differences, as well as permanent differences, between reported profit and taxable income. This measure is generally thought to be a more comprehensive measure of tax strategy as it includes both permanent and timing differences in tax strategy (Tran & Yu, 2008; Rego, 2003; Harris

& Feeny, 2003; Mills, Erickson & Maydew, 1998). A problem with this measure is that timing differences reverse over time and the measure may reflect earnings management rather than taxable income management. An ETR measure based on tax actually paid, rather than accrued tax expense, is therefore likely to provide additional insight.

This third measure has recently appeared in the literature. Dyreng, Hanlon & Maydew (2008) measure tax strategy using long term cash ETR, being sum of tax paid over a ten-year period divided by accounting profit before tax over the same period. It is argued that cash taxes paid annually is an imperfect measure of tax strategy because it includes tax paid for the previous year. This is because tax payments are lagged. Over long periods (5 to 10 years) however, tax paid will be better matched with the income it relates to with the distortion of time lags greatly reduced. It is therefore argued that this measure can be used to measure strategy in the long run. Because tax payments are lagged, tax paid *in* any year is not equal to the current tax liability due *for* that year. However, annual cash ETR using tax paid in a year can still proxy for tax strategy because companies can vary the amount of quarterly instalment payments based on their earnings estimation to generate the imputation credit they need to frank their dividends. Ratio 3, using cash ETR, thus provides a proxy for tax strategy supplementary to Ratio 1 and Ratio 2.

As the STR fell in two stages over the sample period, the ETRs in each year were divided by the appropriate STR to enable comparison across years. The STR varied between 36% and 30% over the study period. Where there

are small differences between accounting profit and taxable income, ETRs will approach the STR. If ETR is divided by STR in each year to ensure comparison, the ratio will approach unity. It therefore follows that if there are no permanent differences ETR1/STR will be 1. If there are no permanent and timing differences ETR2/STR will be 1. The larger the relative size of book-tax income differences the further away will the ratios depart from unity. A conservative tax strategy is identified as one where the ratios approach 1. The more aggressive the corporate tax strategy, the greater will be the gap that the ratios fall below 1. In other words, the smaller the ratio, the more aggressive is the tax strategy.

ETR1 is calculated by (tax expense + tax on abnormals)/ (pre-tax accounting profit + abnormals) provided from *Aspect* database. ETR1 is then divided by the appropriate STR in each year to give Ratio 1 as a proxy for tax strategy.

Current tax expense is a "may", rather than a "must" be disclosed in AASB1020: *Accounting for Income Tax (Tax-Effect Accounting)* and is not separately disclosed by all companies. Current tax expense, when not disclosed, can be estimated from disclosures of tax information in the financial statements. Current tax expense can be estimated by the difference between total tax expense (disclosed in the income statement) and deferred tax expense (brought to account as deferred tax assets and liabilities in the balance sheet). It can also be estimated as the amount brought to account in the current year in the current tax liability account (disclosed in the balance sheet). This account also changes during the year as tax paid/refunded is

brought to account. Tax paid/refunded is disclosed in the statement of cash flows. Calculations for current tax expense (CTE) are represented in equation form below:

CTE = Tax expense (in income statement) – Deferred tax expense (increase in net deferred tax liability in balance sheet) (4)

Where "increase in net deferred tax liability" = (non-current and current "provision for deferred income tax" - non-current and current "future income tax benefit") at current year end – the corresponding amount at prior year end;

CTE = Tax paid (in statement of cash flows) + Increase in net current tax liability (in balance sheet) (5)

Where "increase in net current tax liability" = (current tax liability - current tax asset) at current year end - (current tax liability - current tax asset) at prior year end.

Conceptually, equations (4) and (5) should hold, but in practice they may not because of subsequent adjustments to prior year current and deferred tax liabilities and assets at tax return time (some months after release of prior year financial reports).

For the sample period current tax expense was disclosed for only 43% of data. Current tax expense was calculated using both the equations above and matched with disclosed current tax expense for a random sample of 79 companies. The correlation coefficient for equation (4) was 23% compared with 88% for equation (5). Equation (5) was therefore used to calculate current tax expense where unreported. Results of these calculations were

matched with actual current tax expense where disclosed (627 observations). The results of statistical analyses are that the estimate is very closely correlated with a correlation coefficient greater than 96% and the differences are not statistically significant using the paired-sample t-test. This gives confidence that equation (5) is a reliable estimate of current tax expense.

In summary, ETR2 was calculated using current tax expense disclosed in the tax note of annual reports or equation (5) above. ETR2 was then divided by the statutory rate in each year to give the second ratio measure of tax strategy.

ETR3 was calculated using tax paid divided by (pre-tax accounting profit + abnormals) provided from *Aspect* data. From 1 July 2000 the PAYG instalment system replaced the company tax instalment system (*Taxation Administration Act 1953* Sch1 Pt 2-10 Div 45). Under both instalment systems, large companies pay tax instalments quarterly for any year in October, January, April and July. Each quarterly payment represents an estimated or notional amount of the tax liability for that year. In annual reports, disclosed tax paid includes three quarterly instalments of current year tax, one quarterly instalment relating to the previous year, and the final balance for the previous year. This means the tax paid element of ETR3 is an inexact measure of tax paid *for* the current accounting period. However, where income is relatively stable from year to year the inexactness diminishes. ETR3 was then divided by the STR in each year to give the third ratio measure of tax strategy.

Data was deleted in years when the ETR was zero or negative. If the ETR was zero, companies had used past losses to eliminate any tax liability arising from reported earnings in the current year. If ETR was negative, accounting earnings were positive (negative) and were close to zero but tax expense was negative (positive) due to permanent and/or timing differences. Negative ETRs are meaningless. Tax is assessed on an annual basis and this analysis is limited to companies having reported earnings and a tax liability in any year.

The three tax strategy variables described above reflect the complexity of measurement when tax return information is confidential and financial statement tax disclosures are used to impute it. Each of these three dependent variables uses a different aspect of tax liability (total tax expense, current tax expense, or tax paid) and all inform about the tax strategy of companies.

5.4.2 Independent variables

5.4.2.1 Dividend payout and franking percentage

Hypothesis H1 predicts companies distributing franked dividends will have tax strategies significantly different from companies distributing unfranked dividends or not distributing dividends. Companies distributing fully franked dividends are expected to have a more conservative tax strategy indicated by a positive relation with the dependent variable. These companies have paid tax and will pass this on as tax credits to shareholders. There are two relevant factors in testing this hypothesis: the extent of

distribution of profit and the extent to which the dividends are franked. Dividend payout ratio and level of franking are included as variables. However, it is the combined effect (interaction) of these two variables that is predicted to have an unambiguous effect on tax strategy. An interaction variable of franking percentage multiplied by the payout ratio is therefore used to test the hypothesis. It is only companies distributing relatively high proportion of earnings in the form of fully franked dividends that are expected to have more conservative tax strategies.

Table 5.4 outlines the 2 x 2 possible combinations of payout ratio and franking percentage and the expected impact on tax strategy.

Table 5.4: Payout ratio and franking combinations

	High payout ratio	**Low payout ratio**
High franking	Conservative tax strategy	Aggressive tax strategy
Low franking	Aggressive tax strategy	Aggressive tax strategy

Companies that distribute relatively high proportion of earnings as dividends that are fully franked must have paid tax on earnings to generate imputation credits to do so. Managers in these companies must have maximised profit before-tax and have pursued conservative tax strategies. Companies that have low payout ratios and/or low percentage of franking their dividends have not paid sufficient tax on profits to pass on to shareholders. Managers are likely to have pursued relatively more aggressive tax strategies. Table 5.4 also shows that payout ratio and franking percentage must be considered together (hence the interaction

term) to make meaningful prediction about tax strategy. Payout ratio and franking percentage considered separately can have a positive or negative relation with tax strategy.

Payout ratio and franking percentage are available in the dividend note in annual reports. If there is no dividend, the combined effect will be 0, the same as if the dividend is unfranked. Data for the interaction variable payout ratio multiplied by dividend percentage was collected directly from *Aspect*. Payout ratios of greater than 100% were recorded as 100% following Wilkinson, Cahan & Jones (2001).

5.4.2.2 Tax office scrutiny

Annual report data, based on consolidated data for a corporate group, are used for this research. Large business has been described by the Tax Commissioner as "broadly corporate groups with a turnover exceeding $100 million" (Carmody, 2005, p.1). Large businesses are subject to close scrutiny by the tax office. An indicator variable is used to test hypothesis H2. If gross revenue is greater than $100 million this variable has a value of 1, otherwise variable takes a value of zero. Gross revenue was directly downloaded from *Aspect*.

5.4.2.3 Executive remuneration

Hypothesis H3 tests the validity of findings in prior US research of a connection between executive remuneration in the form of share options and aggressive tax avoidance. It is predicted that in a dividend imputation environment prior research findings based on data from a classical system

do not hold. If an option to buy shares in the future at a specified price forms part of executive remuneration, managers have incentives to maximise future share price. Share price should equal the present value of the stream of future dividends plus the expected selling price when shares are sold. Because dividends and future capital gains depend on earnings, the price-earnings ratio is used to value shares. Under a classical system, tax is a cost and earnings after tax is used for share valuation. Managers therefore have incentives to pursue aggressive tax strategies to maximise earnings after tax. Under a dividend imputation system, franked dividends and imputation credit are valued by shareholders, so there is no reason why investors do not use profit before tax in share valuation. Hypothesis H3 predicts that in a dividend imputation system, when managers are remunerated with share options, they maximise profit before tax, pay corporate tax as required by laws to frank dividends, and are therefore unlikely to pursue an aggressive tax strategy as under a classical system. Shareholders are willing to pay a higher price for shares in a company that pays franked dividends out of taxed earnings, so managers have incentives to adopt conservative tax strategies if remunerated with share options.

Disclosures in annual reports (including directors' report, notes to financial statements and corporate governance report) do not always disclose the proportion of share options in management remuneration. Given this lack of information, an indicator variable was used for executive remuneration, based on information disclosed in each annual report. This variable takes a value of 1 if share options form part of the remuneration package of executives. Otherwise, the indicator variable takes the value of 0. This

indicator variable was used to test Hypothesis H3. Data on executive remuneration was hand collected by examining annual reports in *Connect4* and *Aspect* company databases.

5.4.2.4 Years preceding tax rate falls

An indicator variable for each sample year (excluding the first year 1998/1999) is used to test hypothesis H4. Data for all variables was collected for the five years 1998/1999 to 2002/2003. Hypothesis 4 predicts that in a dividend imputation system, managers did not adopt an aggressive tax strategy in the years preceding a fall in the STR. Although the tax rate fell in the years 2001 and 2002 the prediction is that managers are unlikely to engage in management of current accruals to save tax in 2000 and 2001 as observed under a classical system.

	STR	**YEAR**
1999/2000	36%	before tax rate fall
2000/2001	34%	tax rate fall and before further tax rate fall
2001/2002	30%	tax rate fall

Indicator variables for years 2000, 2001, 2002 and 2003 are used. The 1999 year is the base year to be compared with the other years. If managers engage in aggressive tax strategies to reap windfall tax savings from the tax rate falls, a negative relation between tax strategy and the indicator variables for 2000 and 2001 would result compared to the base year. However,

Hypothesis H4 predicts a non-negative relation between tax strategy and the year indicator variables for 2000 and 2001.

A complication in data collection is that tax is assessed on a 1 July to 30 June financial year basis and companies may have annual report dates that do not match. With the Tax Commissioner's permission, a substituted accounting period may be adopted (section 18, *ITAA1936*). If the accounting period ends on or before 30 November, it substitutes for the year ending on the previous 30 June. If the accounting period ends after 30 November, tax is paid at the STR for the year ending on the following 30 June. The databases used for data collection classify annual reports on a calendar basis. This means an annual report classified for 2003 may have a 2004 tax year if its substituted accounting period ends on 31 December. There are a significant number of companies (12% of total sample companies) where this occurs and it was important in this study to ensure data was collected and classified into the appropriate year. This necessitated data being collected for the 1997-98 year for those companies with a substituted accounting period ending on 31 December. Companies with substituted accounting periods are listed in Appendix D (pp. 211-212).

5.4.3 Control variables

As discussed in Chapter 2, a number of factors have been found from prior research to explain variation in ETRs. These variables therefore need to be included in any test of the hypotheses outlined in this thesis to explain variation in ETRs not explained by the hypotheses.

5.4.3.1 Size and foreign operations

There is a competing argument that mitigates the effect of ATO scrutiny imposed on large companies implicit in hypothesis H2. Large companies have greater opportunities to be tax strategic. Prior research finds companies that are larger and more profitable have more resources available for tax consulting services (Mills, Erickson & Maydew, 1998). These companies can invest more heavily in tax consulting services and have lower ETRs.

Similarly, companies operating globally have greater opportunities to arrange transactions between related parties in different countries resulting in favourable tax outcomes. There is evidence from prior research that companies with extensive foreign operations, have lower ETRs (Rego, 2003).

Given the above, it is important to control for both foreign operations and size of companies. Results from previous studies, presented in Table 5.5 below, indicate a positive, negative or no significant relation between size and ETRs, although Australian research suggests a negative relation between large companies and ETRs. This is explained by the fact that larger companies have greater access to resources to invest in tax-favoured investment (Tran & Porcano, 1997; Tran & Yu, 2008).

Table 5.5: Summary of previous research documenting a relation between ETR and company size

Study	Country	Proxies for Size	Result
Stickney and McGee (1982)	US	Sales, total assets	No relation with ETR
Zimmerman (1983)	US	Sales	50 companies with highest sales had higher ETR than others
Gupta and Newberry (1997)	US	Log total assets	Mixed results, both positive and negative relations with ETR in different time periods
Holland (1998)	UK	Sales, Assets	Mixed results, size effects confounded with industry and political costs
Wilkinson, Cahan and Jones (2001)	New Zealand (only 37 companies)	Log total assets	No significant results with ETR
Harris and Feeny (2003)	Australia	Log total assets	Negative relation with ETR
Tran and Porcano (1997); Tran and Yu (2008)	Australia	Total assets, profit	Negative relation with ETR

Size is variously measured by total assets, gross income or sales and market capitalisation. Australian studies have used total assets. In this study total assets are used as a size variable as total revenue is used in other another variable (indicator variable for tax office scrutiny). Data was directly downloaded from *Aspect* for total assets. Total assets were transformed by natural log to reduce the potential impact of extreme values on the analysis.

Some researchers argue that the extent of foreign operations is potentially correlated with size and exclude it from analysis (Gupta & Newberry, 1997). This is surprising given the complexity of international taxation.

Global tax rates vary such that some will be greater or less than domestic rates and will depend on whether there is a double tax agreement between countries. Additionally, the transfer pricing arrangements in place are often flexible or uncertain. Controlling for foreign operations is an attempt to isolate the effect on ETR from size in general. Results from previous research have been mixed. Stickney and McGee (1982) find no significant association. Harris and Feeny (2003) use the ratio of net foreign income and total income to measure extent of foreign operations. There is a significant negative association in two of the four years of their study, suggesting companies may use foreign operations to lower their domestic ETRs.

Tax havens are estimated to hold 26% of the world's financial assets. US companies are estimated to keep 30% of their profits there. The ATO estimates that $5 billion flowed from Australia to 41 designated tax havens in 2001/2002 (Carmody, 2005). Companies may not necessarily operate globally to reduce tax but foreign operations give opportunities to do so. Given the investment of the tax office in controlling transfer pricing arrangements, controlling for foreign operations is likely to prove insightful.

Companies deriving foreign income are likely to pay foreign tax. This means insufficient Australian tax credit can be imputed with dividends. Including a variable for foreign operations may therefore also affect predictions in hypothesis H1. Companies with relatively large foreign income are less likely to distribute fully franked dividends and are therefore more likely to pursue an aggressive tax strategy.

The extent of foreign operations is measured by foreign sales, foreign assets or foreign profit. These three types of disclosures are those outlined in AASB1005*: Segment Reporting* and are found in the segment note in the annual report. The current applicable accounting standard for segment reporting is AASB114 *Segment Reporting* but AASB1005 was the accounting standard for the years of data collection. Segment data discloses information about geographical and business segments with more information disclosed for the primary segment. For those companies where the geographical segment is the secondary, rather than the primary segment, data collection is limited.

In prior studies foreign operations has been indicated by the ratio of foreign income to total income (Stickney & McGee, 1982 and Harris & Feeny, 2003). An indicator variable for foreign assets or foreign income is used by Rego (2003). Although it is profit that is taxed, rather than income, foreign income indicates extent of operations so a ratio of foreign income compared to total gross income was constructed from the segment note in annual reports in both *Aspect* and *Connect4* databases.

5.4.3.2 Research and development

Companies engaged in research and development (R&D) are given favourable treatment in tax law and given accounting policy choices under accounting standards. Expenditure on R&D can be both a permanent difference and/or a timing difference in the reconciliation of accounting

profit and taxable income. R&D is controlled for in testing hypotheses in this thesis as not all companies were engaged in R&D.

Preferential tax treatment is granted to companies under section 73B "Certain expenditure on research and development activities" of *ITAA1936*. Specifically subsection 73B(13) states that … "the amount of that expenditure multiplied by 1.25 is an allowable deduction to the company for the year of income". Companies using this provision will have a permanent difference of 25% of eligible R&D tax deductions in their tax reconciliation, reducing their tax expense.

Expenditure on R&D may also lead to a timing difference for tax purposes. Since 1983, Australia has had an accounting standard on R&D that differentiates expenditure on research and expenditure on development. While research is expensed, development may be capitalised as an intangible asset, and amortised "to the extent that such costs……are expected beyond any reasonable doubt to be recoverable" (AASB 1011 para.31). With the adoption of International Accounting Standards from 1 January 2005, the Australian accounting standard on R&D has been subsumed into *AASB 138 'Intangible Assets'*. However, *AASB 1011: Accounting for Research and Development Costs* was the applicable standard during the period of this study. The capitalisation method, allowed when R&D expenditure is judged to be beyond reasonable doubt of being recouped, results in a timing difference.

When development expenditure is expensed for tax purposes and capitalised for accounting purposes, a timing difference arises because tax expense is deferred. This deferral will be reversed over the expected life of the intangible asset (development costs). The effect of any permanent or timing differences arising from R&D expenditure on the ETRs of companies is therefore controlled for.

The only prior study using R&D as a separate explanatory variable predicted and confirmed that R&D has a significant negative association with ETR (Harris & Feeny, 2003). This is expected since R&D is a directly deductible permanent difference. Harris and Feeny (2003) used the ratio of R&D expense to total income as an indicator variable of R&D investment. They had access to this data because they used tax returns as their data source. In this study annual reports are the source of data. As 25% of R&D is a permanent difference, where this is disclosed as a material item in the tax note in annual reports, it is possible to gross this up to 100% and use the ratio of R&D expenditure to total revenue/income as a proxy variable for this type of investment. Data were hand collected from the income tax note in annual reports from the *Aspect* and *Connect4* data bases. Where disclosed as a permanent difference, the tax-effected amount was used to calculate the R&D expense using the formula below.

R&D expense = Tax effect of R&D permanent difference ÷ 25% (to gross up to 100%) ÷ STR (to convert from tax amount to expense amount) (6)

A ratio of R&D expense divided by total revenue was included as a variable to proxy for investment in research and development.

5.4.3.3 Capital intensity

Several prior research studies control for the effects of capital intensity, or company investment in non-current depreciable assets. The reducing balance method, results in greater tax deductions in earlier years of asset use compared to the straight-line depreciation method (both are available in tax law). To maximize the present value of tax depreciation deductions, most taxpayers adopt the reducing balance method for tax purposes, while adopting the straight-line method for accounting depreciation. This results in a timing difference between accounting earnings and taxable income.

During the economic recession in the early 1990s, accelerated tax depreciation rates were introduced in Australia in 1992 to encourage investment in capital assets and their timely replacement when new technology and growth opportunities presented themselves. For example, plant with an effective life less than three years could be expensed immediately for tax purposes; plant with an effective life between three and fewer than five years could be depreciated at a straight-line rate of 40 percent, or a reducing balance rate of 60 percent. Accelerated tax depreciation increased the timing differences between accounting earnings and taxable income. However, the generous accelerated tax depreciation did not apply to assets acquired after 21 September 1999 following amendments to tax legislation.

When depreciable assets are written off using an accelerated rate and the reducing balance method for tax purposes and a normal straight line rate for accounting purposes, timing differences will mean tax liability is deferred to future periods, reversing over the effective life of the asset. The effect of this timing difference needs to be controlled for since the degree of capital intensity varies across companies.

Gupta and Newberry (1997) and Harris and Feeny (2003) find strong support for a negative association between capital intensity and ETR. Company investment in capital intensive assets can be indicated by the expense or asset aspect. Both have been used in prior studies. Harris and Feeny (2003), with access to tax return data used the ratio of depreciation deductions to total income. Gupta and Newberry (1997) used data from financial statements and proxy capital intensity by the ratio of net property, plant and equipment to total assets. This thesis uses the second alternative. Property, plant and equipment (PP&E) net of accumulated depreciation was collected from *Aspect*. A ratio of PP&E to total assets was then calculated for a variable that proxies capital intensity.

5.4.3.4 Industry

Further tax deductions for capital allowances are available for particular activities in particular industries. The R&D deduction is one example. Others are for primary producers and other landholders (subdivision 40-G), gold mining (s159GZZG-159GZZZBI), uranium mining (s23D), mining and exploration (subdivision 40-H) and capital works (Division 43). This suggests that different industries may have different ETRs because they can

take advantage of tax deduction for capital expenditure. Where accounting and tax treatment differ, this difference is exacerbated.

Stickney and McGee (1982) found tentative support for the hypothesis that natural resource involvement led to lower ETRs. The mining and exploration industry is a large sector of Australia's capital market. Australia has a specific accounting standard AASB1022*: Accounting for the Extraction Industries* for the sector. Although this standard was replaced by AASB 6 *Exploration for and Evaluation of Mineral Resources* in December 2004, both standards allow exploration and evaluation costs to be capitalised to future periods, rather than immediately written off. Although a sizeable number of mining companies were originally downloaded, they have largely been eliminated from the analysis because they are loss companies or because they have used past tax losses to eliminate any tax liability. In addition, exploration is not a large part of consolidated results for large diversified companies. For these reasons, the mining industry is not singled out as an industry to control for.

Tran and Porcano (1997) and Tran and Yu (2008) found that investment and financial services companies had ETRs significantly lower than companies in other industries. The reasons driving their results were not favoured tax deductions but income exemptions. The two main sources of income of investment and financial services companies are dividends and capital gains. Capital gains on investments purchased prior to 20 September 1985 (the day on which capital gains tax was introduced) were exempt from income tax. For investments acquired between 20 September 1985 and 21 September

1999 (the day after which indexation of cost base was abolished), capital gains were taxed in a concessional way due to indexation of cost base in computing capital gains.

The dividend rebate (s46 *ITAA1936*) available for company to company dividends until September 1999 exempted dividend income of investment companies. After this date, dividend income received by companies follows dividend imputation rules formerly applying only to individual taxpayers. Receipts of franked dividend income by companies remain tax-free when dividends are fully franked. Companies where franked dividend income forms a substantial part of income are classified in the "diversified financials" subgroup of the financial classification in the *Aspect* data base. This subgroup is likely to receive exempt income. This was the only industry controlled for by using an indicator variable taking the value of 1 if the company is a diversified financial or 0 if not. It is predicted that companies classified as diversified financials will have a negative association with the dependent variables as they derive tax exempt income.

5.4.3.5 Profitability

Reconciliation items (permanent differences) do explain differences in ETRs across companies. However, Wilkie (1988) predicted that the level of income was a confounding factor when "tax preferences", as he called reconciliation items, were not perfectly correlated with income. Where tax preferences are not proportionally related to accounting profit, ETR can change simply because accounting profit changes. This is because tax

preferences become relatively smaller as income increases so the numerator increases relatively more than the denominator of ETR.

Empirical results show that both income level and tax preferences must be taken into account when measuring the variability in ETRs. When tax preferences are held constant and profitability increases, the ETR will also increase. Since this work, studies of ETR have included a measure of profitability.

Gupta and Newberry (1997), Wilkinson, Cahan & Jones (2001) and Harris and Feeny (2003) all find the predicted positive association between return on assets and ETRs. Following this prior research, profitability is included as a control variable in this thesis.

Profitability of companies is controlled for using the return on assets ratio (ROA), that is, profit before interest and tax divided by total assets. This ratio indicates the profit generated from assets employed and has been used in all the above studies to control for profitability. The ROA ratio was downloaded from the *Aspect* data base.

5.5 Regression model

To test the hypotheses, I estimate the following OLS regression equations:

$$ETR1/STR = \beta_0 + \beta_1 FR + \beta_2 PO + \beta_3 FR*PO + \beta_4 ATO + \beta_5 REM + \beta_{6-9} YEAR + \beta_{10} SIZE + \beta_{11} FOR + \beta_{12} R\&D + \beta_{13} CAP + \beta_{14} DF + \beta_{15} ROA + \varepsilon$$

$$ETR2/STR = \beta_0 + \beta_1 FR + \beta_2 PO + \beta_3 FR*PO + \beta_4 ATO + \beta_5 REM + \beta_{6-9} YEAR + \beta_{10} SIZE + \beta_{11} FOR + \beta_{12} R\&D + \beta_{13} CAP + \beta_{14} DF + \beta_{15} ROA + \varepsilon$$

$$ETR3/STR = \beta_0 + \beta_1 FR + \beta_2 PO + \beta_3 FR*PO + \beta_4 ATO + \beta_5 REM + \beta_{6-9} YEAR + \beta_{10} SIZE + \beta_{11} FOR + \beta_{12} R\&D + \beta_{13} CAP + \beta_{14} DF + \beta_{15} ROA + \varepsilon$$

Where:

ETR1	= Total tax expense / Pre-tax accounting profit
ETR2	= Current tax expense / Pre-tax accounting profit
ETR3	= Tax paid / Pre-tax accounting profit
STR	= Statutory tax rate
FR	= Franking percentage of dividends
PO	= Payout ratio (dividends per share/earnings per share)
FR*PO	= Product of franking percentage of dividends and payout ratio
ATO	= 1 if total revenue > $100 million, or 0 if not
REM	= 1 if management remunerations include share options, or 0 if not
YEAR	= 1 for each year 2000, 2001, 2002, 2003 respectively, or 0 if not
SIZE	= Logarithm of total assets
FOR	= Foreign revenue/ Total revenue
R&D	= Research and development expenditure/Total revenue
CAP	= Net property, plant and equipment/ Total assets

DF = 1 if diversified financial industry, or 0 if not

ROA = Earnings before interest and tax/ Total assets

Each of the three regression models has a *different* dependent variable, being a variant of ETR. All dependent variables are proxies for tax strategy. All three regression models have the *same* independent variables, representing aspects expected to be associated with variations in tax strategy. In particular, the hypotheses predict that under a dividend imputation system, companies distributing fully franked dividends that are at risk of tax office close scrutiny, and have managers in receipt of share option remuneration, are more likely to adopt conservative tax strategy even in a period of tax rate falls. Hence, the signs of the regression coefficients for the main explanatory variables are predicted to be positive. As for the control variables, a negative relation is predicted between tax strategy and companies that are large in size measured in terms of total assets, that have foreign operations, that receive R&D tax concessions, that have substantial depreciable asset investments and that receive substantial exempt income. A positive relation is predicted between tax strategy and company profitability.

5.6 Summary

Chapter 5 describes the empirical research method undertaken to test the four hypotheses predicting tax strategy of Australian companies during a five-year period that involved two reductions in STR. This chapter includes a description of the sample of large, listed companies collected, the ordinary least squares models of tax strategy and its determinants and the

measurement of variables selected and used in the regression equations. The three dependent variables are ratios of three ETR measures and the STR. The independent variables consist of measures to test the four hypothesised predictions of tax strategies, and control variables shown to be associated with ETRs in prior research studies. Chapter 6 provides results of the analysis using the models and data described herein.

CHAPTER 6 – RESULTS

6.1 Introduction

This chapter reports the results of multiple regression analysis used to predict tax strategy of Australian companies using the independent variables described in Chapter 5. The statistical software package *SPSS* (Version 16.0) was used to undertake the analysis. The sample company-year observations were collected into three separate sub-samples matching the three dependent variables used as proxies for tax strategy (total tax expense ETR, current tax expense ETR and tax paid ETR). Descriptive statistics for the three sub-samples are presented and discussed. Output from the statistical package for each sub-sample indicates that assumptions of the regression model are largely met and that multicollinearity between the independent variables does not limit the reliability of results.

Regression results suggest that all four hypotheses are strongly supported. In particular, results indicate that under a dividend imputation system, companies distributing franked dividends have conservative tax strategies and that close scrutiny by the ATO is effective. The results also suggest that unlike a classical system, when managers are remunerated with share options in a dividend imputation system, tax strategies are not aggressive. In addition, in a period of tax rate reductions, managers of Australian companies do not engage in aggressive tax strategies to reap windfall tax savings. Some results of prior research are also confirmed in the analysis. In particular, large companies, research and development investors and companies classified in the diversified financials industry sector are able to

use concessional tax provisions resulting in lower ETRs. The chapter ends with a brief summary.

6.2 Descriptive statistics

This section of the chapter presents and discusses the descriptive statistics of the continuous and dichotomous variables constructed for the three dependent and fifteen independent variables used in the regression equations. The continuous variables are the dependent variables and eight independent variables. These include franking percentage, payout ratio, interaction of franking percentage and payout ratio, size, foreign operations, research and development expenditure, capital intensity and profitability. Statistics collected for these continuous variables are the minimum and maximum values, the mean and median, the standard deviation, skewness and kurtosis.

There are seven dichotomous variables, namely tax office scrutiny, remuneration type, diversified financial industry classification, and four indicator variables for years. Frequency tables for these variables show the numbers of company observations that take the value of 1 or 0. The year variables show the number of observations in each of the five years included in the analysis.

Descriptive statistics for the continuous and dichotomous variables for the three sub-samples are presented in Tables 6.1, 6.2 and 6.3.

Table 6.1:
Descriptive statistics – Ratio 1 (Total tax expense ETR) sub-sample
(a) Continuous variables

Data Item	N	Min	Max	Mean	Median	Standard Deviation	Skewness	Kurtosis
ETR1/STR	1616	0.00	1.99	0.89	0.97	0.34	-0.56	0.91
FR	1616	0.00	1.00	0.77	1.00	0.40	-1.26	-0.28
PO	1616	0.00	1.00	0.56	0.60	0.32	-0.41	-0.87
FR*PO	1616	0.00	1.00	0.51	0.55	0.34	-0.20	-1.18
SIZE (log)	1616	14.40	26.71	19.35	18.99	1.99	0.81	0.88
FOR	1616	0.00	1.00	0.13	0.00	0.25	2.05	3.32
R&D	1616	0.00	0.31	0.01	0.00	0.02	7.21	62.68
CAP	1616	0.00	0.97	0.28	0.26	0.22	0.60	-0.31
ROA	1616	0.00	0.67	0.09	0.07	0.07	2.95	14.02

(b) Dichotomous variables

Variable	Code	Frequency	Percent
ATO	1	955	59.1
	0	661	40.9
REM	1	1194	73.9
	0	422	26.1
DF	1	168	10.4
	0	1448	89.6
YEAR	1999	307	19.0
	2000	340	21.0
	2001	329	20.4
	2002	315	19.5
	2003	325	20.1

ETR1/STR is defined as total tax expense ETR divided by the STR. *FR* is franking percentage of dividends. *PO* is payout ratio, i.e., dividends per share/earnings per share, *SIZE* is log of total assets. *FOR* is foreign revenue/total revenue. *R&D* is research and development expenditure/total revenue. *CAP* is net property, plant and equipment/total assets. *ROA* is earnings before interest and tax/total assets. *ATO* is a dummy variable taking the value of 1 if total revenue > $100 million, *REM* is a dummy variable taking the value of 1 if management remuneration includes share options; and *DF* is a dummy variable taking the value of 1 if in the company is in the diversified financial industry.

6.2.1 Ratio 1 sub-sample

Table 6.1 shows the descriptive statistics for the Ratio 1 sub-sample. The dependent variable was trimmed so that values ranged between zero and 2, with a mean of 0.89. Extreme values are excluded to reduce the impact of uncharacteristic calculations of ETRs on the distribution. Most values are close to 1, the value that results if a company's ETR equals the STR. The median is closer to this value at 0.97. The distribution is highly peaked as shown by the kurtosis statistic and negatively skewed. This is not uncommon when business information is used. The sample consists of large, public, tax paying companies. It is expected that a majority would have ETRs less than the STR and also that this majority would not have large ETR variation between them.

Observations representing the level of dividend franking, extent of foreign operations and R&D expenditure have unusual distributions. For these variables there are large clusters at the minimum and/or maximum values and a spattering of values in between these extremes. Most companies distribute fully franked dividends. Most do not have foreign operations and for companies that do, foreign revenue is a relatively small proportion of their total revenue. The majority of companies also do not have expenditure for research and development. For these variables the skewness and kurtosis statistics reflect these characteristics. The variables are all ratio measures between 0 and 1 and transformation does not spread their values as the range is so small.

Values for the payout ratio show similar clustering at their extreme values of 0 and 1, with more distributing no dividends than distributing all profits. Mean dividend payout ratio is 56% with median higher at 60%. However, the range of values is denser than the franking percentage variable, reflected in the kurtosis statistic and is negatively skewed. The interaction variable between franking percentage and payout ratio generates a slightly lower mean and median than the payout ratio, reflecting the extreme values of franking percentage.

The size variable is a log transformation of total assets. Descriptive statistics for raw total assets indicate dense clustering at a very high point and flat, right skewed histogram. Total asset values range from a minimum of $1.7 million to a maximum of $397,471 million, with a mean of $4,626 million and a median of $178 million. A log transformation gives a more even distribution of data, although still pointy. This is expected for this sample of large companies.

Capital intensity is a ratio measure. The variable has a minimum of zero reflecting companies with no net investment in property, plant and equipment. The maximum is 0.97 and the mean 0.28. The distribution is positively skewed and flat.

Return on assets (ROA) is also a ratio measure with a minimum of 0 for unprofitable companies and a maximum of 0.67. The mean return on assets is 8.8%. The distribution is positively skewed but peaked, with high numbers of profitable companies with relatively small returns on assets.

The frequency table for dichotomous variables shows 59% of sample observations are under tax office scrutiny and 73.9% remunerate their managers with share options. Only 10.4% of the sample is classified as diversified financials. There is a relatively even spread of observations across the five years.

Table 6.2:
Descriptive statistics – Ratio 2 (Current tax expense ETR) sub-sample
(a) Continuous variables

Data Item	N	Min	Max	Mean	Median	Standard Deviation	Skewness	Kurtosis
ETR2/STR	1392	0.00	1.99	0.84	0.89	0.42	-0.04	-0.27
FR	1392	0.00	1.00	0.81	1.00	0.37	-1.58	0.71
PO	1392	0.00	1.00	0.58	0.62	0.30	-0.51	-0.60
FR*PO	1392	0.00	1.00	0.54	0.58	0.32	-0.31	-0.99
SIZE (log)	1392	15.00	26.71	19.44	19.06	2.02	0.84	0.77
FOR	1392	0.00	1.00	0.13	0.00	0.24	1.99	3.12
R&D	1392	0.00	0.31	0.00	0.00	0.02	7.70	74.96
CAP	1392	0.00	0.97	0.28	0.26	0.22	0.61	-0.18
ROA	1392	0.00	0.67	0.09	0.07	0.07	3.06	15.04

(b) Dichotomous variables

Variable	Code	Frequency	Percent
ATO	1	847	60.8
	0	545	39.2
REM	1	1029	73.9
	0	363	26.1
DF	1	148	10.6
	0	1244	89.4
YEAR	1999	255	18.3
	2000	290	20.8
	2001	284	20.4
	2002	278	20.0
	2003	285	20.5

ETR2/STR is defined as current tax expense ETR divided by the STR. All other variables are as defined in Table 6.1.

6.2.2 Ratio 2 sub-sample

Descriptive statistics for the sub-sample with Ratio 2 as the dependent variable are presented in Table 6.2. This dependent variable was also trimmed so that values ranged between a minimum of zero and maximum of 1.99. The mean is 0.84 and the median 0.89. Both these statistics are further away from 1 than mean and median of Ratio 1, indicating a current ETR further away from the STR. Both permanent and timing differences between tax and accounting income are taken into account with this dependent variable and this explains the differences. Strategies that defer tax to the future reduce present current ETRs. The distribution is only very slightly negatively skewed and is peaked but not as much as Ratio 1. The spread of observations is also more evenly distributed.

The same independent variables were used in this sub-sample and descriptive statistics for the independent variables are similar. They vary only because there are a slightly reduced number of observations (1392 compared with 1616).

6.2.3 Ratio 3 sub-sample

The third sub-sample uses tax paid ETR as the dependent variable. The descriptive statistics for Ratio 3 presented in Table 6.3 show a mean of 0.78 and median of 0.78. As tax paid in a year consists of tax paid (first three quarterly instalments) for the current year and tax paid (the fourth quarterly instalment and the final balance) for the previous year, there is a larger average gap between Ratio 3 and one, compared to Ratio 1 and Ratio 2. This indicates that earnings increased over time during the study period. The

distribution has a slight positive skew and is relatively unpeaked compared to Ratio 1. All independent variables regressed were the same as the two sub-samples discussed above. The descriptive statistics shown in Table 6.3 for these independent variables vary only because there are a reduced number of observations compared with the other two dependent variables (1349 compared with 1392 for Ratio 2 and 1616 for Ratio 1).

Table 6.3:
Descriptive statistics – Ratio 3 (Tax paid ETR) sub-sample
(a) Continuous variables

Data Item	N	Min	Max	Mean	Median	Standard Deviation	Skewness	Kurtosis
ETR3/STR	1349	0.00	1.99	0.78	0.78	0.47	0.31	-0.52
FR	1349	0.00	1.00	0.82	1.00	0.36	-1.66	1.00
PO	1349	0.00	1.00	0.59	0.62	0.30	-0.52	-0.54
FR*PO	1349	0.00	1.00	0.54	0.58	0.32	-0.32	-0.94
SIZE (log)	1349	15.00	26.71	19.53	19.22	2.02	0.79	0.75
FOR	1349	0.00	1.00	0.14	0.00	0.25	1.90	2.74
R&D	1349	0.00	0.31	0.00	0.00	0.02	7.90	78.09
CAP	1349	0.00	0.97	0.27	0.25	0.22	0.61	-0.21
ROA	1349	0.00	0.67	0.09	0.07	0.07	3.10	15.60

(b) Dichotomous variables

Variable	Code	Frequency	Percent
ATO	1	846	62.7
	0	503	37.3
REM	1	1004	74.4
	0	345	25.6
DF	1	135	10
	0	1214	90
YEAR	1999	256	19.0
	2000	284	21.1
	2001	270	20.0
	2002	258	19.1
	2003	281	20.8

ETR3/STR is defined as tax paid ETR divided by the STR.
All other variables are as defined in Table 6.1.

In summary, examining descriptive statistics for the three dependent variable sub-samples disclosed in Tables 6.1, 6.2 and 6.3, gives confidence that there are no unexpected measurements of variables for the sample of large profitable companies.

6.3 Multicollinearity

Regression analysis tests whether there is correlation between the dependent variable and any or all of the independent variables. If any of the independent variables are highly correlated with each other this may prevent some of the correlated independent variables from having statistically significant regression coefficients. Regression analysis may therefore give an unreliable result. Pearson correlation coefficients between variables in the model with Ratio 1 as dependent variable is shown in Table 6.4.

The interaction term (franking percentage * payout ratio) has high correlation with the franking percentage and the payout ratio with a Pearson correlation coefficient of 0.790 and 0.896 respectively. Critics speculate that this may affect the quality of the coefficients in a regression model (Friedrich, 1982). Correlations above 0.80 or 0.90 are thought to be high (Field, 2009). However, regression assumptions suggest that it is only when there is perfect collinearity that the model estimation is unable to produce results. Franking percentage and payout ratio have significant correlation (0.631) suggesting that companies distributing a high proportion of their earnings as dividends tend to frank their dividends. The variables ATO and SIZE have a correlation coefficient of 0.613 because the tax office scrutiny variable is based on gross revenue which is correlated with total assets as

both are measures of size. None of the significant Pearson correlation coefficients show high levels of correlation between other independent variables.

Spearman's correlation coefficient is a non-parametric correlation. Since some of the independent variables were categorical, this statistic was also generated. The matrix is similar to the Pearson correlation, with only the interaction term and its constituent variables, and the tax office scrutiny variable and size variable, showing relatively high correlations.

Correlations between variables in the model for Ratio 2 are shown in Table 6.5. Again, there is high correlation between the interaction term FR*PO and FR (0.756) and PO (0.901), between FR and PO (0.587), and between SIZE and ATO (0.674). Spearman's correlations are similar.

Correlations between variables in the model for Ratio 3 are shown in Table 6.6. Franking percentage and dividend payout ratio have a Pearson correlation coefficient of 0.573, the interaction term FR*PO and FR a correlation of 0.746, FR*PO and PO a correlation of 0.900, and SIZE and ATO a correlation of 0.601. Similar values result for Spearman's correlation coefficients.

The variance inflation factor (VIF) is a collinearity diagnostic indicating whether an independent variable has a strong linear relationship with the other independent variables. Myers (1990) suggests a VIF greater than 10 is worrying while Menard (1995) suggests if the tolerance statistic (the

reciprocal 1/VIF) is less than 0.2 (i.e., VIF is greater than 5), this means multicollinearity may be biasing the regression results. The regression results for the three models shown in Panel A of Tables 6.7, 6.8 and 6.9 confirm that the VIFs or reciprocal fall far short of these extremes, except for the collinearity between the interaction term and its constituent variables. As explained in Chapter 5 , especially Table 5.4, for the purpose of testing hypothesis H1, the main variable of interest is the interaction term FR*PO which captures the effect of dividend imputation and is predicted to have an unambiguous positive relation with tax strategy. Franking percentage and payout ratio separately do not have an unambiguous relation with tax strategy. Therefore, Panel B of Tables 6.7, 6.8 and 6.9 report the regression results where franking percentage (FR) and payout ratio (PO) are excluded from the three regression models to resolve the problem of multicollinearity.

Table 6.4: Ratio 1 (Total tax expense ETR) sub-sample
Pearson Correlation Coefficients
Significance (2-tailed)

	ETR1	**FR**	**PO**	**FR * PO**	**ATO**	**REM**	**2000**	**2001**	**2002**	**2003**	**SIZE**	**FOR**	**R&D**	**CAP**	**DF**	**ROA**
ETR1	1.00															
FR	.095 *.000*	1.00														
PO	.081 *.001*	.631 *.000*	1.00													
FR* PO	.119 *.000*	.790 *.000*	.896 *.000*	1.00												
ATO	.115 *.000*	.147 *.000*	.134 *.000*	.105 *.000*	1.00											
REM	.130 *.000*	.002 *.948*	-.017 *.500*	-.024 *.329*	.285 *.000*	1.00										
2000	-.082 *.001*	-.034 *.166*	-.056 *.023*	-.037 *.140*	-.031 *.218*	.006 *.804*	1.00									
2001	.005 *.829*	-.020 *.432*	.009 *.704*	-.014 *.574*	-.023 *.351*	-.014 *.566*	-.261 *.000*	1.00								
2002	.060 *.017*	.018 *.461*	.034 *.173*	.019 *.442*	.019 *.456*	.026 *.300*	-.254 *.000*	-.249 *.000*	1.00							
2003	.051 *.040*	.017 *.499*	.017 *.506*	.019 *.455*	.022 *.382*	-.004 *.873*	-.259 *.000*	-.254 *000*	-.247 .000	1.00						

SIZE	-.021 *.402*	.144 *.000*	.200 *.000*	.148 *.000*	.613 *.000*	.230 *.000*	-.030 *.236*	-.005 *.837*	.022 *.371*	.018 .469	1.00					
FOR	-.020 *.416*	-.105 *.000*	-.117 *.000*	-.164 *.000*	.137 *.000*	.115 *.000*	-.038 *.122*	.005 *.849*	.044 *.079*	.043 *.083*	.212 *.000*	1.00				
R&D	-.100 *.000*	-.042 *.091*	-.074 *.003*	-.090 *.000*	-.038 *.126*	.042 *.094*	-.016 *.509*	.000 *.983*	.019 *.446*	.009 *.723*	-.037 *.132*	.182 *.000*	1.00			
CAP	.087 *.000*	-.031 *.213*	-.009 *.709*	-.053 *.033*	.150 *.000*	.102 *.000*	-.012 *.639*	-.008 *.740*	-.012 *.625*	-.024 *.339*	.068 *.006*	.055 *.028*	.009 *.720*	1.00		
DF	-.257 *.000*	.071 *.004*	.130 *.000*	.160 *.000*	-.282 *.000*	-.222 *.000*	.003 *.896*	.029 *.241*	.012 *.643*	-.019 *.442*	-.136 *.000*	-.153 *.000*	-.048 *.055*	-.321 *.000*	1.00	
ROA	-.017 *.492*	-.057 *.022*	-.158 *.000*	-.142 *.000*	-.195 *.000*	.061 *.014*	.035 *.155*	-.018 *.475*	-.002 *.926*	.018 *.467*	-.398 *.000*	-.024 *.334*	.107 *.000*	-.024 *.326*	.017 *.498*	1.00

Table 6.5: Ratio 2 (Current tax expense ETR) sub-sample
Pearson Correlation Coefficients
Significance (2-tailed)

	ETR2	FR	PO	FR * PO	ATO	REM	2000	2001	2002	2003	SIZE	FOR	R&D	CAP	DF	ROA
ETR2	1.00															
FR	.174 *.000*	1.00														
PO	.125 *.000*	.587 *.000*	1.00													
FR*PO	.177 *.000*	.756 *.000*	.901 *.000*	1.00												
ATO	.050 *.062*	.097 *.000*	.103 *.000*	.060 *.026*	1.00											
REM	.114 *.000*	.011 *.679*	-.012 *.654*	-.022 *.410*	.298 *.000*	1.00										
2000	-.019 *.489*	-.035 *.195*	-.065 *.015*	-.039 *.147*	-.038 *.158*	.019 *.487*	1.00									
2001	-.002 *.937*	-.022 *.411*	.011 *.682*	-.022 *.408*	-.018 *.513*	-.012 *.656*	-.260 *.000*	1.00								
2002	.062 *.021*	.005 *.853*	.018 *.507*	.008 *.752*	.018 *.506*	.031 *.253*	-.256 *.000*	-.253 *.000*	1.00							
2003	.067 *.013*	.007 *.795*	-.006 *.827*	.008 *.764*	.013 *.626*	-.003 *.918*	-.260 *.000*	-.257 *000*	-.253 *000*	1.00						

SIZE	-.104 *.000*	.024 *.378*	.149 *.000*	.089 *.001*	.674 *.000*	.229 *.000*	-.031 *.249*	-.008 *.764*	.017 *.534*	.015 .587	1.00					
FOR	.006 *.820*	-.162 *.000*	-.106 *.000*	-.174 *.000*	.242 *.000*	.196 *.000*	-.014 *.609*	.008 *.766*	.015 *.582*	.031 *.249*	.260 *.000*	1.00				
R&D	.003 *.913*	-.019 *.483*	-.027 *.311*	-.037 *.162*	.100 *.000*	.154 *.007*	.009 *.736*	-.022 *.417*	-.008 *.764*	-.004 *.884*	.067 *.012*	.208 *.000*	1.00			
CAP	.040 *.136*	-.042 *.120*	-.042 *.121*	-.078 *.004*	.192 *.000*	.145 *.000*	.007 *.792*	-.004 *.870*	-.012 *.651*	-.032 *.235*	.109 *.000*	.137 *.000*	.195 *.000*	1.00		
DF	-.144 *.000*	.086 *.001*	.163 *.000*	.182 *.000*	-.282 *.000*	-.220 *.000*	-.011 *.695*	.028 *.300*	.014 *.596*	-.019 *.477*	-.119 *.000*	-.209 *.000*	-.091 *.001*	-.365 *.000*	1.00	
ROA	.056 *.038*	.010 *.703*	-.218 *.000*	-.177 *.000*	-.143 *.000*	.110 *.000*	.005 *.846*	.005 *.856*	.001 *.958*	.034 *.199*	-.402 *.000*	-.029 *.285*	.115 *.000*	.118 *.404*	-.053 *.047*	1.00

Table 6.6: Ratio 3 (Tax paid ETR) sub-sample
Pearson Correlation Coefficients
Significance (2-tailed)

	ETR3	FR	PO	FR * PO	ATO	REM	2000	2001	2002	2003	SIZE	FOR	R&D	CAP	DF	ROA
ETR3	1.00															
FR	.240 *.000*	1.00														
PO	.208 *.000*	.573 *.000*	1.00													
FR*PO	.254 *.000*	.746 *.000*	.900 *.000*	1.00												
ATO	.089 *.001*	.081 *.003*	.076 *.005*	.037 *.179*	1.00											
REM	.112 *.000*	.027 *.316*	.001 *.983*	-.011 *.675*	.314 *.000*	1.00										
2000	-.135 *.000*	-.024 *.386*	-.047 *.086*	-.022 *.425*	-.030 *.263*	.003 *.923*	1.00									
2001	.134 *.000*	-.027 *.330*	.003 *.916*	-.030 *.264*	-.043 *.111*	.000 *.994*	-.258 *.000*	1.00								
2002	.030 *.275*	.029 *.293*	.043 *.115*	.024 *.384*	.036 *.188*	.026 *.343*	-.251 *.000*	-.243 *.000*	1.00							
2003	.048 *.076*	-.002 *.950*	-.013 *.644*	.001 *.966*	.022 *.424*	.004 *.894*	-.265 *.000*	-.257 *.000*	-.249 *.000*	1.00						

SIZE	-.013 *.627*	.070 *.011*	.148 *.000*	.082 *.003*	.601 *.000*	.251 *.000*	-.018 *.506*	-.013 *.621*	.027 *.320*	.008 .783	1.00					
FOR	.005 *.846*	-.181 *.000*	-.161 *.000*	-.220 *.000*	.148 *.000*	.130 *.000*	-.029 *.283*	.020 *.468*	.049 *.070*	.023 *.391*	.214 *.000*	1.00				
R&D	-.029 *.287*	-.031 *.253*	-.071 *.009*	-.073 *.007*	-.042 *.120*	.039 *.153*	-.026 *.346*	.009 *.741*	.017 *.528*	.021 *.435*	-.058 *.034*	.177 *.000*	1.00			
CAP	.061 *.025*	-.039 *.147*	-.009 *.738*	-.065 *.017*	.170 *.000*	.115 *.000*	.006 *.827*	-.005 *.863*	-.006 *.835*	-.042 *.124*	.048 *.075*	.054 *.048*	-.014 *.619*	1.00		
DF	-.132 *.000*	.056 *.040*	.142 *.000*	.174 *.000*	-.300 *.000*	-.235 *.000*	-.015 *.590*	.018 *.500*	.014 *.615*	-.013 *.636*	-.133 *.000*	-.155 *.000*	-.036 *.184*	-.314 *.000*	1.00	
ROA	.045 *.097*	-.031 *.250*	-.129 *.000*	-.111 *.000*	-.216 *.000*	.048 *.077*	.004 *.886*	-.004 *.897*	.016 *.557*	.042 *.119*	-.417 *.000*	-.015 *.580*	.166 *.000*	.007 *.788*	.015 *.588*	1.00

6.4 Regression results

Three regression models were developed in Chapter 5 to test the hypotheses H1 to H4. This section presents the regression results. The estimates of regression coefficients for each of the three equations are shown in Tables 6.7, 6.8 and 6.9. Each model measures tax strategy using a different variant of the ratio of ETR to STR. The first model uses Ratio 1, the *total tax expense* ETR/STR, as a proxy for tax strategy. The second model uses Ratio 2, the *current tax expense* ETR/STR, to proxy for tax strategy. The third model uses Ratio 3, the *tax paid* ETR/STR, to proxy for tax strategy. All three models have similar independent variables.

R^2 is a measure of how much of the variability in tax strategy is accounted for by the predictor variables. For the model using Ratio 1, R^2 is 0.130, for the model using Ratio 2, R^2 is 0.110, and R^2 for the model using Ratio 3 is 0.151. Previous research studies using ETR as a dependent variable show wide variation of R^2 depending on the predictor variables included in the regression model.

The F statistic measures the amount of systematic variance divided by the amount of unsystematic variance or how much the model has improved the prediction of tax strategy compared to the level of inaccuracy of the model. A good model will have a large F-ratio. Each of the three models has a large F statistic and confirms the models have significant explanatory power.

The Durbin-Watson statistic informs whether the assumption of independent errors holds. Serial correlation between errors can occur when adjacent residuals are correlated. If the statistic has a value of 2, residuals are uncorrelated. The Durbin-Watson statistic varies between 0 and 4 and it has been suggested that values less than 1 or greater than 3 are definitely cause for concern (Field, 2009). Regression output shows a Durbin-Watson statistic of 1.975 for the Ratio 1 model, 2.009 for the Ratio 2 model and 1.980 for the Ratio 3 model. Since all three models show statistics approaching 2, it is concluded that the residuals are uncorrelated.

A final check on assumptions of regression analysis is to determine whether the errors are random and that the variance of the residual terms is constant (homoscedasticity). A plot of residuals against the predictors should look like a random array of dots evenly dispersed around zero. This pattern confirms homoscedasticity has been met. To test the normality of residuals a frequency histogram of residuals should look like a normal distribution. Normal probability plots show any deviations from normality. Histograms and plots of distributed residuals from the 3 models were generated. The resultant histograms show that residuals conform to normal distributions and errors are randomly and evenly dispersed around zero. The plots and histograms therefore indicate the assumptions are satisfied.

Overall, it is concluded from the above that the assumptions of multiple regression analysis are largely met by the three models used to predict variations in tax strategy between companies in the five year period 1999 to 2003. The next sections look at the tests of the individual hypotheses.

Table 6.7: Regression model summary – Ratio 1

Panel A (includes FR and PO)

Independent Variable	Predicted Sign	Coefficient	Standard error	t Statistic	VIF
Constant		1.329	.105	12.606***	
Test variables:					
FR	?	-.057	.034	-1.664*	3.000
PO	?	-.168	.059	-2.850***	5.766
FR*PO	+	.359	.071	5.027***	9.334
ATO	+	.067	.021	3.138***	1.784
REM	+	.072	.019	3.735***	1.158
2000	+	-.021	.025	-.850	1.674
2001	+	.047	.025	1.868**	1.663
2002	+	.078	.026	3.047***	1.648
2003	+	.065	.025	2.557***	1.660
Control variables:					
SIZE	−	-.029	.006	-5.196***	1.985
FOR	−	-.011	.034	-.323	1.149
R&D	−	-1.415	.339	-4.172***	1.055
CAP	−	.012	.038	.305	1.131
DF	−	-.299	.029	-10.256***	1.273
ROA	+	-.161	.123	-1.305	1.265
Adjusted R^2		.134	**F statistic**	17.622 (*.000*)	
Durbin-Watson statistic		1.975			

Panel B (excludes FR and PO)

Independent Variable	Predicted Sign	Coefficient	Standard error	t Statistic	VIF
Constant		1.335	.105	12.667***	
Test variables:					
FR*PO	+	.163	.025	6.598***	1.111
ATO	+	.065	.021	3.020***	1.773
REM	+	.075	.109	3.858***	1.156
2000	+	-.020	.025	-0.806	1.674
2001	+	.044	.025	1.731**	1.658
2002	+	.075	.026	2.923***	1.644
2003	+	.064	.025	2.509***	1.659
Control variables:					
SIZE	-	-.031	.006	-5.576***	1.957
FOR	-	-.015	.035	-0.429	1.148
R&D	-	-1.449	.339	-4.269***	1.053
CAP	-	.004	.038	0.095	1.124
DF	-	-.297	.029	-10.181***	1.268
ROA	+	-.180	.123	-1.472	1.249
Adjusted R^2		.130	**F statistic**	19.568 (*.000*)	
Durbin-Watson statistic		1.974			

*p between 0.1 and 0.05, ** p between 0.05 and 0.01, and *** $p < 0.01$
Significance levels reported are one-tailed for variables with signs matching those predicted, two-tailed otherwise.

Table 6.8: Regression model summary – Ratio 2

Panel A (includes FR and PO)

Independent Variable	Predicted Sign	Coefficient	Standard error	t Statistic	VIF
Constant		1.134	.140	8.126***	
Test variables:					
FR	?	.037	.048	0.779	2.718
PO	?	-.197	.088	-2.235**	6.389
FR*PO	+	.436	.103	4.228***	9.844
ATO	+	.042	.029	1.460*	1.767
REM	+	.089	.026	3.421***	1.176
2000	+	.090	.034	2.634***	1.714
2001	+	.117	.034	3.431***	1.699
2002	+	.158	.034	4.609***	1.687
2003	+	.156	.034	4.551***	1.704
Control variables:					
SIZE	-	-.032	.007	-4.365***	1.960
FOR	-	.069	.047	1.468	1.182
R&D	-	-.724	.520	-1.392*	1.065
CAP	-	-.008	.052	-0.145	1.137
DF	-	-.258	.039	-6.673***	1.267
ROA	+	.014	.166	0.083	1.281
Adjusted R^2		.110	**F statistic**	12.478 (*.000*)	
Durbin-Watson statistic		2.009			

Panel B (excludes FR and PO)

Independent Variable	Predicted Sign	Coefficient	Standard error	t Statistic	VIF
Constant		1.164	.139	8.364***	
Test variables:					
FR*PO	+	.301	.035	8.679***	1.114
ATO	+	.043	.029	1.495*	1.758
REM	+	.091	.026	3.485***	1.175
2000	+	.092	.034	2.710***	1.709
2001	+	.113	.034	3.308***	1.696
2002	+	.157	.034	4.555***	1.686
2003	+	.157	.034	4.576***	1.702
Control variables:					
SIZE	-	-.034	.007	-4.685***	1.924
FOR	-	.065	.047	1.376	1.180
R&D	-	-.725	.521	-1.391*	1.065
CAP	-	-.022	.052	-0.425	1.124
DF	-	-.263	.039	-6.819***	1.260
ROA	+	.029	.165	0.173	1.264
Adjusted R^2		.106	**F statistic**	13.747 (*.000*)	
Durbin-Watson statistic		2.009			

*p between 0.1 and 0.05, ** p between 0.05 and 0.01, and *** $p < 0.01$
Significance levels reported are one-tailed for variables with signs matching those predicted, two-tailed otherwise.

Table 6.9: Regression model summary – Ratio 3

Panel A (includes FR and PO)

Independent Variable	Predicted Sign	Coefficient	Standard error	t Statistic	VIF
Constant		.831	.155	5.352***	
Test variables:					
FR	?	.061	.053	1.147	2.657
PO	?	-.191	.099	-1.936*	6.377
FR*PO	+	.559	.115	4.842***	9.784
ATO	+	.076	.032	2.375***	1.774
REM	+	.075	.029	2.574***	1.186
2000	+	-.041	.037	-1.113	1.676
2001	+	.220	.038	5.848***	1.665
2002	+	.101	.038	2.643***	1.646
2003	+	.117	.037	3.149***	1.682
Control variables:					
SIZE	-	-.026	.008	-3.180***	1.967
FOR	-	.100	.051	1.960*	1.176
R&D	-	-.896	.548	-1.634*	1.068
CAP	-	.057	.058	0.988	1.142
DF	-	-.228	.044	-5.175***	1.282
ROA	+	.298	.190	1.573*	1.303
Adjusted R^2		.151	**F statistic**	17.035 (*.000*)	
Durbin-Watson statistic		1.980			

Panel B (excludes FR and PO)

Independent Variable	Predicted Sign	Coefficient	Standard error	t Statistic	VIF
Constant		.874	.155	5.651***	
Test variables:					
FR*PO	+	.448	.039	11.519***	1.108
ATO	+	.080	.032	2.478***	1.767
REM	+	.077	.029	2.640***	1.185
2000	+	-.040	.037	-1.085	1.675
2001	+	.215	.038	5.715***	1.658
2002	+	.097	.038	2.553***	1.642
2003	+	.117	.037	3.129***	1.681
Control variables:					
SIZE	-	-.028	.008	-3.477***	1.929
FOR	-	.092	.051	1.802*	1.172
R&D	-	-.864	.549	-1.573*	1.067
CAP	-	.042	.058	0.725	1.127
DF	-	-.235	.044	-5.340***	1.270
ROA	+	.315	.189	1.666**	1.292
Adjusted R^2		.148	**F statistic**	18.992 (*.000*)	
Durbin-Watson statistic		1.975			

*p between 0.1 and 0.05, ** p between 0.05 and 0.01, and *** $p < 0.01$
Significance levels reported are one-tailed for variables with signs matching those predicted, two-tailed otherwise.

6.5 Results for hypotheses testing

The four hypotheses developed in Chapter 4 predict the relationships between particular company characteristics and tax strategy. The predicted signs are summarised in Tables 6.7, 6.8 and 6.9, for the three models used to test the hypotheses. Table 6.10 compares the predicted sign and the actual sign of the regression coefficient for each independent variable and shows the level of statistical significance where a regression coefficient is significantly different from zero.

Table 6.10: Summary of coefficient signs and significance levels for all models

Independent variable	**Predicted sign**	**Ratio 1** Sign (Significance level[#])	**Ratio 2** Sign (Significance level[#])	**Ratio 3** Sign (Significance level[#])
Test variables:				
FR*PO	+	+ (0.01)	+ (0.01)	+ (0.01)
ATO	+	+ (0.01)	+ (0.1)	+ (0.01)
REM	+	+ (0.01)	+ (0.01)	+ (0.01)
2000	+	Not significant	+ (0.01)	Not significant
2001	+	+ (0.05)	+ (0.01)	+ (0.01)
2002	+	+ (0.01)	+ (0.01)	+ (0.01)
2003	+	+ (0.01)	+ (0.01)	+ (0.01)
Control variables:				
SIZE	-	- (0.01)	- (0.01)	- (0.01)
FOR	-	Not significant	Not significant	+ (0.1)
R&D	-	- (0.01)	- (0.1)	- (0.1)
CAP	-	Not significant	Not significant	Not significant
DF	-	- (0.01)	- (0.01)	- (0.01)
ROA	+	Not significant	Not significant	+ (0.05)

Significance levels reported are one-tailed for variables with signs matching those predicted, two-tailed otherwise.

0.1 means between 0.1 and >0.05; 0.05 means between 0.05 and >0.01, and 0.01 means 0.01 or less.

6.5.1 Hypothesis H1

Companies that distribute franked dividends adopt a more conservative tax strategy than companies distributing unfranked dividends or not distributing dividends.

Tables 6.7, 6.8 and 6.9 consist of 2 panels. Panel A includes both the interaction term FR*PO and its constituent variables FR and PO. Panel B shows regression results with the interaction term only without FR and PO. The multicollinearity problem disappears in the results reported in Panel B and the F statistic increases with little change in the t statistics and statistical significance of the regression coefficients. The interaction term FR*PO measures the degree of dividend imputation which is predicted to have a positive relation with tax strategy, that is, the more tax credit a company passes on to its shareholders through dividend imputation, the more conservative will the company's tax strategy be. In Panel A, when both PO and FR*PO are included in the model, FR*PO will capture the variation of franked dividends on tax strategy because FR*PO is zero when FR is zero. The payout ratio PO will then capture the variation of unfranked dividends on tax strategy. Hence, in Panel A of Tables 6.7, 6.8 and 6.9, PO has a significant negative relation with tax strategy, and FR*PO a significant positive relation with tax strategy in all three models. If the dividend is fully franked to 100%, then a positive relation is predicted. If the dividend is unfranked, shareholders have no imputation credits to use and a negative relation is predicted. Franking percentage (FR) only has meaning when a dividend is paid. Panel A shows a marginally significant (at the 0.1 level) negative relation with tax strategy only for the model for Ratio 1 (Table

6.7). This result illustrates the importance of testing hypothesis H1 using FR*PO that captures the interaction of dividend payout and franking percentage.

Results for the interaction term PO*FR are robust. They indicate a highly significant positive relation with tax strategy in all three models as predicted, with or without FR and PO in the models. These results are consistent with hypothesis H1. Companies distributing franked dividends are more likely to have a higher ETR than companies paying unfranked dividends, no matter whether ETR is based on total tax expense, current tax expense, or tax paid. This is consistent with adopting a conservative tax strategy.

6.5.2 Hypothesis H2

Companies under close scrutiny by the ATO have a more conservative tax strategy than companies that are not under close scrutiny by the ATO.

There is a significant positive association between ATO and tax strategy at the 0.01 level of significance in the Ratio 1 and Ratio 3 models, and at the 0.1 level in the Ratio 2 model. Hypothesis H2 is therefore supported by these results. Companies under close scrutiny by the ATO are likely to be more conservative in their tax strategies than those not under close scrutiny. Since for the majority of company-year observations, current tax expense is not disclosed and is estimated from other tax information in the financial

reports, the estimation error of the dependent variable of the Ratio 2 model may have influenced results.

6.5.3 Hypothesis H3

In a dividend imputation system, companies that reward managers with share options adopt conservative tax strategies.

The executive remuneration variable (REM) has a highly significant *t* statistic in all three models at the 0.01 level. Results indicate a highly significant positive relation between share option remuneration and tax strategy. Hypothesis H3 is supported. It was predicted that companies rewarding managers with share options are unlikely to minimise tax liabilities, contrary to the prediction in a classical system of company taxation. This is because managers are more likely to maximise before-tax profit, rather than after-tax profit, to maximise share value. If corporate tax is a pre-payment of shareholder tax, and taxed earnings are valued by investors, they will price-up shares. Results confirm this assertion and show that managers rewarded with share options pursue a conservative tax strategy.

6.5.4 Hypothesis H4

In a dividend imputation system tax strategy is not significantly more aggressive in the years preceding falls in the STR.

Hypothesis 4 was based on the premise that although there are opportunities to save tax before known corporate tax rate falls are put in place, it is

unlikely that tax strategies will change in a dividend imputation system because corporate tax is only a prepayment of investors' tax and is not a real cost to the investors. The hypothesis tests this supposition. With the STR to fall in 2001 and 2002, managers were unlikely to change tax strategies in 2000, compared to 2001 and 2001 compared to 2002. This is because tax is not a cost and is valued by shareholders. Regression results compare the years 2000, 2001 2002 and 2003 with 1999. Results support a consistent conservative tax strategy over the test period.

Two models show significant positive relationships between tax strategies and the year indicators for 2001, 2002 and 2003. There is a negative coefficient for the year 2000 but the result is not statistically significant. The Ratio 2 model gives a highly significant positive relation between tax strategy and the year indicators for all years. This model measures tax strategy with current tax expense. Current tax expense would be affected if managers deferred current tax in 2000 to the following lower taxed year in 2001 and/or deferred current tax in 2001 to the lower taxed year in 2002. The strongly significant results in this model therefore support the notion that managers continued to adopt conservative tax strategies in these years despite the opportunity to reap windfall tax savings.

The general increase in ETRs in the years 2000 to 2003 compared to 1999 may be explained by various changes in tax law that accompanied the falls in the STR. One of the objectives of the Review of Business Taxation was that any recommended changes be revenue neutral. The announcement of the tax rate fall was accompanied by a series of tax reform measures,

following the release of the final report by the Treasurer on 21 September 1999 (Commonwealth of Australia, 1999). These tax reform measures would increase revenue collection to offset the impact of corporate tax rate fall in two steps from 36% to 30% to achieve the revenue neutral objective. These tax law changes included the removal of accelerated depreciation for plant from 21 September 1999, the replacement of the 13-month prepayment rule with a time matching rule from 1 July 2001, and the abolition of indexation of the cost base for company assets in calculating capital gains after September 1999. Disentangling the effect of these changes in tax laws from the effect of the tax rate falls was not part of the research design of this study and is acknowledged as a limitation of this study. Nonetheless, the predominantly significant positive regression coefficients for the year indicators for 2000 and 2001 provide support for hypothesis H4 that companies did not adopt aggressive tax strategy in the years preceding tax rate falls.

Further regressions were undertaken using observations for each model where FR*PO equals zero, that is, including only those company-year observations with no dividend payouts or zero franking percentage. The model with Ratio 1 as the dependent variable was the only model to indicate a result with negative coefficients for all years but significant at the 0.05 level only for 2000 and 2003. While this result suggests that companies distributing unfranked or no dividends might have adopted more aggressive tax strategies in 2000, this result is not consistent across all three models so is not reported in detail.

6.6 Control variables

Control variables for size, foreign operations, research and development expenditure, capital intensity, diversified financial industry classification and profitability were included in the models to control for known determinants of ETRs.

Size (SIZE) measured by total assets had a significant negative relation with tax strategy in all three models. That is, the larger the size of a company, the lower is its ETRs. This confirms the results of other Australian studies (Tran & Porcano, 1997; Harris & Feeny, 2003; Tran & Yu, 2008).

There is only a marginally significant positive relation between foreign operation (FOR) and tax strategy in one of the models and it is only significant at the 0.1 level. A negative relation was predicted in line with previous research (Rego, 2003). This may be explained by the sample of companies. Most of this sample of Australian companies does not derive foreign income and for those companies that do, it is a small proportion of their total revenue. Overall the evidence is not consistent with the proposition that companies with foreign operations would take advantage of the opportunities arising from foreign operations to avoid tax.

Research and development (R&D) was significantly negatively related with tax strategy, confirming the findings of Harris & Feeny (2003), particularly in the first model where the significant level is 0.01. The extra 25% deduction allowance for R&D is included as a permanent difference in this

model. Results for the other two models show that R&D is negatively related with tax strategy but only at the 0.1 level of statistical significance.

Capital intensity (CAP) was not significant in any of the models. Australia does not have a large base of manufacturing companies and the sample reflects this. Net property, plant and equipment do not form a large proportion of assets for many companies. The insignificant results may be explained by the abolition of accelerated tax depreciation from 21 September 1999 which has the effect of aligning tax depreciation closer with accounting depreciation.

The variable indicating companies classified as diversified financials (DF) is negatively associated with tax strategy at 1% statistical significance in all three models. This result confirms prior Australian studies (Tran & Porcano, 1997; Tran & Yu, 2008). Companies offering investment and financial services have large exempt income in the form of franked dividends and have low ETRs. Although the dividend income is taxable, the tax is offset by the franking credits attached to the dividends.

Profitability (ROA) was included based on prior research. As profitability increases, book-tax income differences are not expected to increase in the same proportion so a higher ETR is expected. This prediction was confirmed in Australian research using data over the period 1994-1997 (Harris & Feeny, 2003). Only one model confirmed this result at the 0.05 level of statistical significance. Neither of the other models had significant results.

6.7 Summary

Table 6.11: Summary of hypotheses, results and conclusions

Hypothesis	Hypothesis	Results	Conclusions
H1	Companies that distribute franked dividends adopt a more conservative tax strategy than companies distributing unfranked dividends or not distributing dividends	Supported with 1% probability that this is a chance result across all three tax strategy ratio measures	In a dividend imputation system companies distributing franked dividends are likely to maximise before-tax profit and therefore have conservative rather than aggressive tax strategies.
H2	Companies under close scrutiny by the ATO have a more conservative tax strategy than those that are not under close scrutiny by the ATO	Supported with 1% probability that this is a chance result using Ratio 1 and Ratio 2 measures of tax strategy and supported with 10% probability using Ratio 2 measure of tax strategy	Companies at risk of tax audit are more likely than not to have conservative, rather than aggressive tax strategies to avoid close scrutiny by the ATO.
H3	In a dividend imputation system, companies that reward managers with share options adopt conservative tax strategies.	Supported with 1% probability that this is a chance result across all three tax strategy ratio measures	Contrary to a classical system of company taxation, in a dividend imputation system managerial remuneration based on share options leads to conservative tax strategies.
H4	In a dividend imputation system, tax strategy is not significantly more aggressive in the years preceding falls in the statutory tax rate.	Supported with 1% probability that this is a chance result using Ratio 2 in both 2000 and 2001, and in 2001 using Ratio 1 and Ratio 3 tax strategy measures.	When the tax rate falls from one year to the next, companies are more likely than not to ignore the opportunity for windfall tax savings.

A summary of hypotheses, regression results and conclusions are presented in Table 6.11. Considerable support was found for all four hypotheses examined in this study. First, companies distributing franked dividends adopt a more conservative tax strategy than those that do not. There is a positive relation between dividend imputation (i.e., companies transfer tax credits to shareholders through distributing franked dividends) and tax strategy in all three models, thus supporting hypothesis H1. This confirms the theoretical argument that company tax is only a pre-payment of dividend income tax and is valued by company shareholders. Managers therefore have incentives to maximise before-tax profit from which both dividends and company tax are paid, and have no incentives to engage in costly tax avoiding strategies.

Second, there is considerable support for hypothesis H2. The prediction that close scrutiny by the ATO leads to more conservative tax strategies was strongly supported in two models and supported in the third model. Managers can avoid financial risk of costly tax audits by pursuing conservative tax strategies. This suggests the investment by the tax office in audit programs is likely to deter aggressive tax strategies by large companies.

Third, hypothesis H3 is strongly supported in all models. Managers remunerated with share options adopt conservative tax strategies. This confirms that positive accounting theory predictions in a classical tax system do not necessarily hold in a dividend imputation system. In this

environment it is before-tax profit that is maximised. The results confirm that incentives to avoid tax vary depending on the institutional environment in which large companies operate. In a dividend imputation system there is clear evidence that managers do maximise before-tax profit, not after-tax profit. Results for hypotheses H1 and H3 clearly support this prediction.

Fourth, hypothesis H4 was also supported in all three models. Because managers maximise before-tax profit, they do not respond to opportunities to save tax in years before STR falls.

Results confirmed some prior research findings of ETR studies. In particular larger companies, research and development investors and diversified financials have lower ETRs. Foreign operations do not have a negative relation with tax strategy, suggesting that companies operating globally do not make use of the opportunities arising from foreign operations to avoid tax. Findings in the present study do not support prior research findings about the effect of capital intensity, perhaps due to the abolition of accelerated tax depreciation regime. A positive relation between profitability and ETRs is only found in one model.

This chapter presented the results of regression analysis testing four hypotheses developed in Chapter 4. Three models were analysed, all three giving similar results. Companies distributing franked dividends and under close scrutiny by the ATO are more likely to have a conservative tax strategy. Aligning manager and shareholder interests in a dividend imputation environment mitigates the incentives to avoid tax since

maximisation of before-tax profit is the preferred option. Managers remunerated with share options have incentives to adopt conservative tax strategies. Changes in tax law that reduced the STR but limited tax deductions and allowances resulted in companies continuing to adopt conservative strategies rather than pursuing windfall tax savings. The next chapter summarises this research study and its main findings, acknowledges its limitations, then draws conclusions.

CHAPTER 7 – CONCLUSIONS AND IMPLICATIONS

7.1 Introduction

This thesis explores the managerial incentives to aggressively minimise tax in a dividend imputation system as opposed to a classical system of company tax. This final chapter summarises the research undertaken and outlines its distinct contribution to empirical tax research. Research hypotheses emerging from the literature review in Chapter 2 are revisited. The Australian institutional environment described in Chapter 3 is referred to in outlining the hypotheses developed in Chapter 4. Implications are drawn for the results of testing these hypotheses, described and presented in Chapters 5 and 6. Some limitations and implications for further research are outlined. The chapter ends with a final summary of the research project.

7.2 The research questions

Empirical tax research focused on tax avoidance studies is largely US based and is limited in explaining the variation in ETRs used to assess the propensity to avoid tax (Dyreng, Hanlon & Maydew, 2010). This thesis addresses this limitation in exploring the influence of managerial incentives to avoid tax in a *non*-classical and *non*-US setting. Managerial incentives are likely to be different in Australia's dividend imputation system of company tax and these different incentives have not been studied empirically. This thesis contributes to this gap. Prior research on the effect of dividend imputation is largely focused on its effect on capital market valuation of shares (Brown & Clarke, 1993), its effect on formation of

imputation dividend clienteles (Bellamy, 1994) and its effect on dividend payout policy of companies (Pattenden & Twite, 2008).

Finance texts posit that tax is irrelevant for decision making by investors and managers, when its nature changes from that of a company *cost* in the classical system to a *pre-payment* of tax for the shareholder in a dividend imputation system (Peacock et al., 2003). In a dividend imputation system, it is irrelevant who pays tax since the return to the shareholder is the same. However robust this argument may be, in reality it will not always hold. This is because the theory assumes all profits are distributed as dividends, all company income is derived in Australia and all shareholders can use the franking credits imputed to them with dividends. It is expected that there are differences in these variables between companies. These differences mean that managers of different companies face different incentives to avoid tax. This thesis tests this assertion empirically. Wilkinson, Cahan and Jones (2001) test the effect of the extension of dividend imputation to non-resident portfolio shareholders on the incentive to minimise tax for 37 companies in the New Zealand dividend imputation environment. This thesis extends this line of research in testing for differences in managerial incentives to avoid tax for 491 large profitable Australian companies in a period of tax rate changes.

The reasoning that in a dividend imputation system, company income tax is no longer a cost to be managed by profitable, listed Australian companies with predominately Australian source income and Australian shareholders, implies that managers of these companies do not have the incentives to

aggressively avoid tax. This forms the focal point of the study in this thesis. In particular this thesis examines whether incentives to avoid tax are different depending on (a) whether dividends distributed are franked or unfranked, (b) whether the companies are subject to close scrutiny by the tax office, and (c) whether managerial remunerations include share options. Finally this thesis also examines whether company tax strategy changes when the opportunity arises to make wind-fall tax savings due to reductions in the company tax rate.

7.3 The hypotheses

Although Australia's dividend yield is high by world standards (*BRW*, 2004), there is wide variation in dividend payout policy. For the sample of 491 companies used in this thesis, the distribution of observed payout percentages (discussed in Chapter 6) shows clusters at the two extremes, 0% and 100%, and a flat distribution in between. The mean is 56% and the median 60%. The distribution of observed franking percentage of these dividends also has clusters at both ends and few observations in between. Most companies either fully frank or do not frank dividends. The majority of the dividends are fully franked. It follows that there are good reasons to test predictions about managerial incentives dependent on dividend payout ratio and franking percentage of dividends. Those companies distributing franked dividends must pay company tax to accrue tax credits to impute to shareholders. They are therefore more likely to maximise before-tax profit, rather than after-tax profit and are thus predicted to have more conservative, or less aggressive, tax strategies. This is the first hypothesis that has been tested in this thesis.

Annual company tax collections represent around 25% of income tax revenue in Australia (ATO, 2005, p. 9). To protect this source of revenue, the tax collection agency in Australia devotes resources to audit programs particularly targeted at large corporate groups. Its published audit success ensures large companies are aware of risks of aggressive tax avoidance. The second hypothesis in this thesis tests the success or otherwise of this program in its effect on managerial incentives to avoid tax. While audit success may justify taxpayer funded programs in dollar terms, audit activity may have further value in mitigating incentives for risky tax avoidance. The second hypothesis aims to test this prediction. Large companies with a known risk of tax audit are more likely to temper aggressive tax strategies to avoid in-depth scrutiny by tax auditors.

In large corporations where ownership and control are separate, managers control resources provided by shareholders and lenders. Agency theory suggests that alignment of the interests of the agents (managers) with those of the principals (capital providers) is of benefit to the principals (Jensen & Meckling, 1976). Basing managerial remuneration on share value is one way to protect the capital from possible exploitation or neglect by managers. In a classical company tax environment performance remuneration in the form of share options gives incentives to managers to maximise future share value by maximising after-tax profit. Thus, remuneration based on performance of after-tax profit or share value is likely to result in incentives to aggressively avoid tax.

However, in a dividend imputation system, company tax is no longer a cost; it is a prepayment of shareholder tax on dividend income. Managers have incentives to maximise before-tax profit rather than to aggressively avoid company tax. Further, distribution of franked dividends is valued by shareholders because of the imputed tax credits and investors are therefore willing to pay a higher price for shares in companies that pay franked dividends. It is thus likely that remuneration based on share options provides incentives for managers to adopt conservative tax strategy, i.e., to pay company tax as required by law to frank dividends. The frequency distribution of the indicator remuneration variable (presented in Chapter 6) shows 74% of company-year observations have share option remuneration. This thesis tests the hypothesis that managers rewarded with share options do not have incentives to aggressively avoid tax.

The time frame for this study is the five years of tax rate changes following a government enquiry into business tax (Commonwealth of Australia, 1999). Company tax rate was reduced from 36% to 30% over a two year period. Those companies able to quickly implement deferral of taxable income would accrue windfall tax savings. While adoption of aggressive tax strategy to defer taxable income is expected in a classical system, it is not expected in a dividend imputation system where company tax is a pre-paid shareholder tax. Companies are therefore less likely to aggressively pursue windfall tax savings in years before tax rate falls. In fact there may even be incentives for companies to accelerate recognition of taxable income and franked dividend payout to distribute as much franking credits as possible before the tax rate fall, as shareholders prefer more franking

credits than less. The fourth hypothesis tests whether managers pursued more aggressive tax strategies in years before tax rate fall. It predicts that managers do not have incentives to do so. Setting this study between the years 1999 and 2003 provides an opportunity to test this hypothesis.

7.4 Results of hypotheses testing and implications

As reported in Chapter 6, predictions of all hypotheses were supported with high levels of statistical significance. The variable used to test the extent of dividend payout and franking had a positive relation with tax strategy. This means that the more franked dividends are distributed, the closer the ETR will be to the STR, and the more conservative company tax strategy will be observed. This result provides empirical support for the notion that a dividend imputation system of company tax mitigates the incentives of at least some publicly-traded companies to avoid tax.

Results for the second hypothesis show that the indicator variable for close tax office scrutiny has a significant positive relation with tax strategy. This confirms that the risk of close scrutiny by the tax office affects company tax strategy. Those company groups with revenue above the threshold of $100 million are more likely to have ETRs approaching the STR, suggesting they are less likely to pursue aggressive tax strategies. This is an interesting result as the negative regression coefficients for the size variable in the same regression models show that larger companies have lower ETRs, consistent with the findings of prior Australian studies by Harris and Feeny (2003), and Tran and Yu (2008). The proxy for firm size in all Australian studies is total assets. One implication from the results of this study is that an

indicator variable based on total revenue and a continuous variable based on total assets can be used to measure different company characteristics despite correlation between revenue and total assets. The result of a positive relation between close tax office scrutiny and tax strategy also implies that ATO large company audit strategies are effective in protecting company tax revenue.

The third hypothesis that managers in receipt of share option remuneration pursue conservative tax strategies is also supported by the results of this study. The remuneration indicator variable has a highly significant positive relation with tax strategy in contrast to the negative relation found in US studies in a classical tax system. This is an exciting result as it clearly illustrates that the incentive effects of share option remuneration are different in different institutional environments.

The positive and significant regression coefficients for the year indicator variables for 2000 in one model, and for 2001, 2002 and 2003 in all three models suggest the lack of aggressive tax strategy adopted in these years compared with 1999, and provide evidence that companies gave up the opportunity to save tax when company tax rate fell in two steps in 2001 and 2002. The results can be contrasted with the findings by Guenther (1994) in the classical tax system.

7.5 Implications for further research

The results of this research project suggest directions for future research.

Due to the lack of readily available data, this study does not test the impact of foreign shareholdings in Australian public companies on the tax strategies of these companies. It may be possible for the extent of foreign shareholding to be estimated from the top 20 shareholders disclosed in corporate financial reports, and from data obtainable from major stock exchanges overseas where Australian companies are also listed. For example, it may be possible to find out the proportion of an Australian company's shares that are held as American Depository Receipts from the New York Stock Exchange if the company is listed on both the ASX and the New York Stock Exchange. If the proportion of foreign shareholding can be estimated, studies of company tax strategies in an imputation system can be extended to test the impact of foreign ownership.

In a dividend imputation system, tax management strategy is more than tax avoidance. Australian companies with foreign income and foreign shareholders also have incentives to ensure that the imputation credits generated by Australian tax paid can be fully utilised by domestic shareholders. As a result, dividend streaming arrangements such as stapled securities have been devised to distribute franked dividends to domestic shareholders and unfranked dividends to foreign shareholders. Companies that have paid Australian tax and accumulated imputation credits but do not have the cash resources to pay dividends also have incentives to "sell" their imputation credits. The existence of provisions in the tax legislation to attack dividend-streaming and imputation-credit-trading schemes indicates the prevalence of these activities. This is a potential area for future research.

The proposition that the imputation system mitigates the incentives of companies to avoid Australian tax may only hold true for Australian publicly-traded companies with predominantly domestic ownership. Australian subsidiaries of foreign multinationals (e.g., oil companies, car manufacturers) and private or proprietory companies may still have strong incentives to avoid tax. The tax strategies of Australian subsidiaries of foreign multinationals and private or proprietory companies are interesting areas for future research. However, due to the lack of publicly available financial reports, different research designs and data collection techniques (e.g., interviews) have to be adopted.

Remuneration in the form of share options for managers of companies in a dividend imputation system results in a less aggressive tax strategy. This area may also benefit from further research.

7.6 Limitations

Taxable income of companies and income tax paid based on taxable income are unobservable. Company tax information used in this study has been taken from tax disclosures in publicly available annual reports. Tax strategy of a company is proxied by the ratio of its ETR to the STR, and the difference of this ratio from unity indicates the book-tax income gap (i.e., permanent and timing differences between pre-tax accounting profit and taxable income, expressed as a fraction of pre-tax accounting profit). Book-tax income gap can be explained by the differences between financial reporting rules and tax rules, by tax strategy, and by earnings management.

Therefore, when ETR or book-tax income gap is used as a proxy for tax strategy in this study (as well as in many other studies conducted in the US), an implicit assumption is that rule differences and earnings management are assumed to be constant in the study period. This assumption does not always hold, so the findings should be interpreted with this limitation in mind.

This study has used a sample of large, profitable, publicly-traded Australian companies, so the findings may not apply to listed companies with operating losses, to private or proprietary companies, or to foreign companies operating in Australia. Due to lack of information, the extent of foreign ownership has not been included in this study as an explanatory variable, so it is unknown how foreign ownership affects the tax strategy of companies in a dividend imputation system.

The time frame of this study was the five years from 1999 to 2003 because one of the purposes of this study was to test whether companies adopted aggressive tax avoiding strategies when opportunities arose from reductions in tax rate in 2001 and 2002. The presence of tax law changes concurrently with tax rate reductions in this period may have confounded the results, although some effects of tax law changes might have been captured by inclusion of control variables. For instance, the inclusion of capital intensity variable might have captured the effect of removal of accelerated depreciation, and the inclusion of the indicator variable for the diversified financials industry might have captured some effect of removal of indexation in computing capital gains (from investments).

Global and economic factors over the period 1999 to 2003 may have impacted the operating, investing and financing decisions of companies in the sample of companies used in this research project over that period. An overview of the economic environment during these years shows that, although the world economy was relatively eventful, Australia's economy and financial markets grew strongly (Reserve Bank of Australia, 1999-2003). Economic factors excluded from the analysis and relevant to tax strategy that may affect implications derived from results of the study are acknowledged.

7.7 Overall conclusions

Literature about the propensity of companies to avoid tax is largely confined to the US classical tax system. The important findings of this thesis are that this prior literature is not necessarily relevant to a non-classical dividend imputation environment. In particular, this thesis predicts that managers have incentives to maximise profit before-tax, rather than profit after-tax, and this is likely to mitigate aggressive tax avoidance. Results of analysis show that where franked dividends are distributed, tax strategies are conservative, including where managers receive share options as part of their remuneration. Even in a period of tax rate falls when there is opportunity to make windfall tax savings, tax strategy remains conservative. One important policy implication of the findings from this study is that it provides empirical support for the notion that Australia's dividend imputation system protects the integrity of corporate tax revenue. This is an advantage compared to the classical system that taxes profits twice.

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AASB 1018: *Statement of Financial Performance*
AASB 1020: *Accounting for Income Tax (Tax-Effect Accounting)*
AASB 1022: *Accounting for the Extractive Industries*
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APPENDICES

Appendix A: Summary of selected literature from tax and accounting research about the relation between managerial incentives and tax strategy

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Book-tax gap literature in a classical company tax system – measurement of tax avoidance							
Manzon & Plesko	The Tax Law Review (2002)	Explore magnitude and sources of book-tax gap	1988-99	Regression analysis	Book-tax difference	Change in sales, PP&E, goodwill, intangibles, income, foreign income	**Gap due to a small number of factors; these have not changed over time and largely due to tax favoured investment.**
Mills, Newberry & Trautman	Tax Notes (2002)	Comparison of financial statement data to tax return data to assess reasons for gap	1991-98	Trend of gap over time	Book-tax return disclosed gap	Industry, global operations, profitability	**Greatest difference for multi-nationals in the financial services industry & commun-ications and with positive taxable income.** **Gap grew over time.**
Desai	Tax Policy and the Economy (2003)	Reasons for book-tax gap	1982-00	Econometric modelling, regression	Book income	Taxable income	**Difference in book-tax treatment of options does account for some of growing gap but not all.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Hanlon	The Accounting Review (2005)	Book-tax differences as indicators of persistence of future earnings	1994-00	Econometric regression modelling	Book income	Prior period book income, 3 subsamples of degree of book-tax differences, cash flows	**Years of large positive book-tax difference have lower earnings persistence, same for negative book-tax difference. Positive book-tax difference is red flag to investors as they price down.**
Desai & Dharmapala	Journal of Financial Economics (2006)	Influence of managerial incentives on tax avoidance (book-tax difference)	1993-01	Econometric regression modelling	Book-tax difference not explained by accruals	Incentive compensation, year, firm fixed effects, size, level of corporate governance	**Stock option incentives are associated with lower levels of tax sheltering but not in well governed firms. Supports findings of investors pricing down shares if they do not benefit from tax sheltering.**
Graham & Tucker	Journal of Financial Economics (2006)	Is tax sheltering related to debt policy?	1975 - 2000 sample of 44 large tax shelterers	Analysis of matched sample and regression analysis	Debt/asset ratio	Tax shelter dummy, sales, markets value, dividend dummy, ROA, collateral assets	**Firms that use tax shelters use less debt on average than do matched firms. Tax sheltering important economically.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Wilson	The Accounting Review (2009)	Profile of low ETR companies	1975-2002	Analysis of company characteristics	Total tax expense/ accounting profit	Book-tax differences, aggressive financial reporting practises, size, foreign operations	**Book-tax differences are indicative of tax aggressiveness, size is positively related and foreign income**
Book-tax gap literature in a dividend imputation company tax system – measurement of tax avoidance							
Tran	Australian Tax Forum (1998)	To identify the causes of the book-tax income gap to address the book-tax alignment issue	1984-93	Detailed analysis of tax notes in annual reports of 46 firms	Book-tax gap	Reconciliation items identified or not in tax notes	**Major causes were non-deductibles, non-taxable capital gains, timing differences, dividend income, incentives and foreign tax rate differences. Timing differences do not fully reverse over time.**
Effective tax rate literature in a classical company tax system – relative measurement of tax efficiency/avoidance							
Stickney & McGee	Journal of Accounting & Public Policy (1982)	Neutrality of corporate income tax	1978 and 1980	Cluster analysis of sample	Total tax expense/ (accounting profit - timing differences)	Capital intensity, foreign operations, natural resources, size, leverage	**Capital intensity, leverage and natural resource firms important in reducing ETR and foreign operations, size less important.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Zimmerman	Journal of Accounting & Economics (1983)	Firm size as a proxy for political costs	1947-81	Time series and cross-sectional analysis	Total tax expense/operating cash flows	Size (sales)	**50 largest US firms have greater ETR than other firms.**
Wilkie	Journal of the American Tax Association (1988)	Effect of profitability on ETR research findings	1980-84	Cross-sectional and inter-temporal analysis	Current tax expense/accounting profit	Pre-tax accounting profit, size (assets)	**Profitability is a determinant of ETR**
Omer, Molloy & Ziebart	Journal of the American Tax Association (1991)	Comparison of ETR measures from previous research	1980 and 1983	Comparison of means, max, min of 5 ETR measures			**There are significant differences so use more than one ETR measure for robustness.**
Wilkie & Limberg	Journal of the American Tax Association (1993)	Assessment of ETR as measure of tax burden	1968-85	Sample analysis with alternative measure	Average rates		**ETR imperfect measure**
Callihan	Journal of Accounting Literature (1994)	Literature review of ETR research		Tables prior studies			**Different methodologies produce conflicting results**
Gupta & Newberry	Journal of Accounting & Public Policy (1997)	Determinants of variability in corporate ETRs	1982-85 1987-90 Pre and post tax reform	Multivariate OLS regression estimation using longitudinal company data	Current tax expense/pre-tax profit Current tax expense/pre-tax operating cash flow	Size, capital structure, asset mix (capital intensity, inventory and R&D), profitability	**No distinct relation to size, negative association with capital intensity and profitability.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Mills, Erickson & Maydew	Journal of the American Tax Association (1998)	Returns of investment in tax planning (minimisation)	1990-92 average for ETR 1991 for variables	Survey, then analysis of returns to tax planning	Current tax expense/pre-tax income	Tax planning costs, size, foreign operations, capital and inventory intensity, number of entities, leverage, industry	**Negative relation between tax planning and ETR.**
Holland	Journal of Business Finance & Accounting (1998)	Relationship between firm size and ETR	UK data 1968-93	Statistical comparison of deciles	Current tax expense/accounting income	Size measured by sales and assets	**Positive relation 1968-79, weaker in 1980-93 and negative in 1978 and 1982.**
Yin	Virginia Law Review (2003)	Longitudinal change in ETR of S&P 500	1995 - 2000	Comparison of sample averages	Current tax expense/accounting income		**ETRs fell throughout the 6 year period, mainly due to stock option accounting & tax law differences.**
Rego	Contemporary Accounting Research (2003)	Effect of larger, more profitable, multinational companies and ETR	1990-97	Multivariate OLS regression estimation	Current tax expense/accounting income	Size, income, foreign operations, industry, year, geographical location	**Large companies have positive relation with ETR while those with foreign operations and greater profit have negative relation.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Plesko	Journal of Accounting & Economics (2003)	Reliability of ETR calculated from numbers in financial statements	Matched sample of tax return and financial statement data for 1992	Correlation statistics of 2 samples in multivariate setting	Various ETRs used in prior research		**Different measures but ETR from financial statements useful when used by managers to make decisions.**
Lisowsky	The Journal of the American Taxation Association (2009)	Reliability of using ETR from financial statements	2000-04	Regression analysis	total tax per tax return	Current tax expense, foreign income, R&D expense, size, leverage, industry, and other financial disclosures	**Reliable estimates of a tax position as strong positive relation between current tax expense and total tax liability.**
Dyreng, Hanlon & Maydew	The Accounting Review (2008)	Develop and describe cash ETR as long run measure of tax minimisation	1995-2004	Cross sectional distributional analysis of cash ETR Regression of one year and 10 year ETRs	Average cash tax paid/ accounting profit	Industry, market value	**Annual cash ETR not a good predictor of long run ETR, significant proportion (26.3% of sample) have persistently low cash ETR, not explained by industry.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Effective tax rate literature in a dividend imputation company tax system – relative measurement of tax efficiency/avoidance							
Tran	Australian Tax Forum (1997)	Measure book-tax gap caused by permanent differences to address the book-tax alignment issue	1983-93	Regression analysis	Average ETR	Industry, size	**Gold, investment companies and financial services industries had lower ETR than other industries; large companies had lower ETR than smaller companies measured by both assets and profits.**
Tran & Porcano	Pacific Accounting Review (1997)	Equity dimension of Australian tax system using ETRs	1983-93	Regression analysis	Average ETR	Industry, size	**Significant negative relation between size and ETR because large firms are better able to use tax incentives.** **Shows tax inequity.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Wickerson, Reddan & Khan	Tax Administration in the 21st Century (2001)	Macro-level trends and patterns of ETR calculated from tax returns	1992-98	Trend analysis	Tax payable/ Total assets, Tax payable/ Total profit, Tax payable/ Sales, Tax payable/ EBIT, Tax payable/ Total profit	Year	**General upward trend in ETRs over the period** **Downward trend in ETR over period for tax payable/total profit and volatile around 1996 (tax rate increase).**
Harris & Feeny	Applied Economics (2003)	Modelling large company ETRs using ATO data	1994-97	Regression analysis	Current tax payable/Profit before tax	Capital intensity, leverage, size, foreign operations, ROA, R&D	**Size, foreign operations, R&D expense, capital intensity associated with lower ETR. ETR also exhibits habit persistence.**
Tran & Yu	Australian Tax Forum (2008)	Comparison of ETR of companies before and after business tax reforms following the Review of Business Taxation	1994-04	Regression analysis	Total tax expense/accounting profit Current tax expense/ accounting profit	Industry, size, time period	**Industry differences in ETR, medium sized companies have higher ETR than top 20 companies and smallest companies, difference between ETR and STR has narrowed after business tax reforms.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Incentive effect of dividend distribution literature in a classical company tax system							
Modigliani & Miller	The American Economic Review (1958)	Deriving theory that value of firm is independent of capital structure		Static, partial equilibrium analysis			**Average cost of capital is a constant for all firms carrying the same risk and independent of capital structure. Relation between return and capital structure is linear.**
Miller & Modigliani	The Journal of Business (1961)	Deriving theory that value of firm is independent of dividend payout policy		algebra			**Dividend policy is irrelevant for the determination of market prices (in the absence of taxes).**
Peacock, Martin, Burrow, Petty, Keown, Scott & Martin	Financial Management text book, 3rd edition (2003)	Chapter on dividend policy					**Dividend policy determined by internal investment and financing opportunities and constraints.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Dhaliwal, Erickson & Trezevant	National Tax Journal (1999)	Tests theory of tax clienteles for dividend policies	US 1982-95	Examines changes in ownership after dividend policy changes	Change in institutional ownership	Dividend initiation, change in MV, ROA, size	**Increase in institutional ownership after initiation of dividend. Provides evidence that investors choose shares suited to tax preference.**
Graham	The Review of Financial Studies (2003)	Review of tax literature on how tax affects company decisions- dividends, financing, investing	M&M to 2000	Discussion of propositions and findings from prior literature	Tax liability	Financing, payout, remuneration policy, interaction of these	**Supports hypothesis that high tax rate firms pursue policies that provide tax benefits. Questions remain: why not more aggressively pursued?**
Brav, Graham, Harvey & Michaely	Journal of Financial Economics (2005)	Determination of factors that drive dividend decisions		Survey of 384 executives of US cos.			**Payout policy has little impact on investor clientele. Not used as a tool to alter ownership. Tax considerations play a secondary role.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Incentive effect of dividend distribution literature in a dividend imputation company tax system							
Poterba & Summers	The Journal of Finance (1984)	British data used to study effect of tax on dividends and share price	1955-81	After-tax CAPM model	After-tax return	Dividends and capital gains	**Tax on dividends reduces their relative valuation by investors. Thus valuation of dividends depends on tax regimes.**
Hamson & Ziegler	Accounting & Finance (1990)	Impact of dividend imputation on financial decisions of a company	1985 onwards	Analysis of dividend, financing and investing decisions of company			**Dividend clienteles expected to change to those who can and cannot use company tax credits.**
Nicol	Australian Accounting Review (1992)	Analysis of dividend payout policy of 422 Australian companies following dividend imputation	1982-90	Analysis of dividend policies of company paying franked & unfranked dividends	Dividend payout ratio		**Increase in payouts of franked dividends, decrease in unfranked payouts (mainly in resources sector). Shows difference in payouts between companies.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Anderson	JASSA (1993)	Post imputation do institutional investors prefer dividends to capital gains?	Post 2000	Survey to 37 investment managers (26 responses)	Relationship of dividends and share price	Importance of investors to dividend payout policy	**Dividends are important to share price, no clear preference for dividend or capital gains, companies do take dividend preferences into account.**
Brown & Clarke	Australian Journal of Management (1993)	Share pricing before and after dividend imputation	1973-91	Share price modelling before and after dividend imputation	Return before dividend payout	Return after payout	**Support for existence of a clientele effect across dividend yield pre-imputation but reject after. Investors preferred capital gains even after tax changes.**
Bellamy	Asia Pacific Journal of Management (1994)	Investigates development of dividend clienteles following imputation	1985-92	Regression analysis	Normal (average 1985-87) dividend payout	Level of franking, years	**Increase in franked dividend payouts relative to unfranked payouts. Supports existence of dividend clienteles.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Lasfer	Journal of Banking & Finance(1996)	Effect of company and personal tax on dividend payout adjustments and share price	1973-83 British data	Modelling dividend payout – generalised least squares regression	Dividend payout	EPS, company ETR, personal income tax rate	**Tax affects both payout policy and ex-day returns. No evidence of tax-induced dividend clientele effect. Support P&S. Dividend policy is affected by shareholder's tax position.**
Kenny	Australian Dividend Handbook (2001)	Table and graph of dividend payout	1987-2001				**Average payout is 60%.**
Wilkinson, Cahan & Jones	Journal of International Accounting, Auditing & Taxation (2001)	Effect of dividend imputation on tax minimisation	NZ data 1991-95	Multivariate OLS regression estimation	Current tax expense/accounting income	Size profitability, leverage, capital intensity, payout ratio, foreign ownership	**Negative relation between companies with high foreign ownership & high dividend payouts but less so after FCT extended to foreign shareholders.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Pattenden & Twite	Journal of Corporate Finance (2008)	Examines changes in dividend policy around the introduction of a dividend imputation tax system.	1982-97	Regression analysis	Gross dividend payout	ETR, imputation, franking, profitability, operating risk, tangible assets, market-to-book ratio, leverage, size	**Dividends increased following imputation, positive relation with franked dividends and ETR.**

Incentive effect of tax office scrutiny (accounting policy choice literature)

Jensen & Meckling	Journal of Financial Economics (1976)	Develops a theory of ownership structure		Econometric modelling	Optimisation for firm value and wealth	Agency costs,	**Creditors and investors ensure managers operate in their interests with contracts in place.**
Zimmerman	Journal of Accounting & Economics (1983)	Firm size as a proxy for political costs	1947-1981	Time series and cross-sectional analysis	Total tax expense/operating cash flows	Size (sales)	**50 largest U.S. firms have greater ETR than other firms.**
Wong	Journal of Accounting & Economics (1988)	Examines effect of political costs on accounting choice	Listed NZ companies in 1984	Statistical differences in a two-sample design	Choice of 2 accounting methods	ETR, export tax credit, sales	**Politically sensitive companies adopt method of accounting for export tax credits that raises their reported ETR to that of non-politically sensitive companies.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Northcut & Vines	The Journal of the American Taxation Association (1998)	Investigates whether political scrutiny of ETRs influences accounting policy choice	1981-84	Cross-sectional regression analysis	Change in deferred tax expense (increase is proxy for low book-tax conformity)	ETR, change in PPE, change in income tax, leverage, size (assets)	**Political scrutiny of ETRs causes companies with low ETRs to choose income-decreasing accruals with low book-tax conformity.**
Mills	Journal of Accounting Research (1998)	Relation between IRS adjustments and book-tax differences	1982-92	Regression analysis	IRS adjustments	Book-tax differences, net PP&E, foreign income, industry	**Positive relation between adjustments and book-tax differences.**
Cho, Wong & Wong	Journal of Business Finance & Accounting (2006)	Relation between IRS adjustments and book-tax differences	NZ data 1991-00	Regression analysis	IRS adjustments	Book-tax differences, net PP&E, foreign income, industry	**Positive relation between adjustments and book-tax differences.**
Wickerson, Reddan & Khan	Tax Administration in the 21st Century (2001)	Macro-level trends and patterns of ETR calculated from tax returns	1992-98	Trend analysis	Tax payable/Total Assets Tax payable/ Total profit Tax payable/sales Tax payable/EBIT Tax payable/total profit	year	**General upward trend in ETRs over the period** **Downward trend in ETR over period for tax payable/total profit and volatile around year of tax rate increase (1996).**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Braithwaite	Markets in Vice, Markets in Virtue (2005)	Book describing tax avoidance services		Interviews with accounting firms offering tax avoidance advice	Description of ATO large company and transfer pricing audits.		**Documented cost of avoidance.**
Carmody	Large Business and Tax Compliance (2005)	Address to international CFO Forum, Sydney	2003-05	2/3 corporate tax collected from large corporate groups	Audits of those showing low ETRs, aggressive tax planning	Large are defined as groups with turnover>$100m	**Tax realized in audits of $3b in 2002/3, 2003/4 & 2004/5**
Granger	CA Charter (2003)	Interviewed about when ATO will investigate a large company audit			Audits of those showing low ETRs, aggressive tax planning		

Incentive effect of remuneration based on after-tax profit literature

Watts & Zimmerman	Positive Accounting Theory (1986)	Political cost hypothesis		Analytical discussion	Presence of political costs	Affects managers behaviour	**Transfer of resources is avoided by managed disclosure.**
Phillips	The Accounting Review (2003)	Investigation of whether compensating CEOs and tax managers using after-tax measures is associated with lower ETRs	1995-97	Survey of corporate executives	ETR = total tax expense/ Accounting profit	After-tax remuneration, foreign operations, leverage, size, ROA, industry, capital intensity, tax planning expense	**Compensating BU managers on after-tax measures decreases ETR but not CEOs.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Desai & Dharmapala	Journal of Financial Economics (2006)	Influence of managerial incentives on tax avoidance (book-tax difference)	1993-01	Econometric regression modelling	Book-tax difference not explained by accruals	Incentive compensation, year, firm fixed effects, size, level of corporate governance	**Stock option incentives are associated with lower levels of tax sheltering but not in well governed firms. Shares priced down.**
Robinson, Sikes & Weaver	The Accounting Review (2010)	Investigate association between tax dept as a profit centre and ETR	1999	Survey of CFOs	ETR = Total tax expense/ Accounting profit	Profit centre, leverage, capital intensity, foreign operations, R&D, size, ROA, industry, growth	**Profit centre companies are associated with significantly lower ETRs.**
Dyreng, Hanlon & Maydew	The Accounting Review (2010)	Association between individual top executives and ETR	1992-2006	Track 908 executives across firms over time using regression analysis	ETR = Total tax/Acc. profit ETR = Tax paid/Acc. profit	Firm, year, executive, control variables vector	**Top executives explain variation in ETRs across firms, "tone at the top" effect and economically large.**
Rego & Wilson	Working paper, (2010)	Examines association between tax aggressiveness and equity-based compensation		Regression analysis	Equity compensation	Equity compensation, economic variables, board of directors characteristics	**Tax aggressiveness positively associated with level of CEO and CFO compensation.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Incentives to manage earnings when tax law changes from the tax trade-off literature							
Scholes, Wilson & Wolfson	Journal of Accounting Research (1992)	Document extent of taxable income shifting and discuss cross-sectional differences in doing so	1986-88	Experimental estimate of tax savings compared with actual	Gross margin and Ratio of selling, general & admin expenses to sales		**Gross margin (sales) deferred but not expenses in quarter before but significant over the longer phase –in period.**
Matsunaga, Shevlin & Shores	Journal of Accounting Research (1992)	Document that some firms forego tax savings by not disposing of incentive stock options to avoid reductions in reported accounting income	1982-91	Regression model	Parametric non-disqualifying or disqualifying firms	Net tax benefits, interest and dividend coverage, leverage, ratio of share price to exercise price	**Strong support for net tax benefits and financial reporting costs hypotheses. Employers trade off net tax benefits of a deduction for compensation with financial reporting costs of lower earnings associated with disqualifications.**

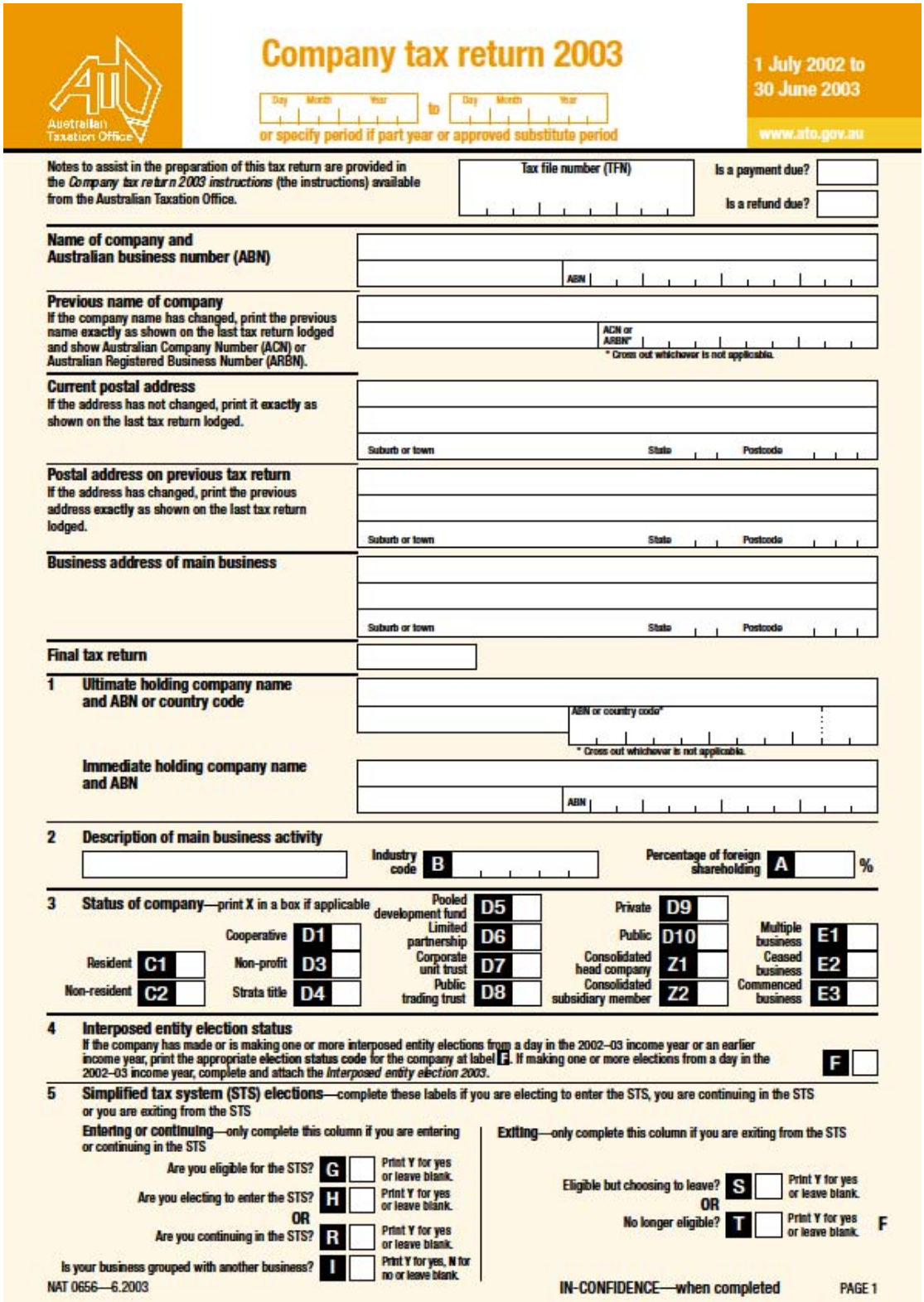
Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Guenther	The Accounting Review (1994)	Do firms defer income in response to tax rate change of 46 to 34%?	Sample from 1990 1972-88 data Prediction period 1985-88	Earnings management models	Current accruals/assets	Changes in sales/assets	**Results show lower current accruals for large firms for the year prior to the tax rate reduction. Confirm Scholes et al.**
Lopez, Regier & Lee	The Journal of the American Taxation Association (1998)	Do tax aggressive firms take greater advantage of tax rate change?	1985-88	Earnings management model	Parametric variable of 1 if discretionary current accruals are negative	Size, long-term debt, tax aggressive firm or not, ownership, carry forward losses	**Association between tax aggressiveness (favourable tax status) and income shifting in prior period to tax rate fall. Positive relation between magnitude of rate change and magnitude of discretionary accruals.**
Healy & Wahlen	Accounting Horizons (1999)	Review of earnings management literature to provide insight to standard setters	Evidence that some firms do manage earnings	To avoid reporting a loss, an earnings decline or fail to meet investors' expectations			**EM does exist to influence share market perceptions, to increase compensation, avoid violating debt covenants and regulation.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Dechow & Skinner	Accounting Horizons (2000)	Discuss disparity between practitioner and academic perceptions about EM	Little academic proof of rampant EM	Can EM be measured? Academics should focus on capital market effects of EM	Discuss that EM is not fraud but accounting can be conservative or aggressive to smooth income	Managers have strong incentives to "beat benchmarks" so desire to manage earnings	**Managers of firms issuing equity have strong incentives to boost share price and hence engage in earnings management.**
Shackelford & Shevlin	Journal of Accounting & Economics (2001)	Details empirical book-tax trade-off literature from micro economics		Methodological problems with studies as no control vectors for financial reporting incentives			**Suggestions for future research more related to share market effects of managerial actions to avoid tax.**
Kasznik & McNichols	Journal of Accounting Research (2002)	How important is is for firms to meet earnings expectations?	1986-93	Regression analysis	return	Expectation met, positive error, negative error, premium	**Firms meeting expectations have significantly higher earnings forecasts and realized earnings than firms that do not. Market assigns higher value to firms that consistently meet expectations.**
Erickson, Hanlon & Maydew	The Accounting Review (2004)	Do firms pay tax on fraudulent (overstated) earnings	1996-02	Sample of 27 actual "restatements" of earnings	Difference between real and inflated	Calculation of tax on this difference	**$320m paid in tax on false earnings to hide overstatement of financial earnings.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Yin & Cheng	Review of Accounting & Finance (2004)	Contrasts EM of profit firms and loss firms when tax rate changes	1986-88	EM model, same as Guenther but extends this to 2 samples (profit and loss)		Profit firms use negative current accruals to take advantage of tax benefits because the non-tax costs are lower.	**Tax rate reductions have little impact on tax avoidance of loss firms. Non-tax incentives explain more variations in current accruals.**
Graham, Harvey & Rajgopal	Journal of Accounting & Economics (2005)	Interviews to determine factors that drive reported earnings and disclosure decisions	2003 survey 2003-05 Interview of 22 CFOs	Survey of 400 executives	Earnings management and voluntary disclosure	78% of sample sacrifice long-term value to smooth earnings. Short term focus on reported earnings	**Earnings, not cash flows most important. 56% defer valuable long-term projects to meet targets.**
Davenport & Tran	Australian Tax Forum (2004)	Using stock valuation choice to save tax when tax rate increases	1994-97	Difference of means statistical t-test.	FITB difference/total assets	Current ratio, interest expense/TL, tax loss firms	**Firms with inventory shifted taxable income from 1996 to 1995. Liquidity, interest cost and tax losses did not inhibit the shifting.**

Author	Journal & date	Motivation/ research question	Sample period	Method	LHS variable	RHS variables	Conclusions
Tran & Yu	Australian Tax Forum (2008)	Comparison of ETR of companies before and after business tax reforms following the Review of Business Taxation	1994-04	Regression analysis	Total tax expense/accounting profit Current tax expense/ accounting profit	Industry, size, time period	**Industry differences in ETR, medium sized companies have higher ETR than top 20 companies and smallest companies, difference between ETR and STR has narrowed after business tax reforms.**

Appendix B: C company tax return 2003



Australian Taxation Office

Company tax return 2003

Day Month Year to Day Month Year

or specify period if part year or approved substitute period

1 July 2002 to 30 June 2003

www.ato.gov.au

Notes to assist in the preparation of this tax return are provided in the *Company tax return 2003 instructions* (the instructions) available from the Australian Taxation Office.

Tax file number (TFN)

Is a payment due?

Is a refund due?

Name of company and Australian business number (ABN)

ABN

Previous name of company
If the company name has changed, print the previous name exactly as shown on the last tax return lodged and show Australian Company Number (ACN) or Australian Registered Business Number (ARBN).

ACN or ARBN*

* Cross out whichever is not applicable.

Current postal address
If the address has not changed, print it exactly as shown on the last tax return lodged.

Suburb or town State Postcode

Postal address on previous tax return
If the address has changed, print the previous address exactly as shown on the last tax return lodged.

Suburb or town State Postcode

Business address of main business

Suburb or town State Postcode

Final tax return

1 Ultimate holding company name and ABN or country code

ABN or country code*

* Cross out whichever is not applicable.

Immediate holding company name and ABN

ABN

2 Description of main business activity

Industry code B

Percentage of foreign shareholding A %

3 Status of company—print X in a box if applicable

Resident C1
Non-resident C2
Cooperative D1
Non-profit D3
Strata title D4
Pooled development fund D5
Limited partnership D6
Corporate unit trust D7
Public trading trust D8
Private D9
Public D10
Consolidated head company Z1
Consolidated subsidiary member Z2
Multiple business E1
Ceased business E2
Commenced business E3

4 Interposed entity election status
If the company has made or is making one or more interposed entity elections from a day in the 2002–03 income year or an earlier income year, print the appropriate election status code for the company at label F. If making one or more elections from a day in the 2002–03 income year, complete and attach the *Interposed entity election 2003*.

F

5 Simplified tax system (STS) elections—complete these labels if you are electing to enter the STS, you are continuing in the STS or you are exiting from the STS

Entering or continuing—only complete this column if you are entering or continuing in the STS

Are you eligible for the STS? G Print Y for yes or leave blank.
Are you electing to enter the STS? H Print Y for yes or leave blank.
OR
Are you continuing in the STS? R Print Y for yes or leave blank.
Is your business grouped with another business? I Print Y for yes, N for no or leave blank.

Exiting—only complete this column if you are exiting from the STS

Eligible but choosing to leave? S Print Y for yes or leave blank.
OR
No longer eligible? T Print Y for yes or leave blank.

F

NAT 0656—6.2003

IN-CONFIDENCE—when completed

PAGE 1

Information statement To be completed by all companies

6 Calculation of total profit or loss

Income

Gross payments where ABN not quoted	A		
Other sales of goods and services	C		
Gross distribution from partnerships	D		
Gross distribution from trusts	E		CODE
Gross interest	F		
Gross rent and other leasing and hiring income	G		
Total dividends	H		
Fringe benefit employee contributions	I		
Assessable government industry payments	Q		CODE
Other gross income	R		
Total income	S		F

Expenses

Cost of sales	A		
Contractor, sub-contractor and commission expenses	C		
Employee superannuation	D		
Bad debts	E		
Lease expenses within Australia	F		
Lease expenses overseas	I		
Rent expenses	H		
Interest expenses within Australia	V		
Interest expenses overseas	J		
Royalty expenses within Australia	W		
Royalty expenses overseas	U		
Depreciation expenses	X		
Motor vehicle expenses	Y		
Repairs and maintenance	Z		
All other expenses	S		
Total expenses	Q		

Operating profit or loss

Subtract **Total expenses** Q from **Total income** S	R		
Extraordinary revenue or expenses	N		
Total profit or loss	T		F

7 Reconciliation to taxable income or loss

Total profit or loss amount shown at label T, item 6			
Did you have a CGT event during the year?	G		Print **Y** for yes or **N** for no.

Do you need to complete a *CGT schedule 2003*?

Also print **Y** for yes at label G if the company received a distribution of a capital gain from a trust.

Add: Net capital gain	A		
Non-deductible exempt income expenditure	U		
Franking credits	J		
Other assessable income	B		
Non-deductible expenses	W		
R&D accounting expenditure claimed under R&D tax concession	D		
Subtotal			

Less: Section 46FA deductions for flow-on dividends	C		
Deduction for decline in value of depreciating assets	F		
Immediate deduction for capital expenditure	E		
Deduction for project pool	H		
Capital works deductions	I		
Section 40-880 deduction	Z		
Development allowance	K		
R&D concession claim (100%,125% **not** 50% increment)	L		
R&D incremental concession —additional 50% increment	M		CODE
Landcare operations and deduction for decline in value of water facility	N		
Deduction for environmental protection expenses	O		
Offshore banking unit adjustment	P		
Exempt income	V		
Other income not included in assessable income	Q		
Other deductible expenses	X		
Do you need to complete a *Losses schedule 2003*? Tax losses deducted	R		
Tax losses transferred in	S		
Subtraction items subtotal			

Add: Election to take R&D tax offset	Y		
Taxable income or loss	T		F

PAGE 2

8 Financial and other information

Do the 21 September 1999 prepayment changes apply? **T** Print **Y** for yes or **N** for no.

If you printed **Y**, complete labels **X** and **Y**.

- Initial year 13 month prepaid expenses **X**
- Later year 13 month prepaid expenses **Y**
- Opening stock **A**
- Purchases and other costs **S**
- Closing stock **B** CODE
- Trading stock election ■ Print **Y** for yes or leave blank.
- Trade debtors **C**
- All current assets **D**
- Total assets **E**
- Trade creditors **F**
- All current liabilities **G**
- Total liabilities **H**
- Total debt **J**
- Commercial debt forgiveness **K**
- Shareholders' funds **R** F
- Franked dividends paid **J**
- Unfranked dividends paid **K**
- Franking account balance **M**

- Excess franking rebate **H**
- Balance of unfranked non-portfolio dividend account at year end **L**
- Loans to shareholders and their associates **N** CODE
- Intangible depreciating assets first deducted **Z**
- Other depreciating assets first deducted **A**
- Termination value of intangible depreciating assets **P**
- Termination value of other depreciating assets **E**
- Total salary and wage expenses **D** CODE
- Payments to associated persons **Q**

Do you need to complete a *Losses schedule 2003*?
- Net foreign income **R**
- Tax spared foreign tax credits **S**

Attributed foreign income

Do you need to complete a *Losses schedule 2003*?
- Broad-exemption listed country **B**
- Limited-exemption listed country **C**
- Unlisted country **U**
- Transferor trust **V**
- Foreign investment fund income **W**
- Foreign life policy **X**

- Foreign currency exchange gains or losses of a capital nature **I**
- Section 128F exempt interest paid **O** F

9 STS depreciating assets

For completion by STS taxpayers only. STS taxpayers are not required to complete a *Capital allowances schedule 2003*.

	Low cost assets (less than $1,000)	General pool assets (less than 25 years)	Long life pool assets (25 years or more)
STS depreciation deduction	A .00	B .00	C .00

10 Losses information

- Tax losses carried forward to later income years **U**
- Net capital losses carried forward to later income years **V**

A *Consolidated groups losses schedule 2003* or *Losses schedule 2003*, as applicable, must also be completed and attached if the sum of labels **U** and **V** is greater than $100,000. Refer to the applicable schedule instructions for full details of who is required to complete the schedule.

11 Personal services income

Does your income include an individual's personal services income? **N** Print **Y** for yes or **N** for no. F

If you printed **Y** at label **N**, complete and attach a *Personal services income schedule 2003*.

12 Licensed clubs only

Percentage of non-member income **A** %

13 Life insurance companies and friendly societies only

- Virtual PST **B**
- Net capital gain —complying super class **C**
- Net capital gain —ordinary class **D**
- Gross taxable contributions **E**
- Fees and charges **F**
- Exempt management fees **J**

PAGE 3

14 Pooled development funds

Small and medium sized enterprises income **G**

Unregulated investment income **H**

15 Retirement savings accounts (RSAs) providers only

Total deductions from RSAs **T**

Gross income of RSAs **R**

Exempt income from RSAs **S**

Gross taxable contributions of RSAs **W**

Net taxable income from RSAs **V**

16 Landcare and water facility tax offset

Water facility tax offset claimed **L** / CODE

Landcare and water facility tax offset brought forward from prior years **K**

17 Internet trading

Did you sell any goods or services using the internet? **Q** Print **Y** for yes or **N** for no.

Overseas transactions or interests/Thin capitalisation/Foreign source income—the following questions must be answered.
If you printed **Y** at item 19 or 20, complete and attach a *Schedule 25A 2003*.

International related party dealings/Transfer pricing

18 Did you have any transactions or dealings with international related parties (irrespective of whether they were on revenue or capital account)? Such transactions or dealings include the transfer of tangible or intangible property and any new or existing financial arrangements. **X** Print **Y** for yes or **N** for no.

19 Was the aggregate amount of the transactions or dealings with international related parties (including the value of property transferred or the balance outstanding on any loans) greater than $1 million? **Y** Print **Y** for yes or **N** for no.

20 Overseas interests
Did you have an overseas branch or a direct or indirect interest in a foreign trust, controlled foreign entity, transferor trust, foreign investment fund or foreign life policy? **Z** Print **Y** for yes or **N** for no.

21 Thin capitalisation
Did the thin capitalisation provisions apply as outlined in the instructions and the *Guide to thin capitalisation*? If yes, complete the *Thin capitalisation schedule 2003*. **O** Print **Y** for yes or **N** for no.

22 Foreign source income
Was the amount of foreign tax credits paid or carried forward greater than $100,000 **OR** was the amount of assessable foreign income greater than $500,000? **P** Print **Y** for yes or **N** for no. F

Calculation statement

				Taxable or net income	A $ .00
Foreign tax credits	D	$:		Gross tax	B $:
Franking deficit tax credit offset	E	$:	*Less:*	Rebates/tax offsets	C $:
				Tax assessed	$:
PAYG instalments raised	T	$:	*Less:*	Total of labels D and E	G $:
Credit for interest on early payments—amount of interest	V	$:		Tax payable	$:
Credit for tax withheld where ABN not quoted	W	$ .00	*Add:*	Sec102AAM interest	H $:
Tax withheld from interest/investments	Y	$:	*Less:*	Total of labels T, V, W, Y, U and Z	R $:
R&D tax offset	U	$:		Total amount of tax payable (+) or refundable (–)	S $: F
Other refundable credits	Z	$:			

Tax agent's declaration I, declare that this tax return has been prepared in accordance with information supplied by the taxpayer, that the taxpayer has given me a declaration stating that the information provided to me is true and correct and that the taxpayer has authorised me to lodge the tax return.

Agent's signature | Day Month Year | Client's reference

Contact name | Area code | Telephone number | Agent's reference number

Declaration I declare that the information in this tax return is true and correct.

Public officer signature | Hours taken to prepare and complete this tax return **J** F

Title | Day Month Year

Public officer's name | Daytime contact telephone number Area code F | Telephone number F

Appendix C: Companies included in study

AAC	Australian Agricultural Company Limited
AAP	AAPT Limited
AAS	Asian Pacific Limited
AAT	Autron Corporation Limited
AAU	Adcorp Australia Ltd
ABB	ABB Grain Ltd
ABC	Adelaide Brighton Limited
ABG	Abigroup Limited
ABS	A.B.C. Learning Centres Limited
ABX	Abelle Limited
ADB	Adelaide Bank Limited
ADG	Adtrans Group Limited
ADZ	Adsteam Marine Limited
AEC	Ammtec Limited
AEO	Austereo Group Limited
AFG	Allco Finance Group Limited
AFI	Australian Foundation Investment Company Ltd
AGL	Australian Gas Light Company (The)
AGX	Agenix Limited
AHD	Amalgamated Holdings Limited
AHS	Atlas Group Holdings Limited
AHX	Australian Hospital Care Limited
AIE	A.I. Limited
AJL	AJ Lucas Group Limited
ALL	Aristocrat Leisure Limited
ALN	Alinta Ltd
ALR	Aberdeen Leaders Limited
ALS	Alesco Corporation Limited
ALU	Altium Limited
ALZ	Australand Property Group
AMC	Amcor Limited
AMH	AMCIL Limited
ANC	Angus & Coote (Holdings) Limited
ANE	Auspine Limited
ANN	Ansell Limited
ANZ	ANZ Banking Group Ltd
AOG	Australian Oil And Gas Corporation Ltd
AOR	AurionGold Limited
APE	AP Eagers Limited
API	Australian Pharmaceutical Industries Limited
APN	APN News and Media Ltd
APY	Asia Pacific Specialty Chemicals Limited
ARG	Argo Investments Limited
ARP	ARB Corporation Limited
ASB	Austal Limited
ASL	Ausdrill Limited
ASX	ASX Limited
AUD	Ausdoc Group Limited
AUI	Australian United Investment Company Limited
AUO	Austral Coal Limited
AUS	Auselect Limited

AVJ	AVJennings Limited
AVR	Avatar Industries Limited
AWB	AWB Limited
AWC	Alumina Limited
AWE	Australian Worldwide Exploration Ltd
AZZ	Antares Energy Limited
BAM	British American Tobacco Australasia Limited
BAX	Baxter Group Limited
BBG	Billabong International Limited
BCL	Betcorp Limited
BDL	Brandrill Limited
BDS	Bridgestone Australia Limited
BEN	Bendigo Bank Limited
BHP	BHP Billiton Limited
BIR	Burswood Limited
BKL	Blackmores Limited
BKW	Brickworks Limited
BLD	Boral Limited
BNK	Banksia Wines Limited
BOL	Boom Logistics Limited
BOQ	Bank of Queensland Limited
BPC	Burns
BPT	Beach Petroleum Limited
BRK	BreakFree Limited
BRL	BRL Hardy Limited
BRS	Bristile Limited
BRW	Breakaway Resources Limited
BRZ	Brazin Limited
BSA	BSA Limited
BSG	Bolnisi Gold NL
BSL	Bluescope Steel Limited
BTC	BioTech Capital Limited
BTY	Bounty Investments Limited
BUL	Blue Energy Ltd
BWA	Bank of Western Australia Limited
BXB	Brambles Limited
BYI	Beyond International Limited
CAA	Capral Aluminium Limited
CAB	Cabcharge Australia Limited
CAD	Carillon Development Limited
CAF	Centrepoint Alliance Limited
CAI	Casinos Austria International Limited
CAL	CITIC Australia Trading Limited
CBA	Commonwealth Bank of Australia
CBI	Cambooya Investments Limited
CCL	Coca-Cola Amatil Limited
CCP	Credit Corp Group Limited
CCV	Cash Converters International
CCZ	Combined Communications Network Limited
CDA	Codan Limited
CDC	Child Care Centres Australia Limited
CDO	Colorado Group Limited
CDR	Commander Communications Limited
CDX	CDS Technologies Limited

CEQ	Central Equity Limited
CEW	Cranswick Premium Wines Limited
CEY	Centennial Coal Company Limited
CFG	Challenger Financial Services Group
CFI	Colonial First Private Capital Limited
CGH	Colonial Limited
CGJ	Coles Group Ltd
CHD	Chandler Macleod Limited
CHL	CCI Holdings Limited
CHO	Choiseul Investments Limited
CHQ	Chiquita Brands South Pacific Limited
CHV	CMG CH China Investments Limited
CIA	Cinema Plus Limited
CIN	Carlton Investments Limited
CIX	Calliden Group Limited
CIY	City Pacific Limited
CLA	Clarity International Limited
CLH	Collection House Limited
CLI	Challenger International Limited
CLO	Clough Limited
CLT	Cellnet Group Limited
CMC	Comalco Limited
CMI	CMI Limited
CMK	Cumnock Coal Limited
CMW	Cromwell Corporation Limited
CNA	Coal & Allied Industries Limited
CNB	Canberra Investment Corporation Limited
CND	Candle Australia Limited
CNG	Central Norseman Gold Corporation Limited
COA	Coates Hire Limited
COF	Coffey International Limited
COH	Cochlear Limited
COU	Count Financial Limited
CPB	Campbell Brothers Limited
CPI	CPI Group Ltd
CPK	CP1 Limited
CPU	Computershare Limited
CRG	Crane Group Limited
CRS	Croesus Mining NL
CRT	Consolidated Rutile Limited
CRU	Catalyst Recruitment Systems Limited
CSH	Concept Hire Limited
CSL	CSL Limited
CSM	Consolidated Minerals Limited
CSR	CSR Limited
CTL	Citect Corporation Limited
CTX	Caltex Australia Limited
CTY	Country Road Limited
CVC	CVC Limited
CWO	Cable & Wireless Optus Limited
CWP	Cedar Woods Properties Limited
CXP	Corporate Express Australia Limited
CYG	Coventry Group Limited
DEL	Delfin Limited

DGD	Delta Gold Limited
DJS	David Jones Limited
DJW	Djerriwarrh Investments Ltd
DKS	Danks Holdings Limited
DLS	Drillsearch Energy Limited
DOR	Dome Resources NL
DOW	Downer EDI Limited
DTL	Data3 Limited
DUI	Diversified United Investment Limited
DVC	DCA Group Limited
DVN	Devine Limited
EAC	East African Coffee Plantations Limited
EAM	Eastern Aluminium Limited
EDI	Evans Deakin Industries Limited
ELX	Ellex Medical Lasers Limited
EML	Email Limited
ENE	Energy Developments Limited
ENG	Engin Limited
EOS	Electro Optic Systems Holdings Limited
EQI	Equigold NL
EQT	Equity Trustees Limited
ERA	Energy Resources of Australia Limited
ERG	ERG Limited
ESV	Eservglobal Limited
EZL	Euroz Limited
FAF	Five Arrows Australia Fund Limited (The)
FAN	Fantastic Holdings Limited
FCL	Futuris Corporation Limited
FEA	Forest Enterprises Australia Limited
FFL	Freedom Group Limited
FGL	Foster's Group Limited
FKP	FKP Property Group
FLT	Flight Centre Limited
FMH	Finemore Holdings Limited
FOA	Foodland Associated Limited
FPS	Fiducian Portfolio Services Limited
FRI	Finbar Group Limited
FST	First Australian Building Society Limited
FUN	Funtastic Limited
FWD	Fleetwood Corporation Limited
FXJ	Fairfax Media Limited
GAP	Gale Pacific Ltd
GFD	Green's Foods Limited
GLB	Globe International Limited
GLI	Goldlink Incomeplus Limited
GMF	Goodman Fielder Ltd
GNC	Graincorp Limited
GNS	Gunns Limited
GOW	Gowing Brothers Ltd
GRD	GRD Limited
GTP	Great Southern Limited
GUD	GUD Holdings Limited
GWT	GWA International Limited
GZL	Gazal Corporation Limited

HAM	Hamilton Island Limited
HFY	Hill 50 Limited
HHL	Hunter Hall International Limited
HIC	Huntley Investment Company Limited
HIH	HIH Insurance Limited
HIL	Hills Industries Limited
HLD	Headline Group Limited
HME	Home Building Society Limited
HNG	HGL Limited
HPX	HPAL Limited
HSP	Healthscope Limited
HVN	Harvey Norman Holdings Ltd
HWE	Henry Walker Eltin Group Limited
HWI	Housewares International Limited
HWT	Harvey World Travel Group Limited
IAG	Insurance Australia Group Limited
IAM	IAMA Limited
IBC	Ironbark Capital Limited
ICT	Incitec Limited
IDT	Institute of Drug Technology Aust. Ltd
IFM	Infomedia Limited
IIN	iiNET Limited
ILU	Iluka Resources Limited
IMD	Imdex Limited
ION	ION Limited
IPH	Ipoh Limited
IPR	Ipernica Limited
IRE	Iress Market Technology Limited
IRI	Integrated Research Limited
IWF	Integrated Group Limited
IWL	IWL Limited
JBH	JB Hi Fi Limited
JBM	Jubilee Mines NL
JDV	JDV Limited
JJS	Just Jeans Holdings Limited
JUP	Jupiters Limited
KAZ	KAZ Group Limited
KCN	Kingsgate Consolidated Limited
KIC	King Island Company Limited (The)
KOV	Korvest Limited
KSC	K&S Corporation Limited
KYC	Keycorp Limited
LCL	Lighting Corporation Limited
LDW	Ludowici Limited
LEI	Leighton Holdings Limited
LLC	Lend Lease Corporation Limited
LMC	Lemarne Corporation Limited
LRL	Leyshon Resources Limited
LSG	Lion Selection Group Limited
MAG	Magellan Petroleum Australia Limited
MAH	Macmahon Holdings Limited
MAP	Macquarie Airports
MBF	MBf Carpenters Limited
MBL	Macquarie Bank Limited

MCC	Macarthur Coal Limited
MCP	McPherson's Limited
MCR	Mincor Resources NL
MDC	McConnell Dowell Corporation Limited
MGM	Macquarie Goodman Management Ltd
MGW	AVGMcGuigan Simeon Wines Limited
MIA	MIA Group Limited
MIM	M.I.M. Holdings Limited
MIR	Mirrabooka Investments Limited
MLB	Melbourne IT Limited
MLT	Milton Corporation Limited
MND	Monadelphous Group Limited
MNS	Milnes Holdings Limited
MPB	Mackay Permanent Building Society Limited
MPM	MPI Mines Limited
MRE	Minara Resources Limited
MRM	Mermaid Marine Australia Limited
MSF	Maryborough Sugar Factory Limited (The)
MSX	Mineral Securities Limited
MTL	Metalcorp Limited
MTS	Metcash Limited
MTX	Metals Exploration Limited
MXI	Maxitrans Industries Limited
MYO	MYOB Limited
NAB	National Australia Bank Limited
NBL	Noni B Limited
NCI	National Can Industries Limited
NCM	Newcrest Mining Limited
NEV	Neverfail Springwater Limited
NFD	National Foods Limited
NFM	Normandy NFM Limited
NHC	New Hope Corporation Limited
NHH	Newhaven Hotels Limited
NHL	Nova Health Limited
NHR	National Hire Group Limited
NIX	Nautronix Limited
NLX	Nylex Limited
NMW	Normans Wines Limited
NOL	National 1 Limited
NPX	Nuplex Industries Limited
NUF	Nufarm Limited
NVS	Novus Petroleum Limited
NWS	News Corporation
NYY	Newmont Yandal Operations Limited
OCA	Oil Company of Australia Limited
OCL	Objective Corporation Limited
OFG	Over Fifty Group Limited
OKN	Oakton Limited
OMP	OAMPS Limited
ONE	One.Tel Limited
OPS	OPSM Group Limited
ORG	Origin Energy Limited
ORI	Orica Limited
ORL	OrotonGroup Limited

OST	OneSteel Limited
PBB	Pacifica Group Limited
PBD	Port Bouvard Limited
PBL	Publishing and Broadcasting Limited
PBV	Pipers Brook Vineyard Limited
PBY	Parbury Limited
PCG	PCH Group Limited
PDR	Port Douglas Reef Resorts Limited
PEM	Perilya Limited
PHY	Pacific Hydro Limited
PLF	Prime Life Corporation Limited
PLM	Petaluma Limited
PLW	Peter Lehmann Wines Limited
PMC	Platinum Capital Limited
PME	Pro Medicus Limited
PMG	Peppercorn Management Group
PML	PacMin Mining Corporation Limited
PMM	Portman Limited
PMP	PMP Limited
PMT	Permanent Trustee Company Ltd
PMV	Premier Investments Limited
PNI	Pioneer International Limited
PPH	Pan Pharmaceuticals Limited
PPK	PPK Group Limited
PPR	Promentum Limited
PPT	Perpetual Limited
PPX	PaperlinX Limited
PRG	Programmed Maintenance Services Ltd
PRK	Patrick Corporation Limited
PRL	Pirelli Cables Australia Limited
PRT	Prime Television Limited
PRY	Primary Health Care Limited
QAN	Qantas Airways Limited
QBE	QBE Insurance Group Limited
QCH	Queensland Cotton Holdings Limited
QRL	QCT Resources Limited
RAL	Recruiters Australia Limited
RBS	Roberts Limited
RCL	Repco Corporation Limited
RCR	RCR Tomlinson Limited
REB	Rebel Sport Limited
REG	RG Capital Radio Limited
REH	Reece Australia Limited
RGS	Ranger Minerals Limited
RHC	Ramsay Health Care Limited
RHD	Ross Human Directions Limited
RHL	Ruralco Holdings Limited
RIC	Ridley Corporation Limited
RIN	Rinker Group Limited
RIO	Rio Tinto Limited
ROC	Roc Oil Company Limited
ROK	The Rock Building Society Limited
RPC	Repcol Limited
RPD	RP Data Limited

RSG	Resolute Mining Limited
RSM	Ross Mining NL
RUP	Rural Press Limited
SAQ	Sydney Attractions Group Limited
SBC	Southern Cross Broadcasting Ltd
SBE	Sabre Group Limited
SCP	Spicers Paper Limited
SDG	Sunland Group Limited
SDI	SDI Limited
SDR	Sundowner Motor Inns Limited
SDS	SDS Corporation Limited
SEL	S8 Limited
SEV	Seven Network Limited
SFC	Schaffer Corporation Limited
SFE	SFE Corporation Limited
SFH	Specialty Fashion Group Limited
SFL	Snack Foods Limited
SGB	St. George Bank Limited
SGM	Sims Group Ltd
SGN	STW Communications Group Limited
SGW	Sons of Gwalia Limited
SHL	Sonic Healthcare Limited
SHR	John Shearer (Holdings) Limited
SHV	Select Harvests Limited
SID	Siddons Ramset Limited
SIG	Sigma Company Limited
SIP	Sigma Pharmaceuticals Limited
SKD	Stockford Limited
SKE	Skilled Group Limited
SMI	Howard Smith Limited
SNX	SecureNet Limited
SOL	Washington H. Soul Pattinson and Co. Ltd
SOT	SP Telemedia Limited
SPC	SPC Ardmona Limited
SPS	Spotless Services Limited
SPT	Spotless Group Limited
SRI	Sipa Resources Limited
SRP	Southcorp Limited
SRV	Servcorp Limited
SSE	Scientific Services Limited
SSR	Southern Star Group Limited
SSS	Sam's Seafood Holdings Limited
SSX	Smorgon Steel Group Limited
STO	Santos Limited
STR	Service Stream Ltd
STS	Structural Systems Limited
STV	Sunraysia Television Limited
SUN	Suncorp- Metway Limited
SWS	Simeon Wines Limited
SYB	Symbion Health Limited
SYL	Sylvastate Limited
SYM	Symex Holdings Limited
TAB	TAB Limited
TAH	Tabcorp Holdings Limited

TAN	Tandou Limited
TAP	Tap Oil Limited
TCA	Telecasters Australia Limited
TDG	TDG Logistics Limited
TEM	Tempo Services Limited
TEN	Ten Network Holdings Limited
TGG	Templeton Global Growth Fund Ltd
TIM	Timbercorp Limited
TKR	Triako Resources Limited
TLA	Tourism Asset Holdings Ltd
TLS	Telstra Corporation Limited
TMN	Telemedia Networks International Limited
TNE	Technology One Limited
TOL	Toll Holdings Limited
TOR	Ticor Limited
TPX	Tasmanian Perpetual Trustees Limited
TRG	Treasury Group Limited
TRS	The Reject Shop Limited
TRU	Trust Company Limited
TRY	Troy Resources NL
TSE	Transfield Services Limited
TWD	Tamawood Limited
TXT	Text Media Group Limited
UEC	Uecomm Limited
UEL	United Energy Limited
UGL	United Group Limited
UOS	United Overseas Australia Limited
USC	Utility Services Corporation Limited
UTB	UNiTAB Limited
VEA	Veda Advantage Limited
VGL	Volante Group Limited
VKI	Viking Industries Limited
VLS	Vita Life Sciences Limited
VPG	Valad Property Group
VRL	Village Roadshow Limited
VSL	Vision Systems Limited
VWD	Villa World Limited
WAK	Wakefield Investments (Australia) Limited
WAM	WAM Capital Limited
WAN	West Australian Newspapers Holdings Ltd
WAT	Waterco Limited
WBA	Webster Limited
WBB	Wide Bay Australia Ltd
WBC	Westpac Banking Corporation
WDP	Wadepack Limited
WEG	George Weston Foods Limited
WES	Wesfarmers Limited
WFL	Willmott Forests Limited
WHF	Whitefield Limited
WHG	WHK Group Limited
WJM	Joe White Maltings Limited
WKC	Walker Corporation Limited
WOR	WorleyParsons Limited
WOW	Woolworths Limited

WPL	Woodside Petroleum Limited
WSF	Westfield Holdings Limited
WTP	Watpac Limited
WWA	Wridgways Australia Limited
WWM	Wentworth Holdings Limited
WYL	Wattyl Limited
YTS	Arthur Yates & Co. Limited
ZTL	Zenyth Therapeutics Limited

Appendix D: Companies with substituted accounting periods

ASX Code	Company Name	End Year
ABC	Adelaide Brighton Limited	31/01
ALL	Aristocrat Leisure Limited	31/01
ALN	Alinta Ltd	31/12
ALZ	Australand Property Group	31/01
APE	AP Eagers Limited	31/12
APN	APN News and Media Ltd	31/12
APY	Asia Pacific Specialty Chemicals Limited	31/12
AUO	Austral Coal Limited	31/12
AWC	Alumina Limited	31/12
BAM	British American Tobacco Australasia Limited	31/12
BDS	Bridgestone Australia Limited	31/12
BRL	BRL Hardy Limited	31/12
BWA	Bank of Western Australia Limited	31/12
CAA	Capral Aluminium Limited	31/12
CAI	Casinos Austria International Limited	31/12
CAL	CITIC Australia Trading Limited	31/12
CCL	Coca-Cola Amatil Limited	31/12
CMK	Cumnock Coal Limited	31/12
CNA	Coal & Allied Industries Limited	31/12
CNB	Canberra Investment Corporation Limited	31/12
CNG	Central Norseman Gold Corporation Limited	31/12
CRT	Consolidated Rutile Limited	31/12
CTL	Citect Corporation Limited	31/12
CTX	Caltex Australia Limited	31/12
CXP	Corporate Express Australia Limited	31/01
EAC	East African Coffee Plantations Limited	31/12
ERA	Energy Resources of Australia Limited	31/12
FUN	Funtastic Limited	31/12
GRD	GRD Limited	31/12
HLD	Headline Group Limited	31/12
HPX	HPAL Limited	31/12
ILU	Iluka Resources Limited	31/12
IPH	Ipoh Limited	31/12
IRE	Iress Market Technology Limited	31/12
LDW	Ludowici Limited	31/12
MLB	Melbourne IT Limited	31/12
MTX	Metals Exploration Limited	31/12
MYO	MYOB Limited	31/12
NVS	Novus Petroleum Limited	31/12
PBB	Pacifica Group Limited	31/12
PMM	Portman Limited	31/12
QBE	QBE Insurance Group Limited	31/12
RIO	Rio Tinto Limited	31/12
ROC	Roc Oil Company Limited	31/12
SFE	SFE Corporation Limited	31/12
SGN	STW Communications Group Limited	31/12
SIG	Sigma Company Limited	31/01
SIP	Sigma Pharmaceuticals Limited	31/12
SPC	SPC Ardmona Limited	31/12
STO	Santos Limited	31/12

TOR	Ticor Limited	31/12
UEC	Uecomm Limited	31/12
UEL	United Energy Limited	31/12
UOS	United Overseas Australia Limited	31/12
VLS	Vita Life Sciences Limited	31/12
WDP	Wadepack Limited	31/12
WPL	Woodside Petroleum Limited	31/12