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THE IMPACT OF TAXATION REFORMS AND OTHER FACTORS ON THE CAPITAL STRUCTURE OF REAL ESTATE ENTERPRISES

THANH THUY HO

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THE IMPACT OF TAXATION REFORMS AND OTHER FACTORS ON THE CAPITAL STRUCTURE OF REAL ESTATE ENTERPRISES

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THANH THUY HO

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SUPERVISOR: DR. STELLA SOFOCLEOUS

CO-SUPERVISOR: PROFESSOR ROBERT CLIFT

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DECLARATION

I, Thanh Thuy HO, declare that the DBA thesis entitled - The Impact of Taxation Reforms and Other Factors on the Capital Structure of Real Estate Enterprises - is no more than 65,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

…… Date:……../……./……

Thanh Thuy Ho

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ABSTRACT

This study investigates the impact of the New Tax System and other factors on the capital structure of the Australian listed real estate property enterprises. Hypotheses utilising Static Trade-off, Pecking Order and Market Timing theories are empirically examined using a series of the taxes variables (i.e., effective tax rate and non-debt tax shields); firm characteristics (such as size, asset structure, profitability, growth and business operation risk); and the market timing theory-related determinants such as interest rate and Market Performance Index.

The empirical tests comparing the three examined periods namely NTS, Post-NTS1 and Post-NTS2 produced a mixed result. The positive relationships were found between the leverage and the tax factors, asset structure, size, profitability and market performance in the NTS period. Negative relationships were found between the leverage and effective tax rate, growth opportunity and business operation risk. The results in the Post-NTS1 and Post-NTS2 are almost opposite to the findings in the NTS period. The most important finding in this period is the significant impact of the interest rate. The relationship between leverage and the interest rate is positive and significant, reflecting the debt-relying policy of the real estate property enterprises. In general, the findings suggest that changes resulting from the introduction of the New Tax System are positively related to the capital structure decisions of real estate property enterprises in the 1998-2002 and 2001-2003 periods. The changes in the capital structure of the sampled enterprises in the 2004-2006 period were impacted mainly by the low interest rate. The findings generally support the static Trade-off, Pecking Order, Agency Costs and Market Timing theories of capital structure.

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CHAPTER 1

INTRODUCTION

1.1 Background to the Thesis

The real estate property sector plays an important role in the Australian economy. With over 8.4 million dwelling units and an average population growth of 1.5 per cent per year (ABS, 2006 Census Quick Stats: Australia), Australia requires a total of over 100,000 additional dwelling units per year to house an increasing population. Currently, the sales of dwelling properties total between $124.0 billion and $186.1 billion per annum during the five year period prior to 2006. The commercial property market is valued at approximately A$235 billion and transactions fluctuate widely from year to year, ranging between $14.6 billion and $33.1 billion per annum during the same period (CFS Research, 2006).

Overall, the contribution of the real estate property sector to the national Gross Domestic Product (GDP) was 24.64 per cent in 1998 and increased constantly to 25.60 in 2006 (see *Table 1.1*). In term of employment contribution to the economy, the real estate property sector provides employment to 14 per cent of the total workforce (ABS, Cat. No. 8772.0).

The key industries in the real estate property sector include building and construction, property and business services, and ownership of dwellings. The activities of the building and construction industry occur in three broad areas:

1. Residential building involves the construction of dwelling units including new houses, other types of residential building (flats, apartments, villa units, townhouses, duplexes, etc.), and dwellings

created as part of alterations and/or additions to existing buildings (including conversions to dwelling units);

2. Non-residential building includes the construction of industrial, commercial properties (e.g. offices, shops, hotels, etc.) and public utilities (schools, hospitals, recreation centres, etc.);
3. Engineering constructions involve building roads, bridges, water, sewerage systems, etc.

All building activities must be approved by local and/or other related authorities. Therefore, the statistical figures on building approvals are a key indicator of present and expected building activities.

Table 1.1: Contribution of Property Sector to the GDP

	1998	1999	2000	2001	2002	2003	2004	2005	2006
Industry	**$m**	**$mil**	**$mil**	**$mil**	**$m**	**$mil**	**$mil**	**$mil**	**$mil**
Construction	31,694	34,906	39,199	33,930	39,671	44,512	51,901	56,940	61,713
Property and Business Services	61,570	68,004	73,956	82,199	84,885	91,874	98,590	104,773	110,022
Ownership of Dwellings	49,015	51,783	54,485	57,164	60,609	63,047	66,725	70,927	75,583
TOTAL	**142,279**	**154,693**	**167,640**	**173,293**	**185,165**	**199,433**	**217,216**	**232,640**	**247,318**
GDP	**577,373**	**607,759**	**645,058**	**689,262**	**735,714**	**781,675**	**840,285**	**896,568**	**965,969**
Percentage of GDP									
Construction	5.49%	5.74%	6.08%	4.92%	5.39%	5.69%	6.18%	6.35%	6.39%
Property and Business Services	10.66%	11.19%	11.47%	11.93%	11.54%	11.75%	11.73%	11.69%	11.39%
Ownership of Dwellings	8.49%	8.52%	8.45%	8.29%	8.24%	8.07%	7.94%	7.91%	7.82%
TOTAL	**24.64%**	**25.45%**	**25.99%**	**25.14%**	**25.17%**	**25.51%**	**25.85%**	**25.95%**	**25.60%**

Source: ABS, Cat. 5204.0

Both private and public sectors undertake construction activities. The private sector operates in all three areas of activities, with a greater emphasis in residential and non-residential building. The public sector has a major role in

initiating and undertaking engineering construction. It also has a role in non-residential building activities particularly for the health and education industries, hospitals and public schools.

The contribution of the construction sector to the Gross Domestic Product (GDP) was 5.49 per cent in 1998 and increased to 6.08 per cent in 2000 before decreasing to 4.92 per cent in 2001 as demand for housing decreased as a result of the introduction of the Goods and Services Tax (GST). However, the contribution of the sector increased constantly from 4.92 per cent in 2001 to 6.39 per cent in 2006 (ABS, Cat 5204.0).

The Property and Business Services sector is concerned primarily with the provision of property services, includes real estate agencies, residential and commercial property developers and business services such as legal, advertising, cleaning and maintenance. The property segment mainly engages in land subdivision and development; leasing and managing residential dwellings, commercial and industrial property. The key component of this industry comprises commercial property investors and lessors (including lessors that sublease space). The contribution of the Property and Business Services sector to the GDP was significant and increased steadily from 10.66 percent in 1998 to 11.39 percent in 2006 (ABS, Cat. 5204.0).

The Ownership of Dwellings sector includes owner-occupied as well as investors of residential properties. The sector's contribution to GDP was continuously decreased from 8.49 percent in 1998 to 7.82 percent in 2006 (ABS, Cat 5204.0). The figures from Australian Bureau of Statistics (ABS, 2006 Census Quick Stats: Australia) show that the majority of Australian households either owned or

were buying their own home. In 2005-06, there were over 7.3 million households in Australia, of which:

- 32.60 per cent owned their own home;
- 32.20 per cent were buying a home; and
- 27.20 per cent were renting.

Of the estimated 2 million renting households, 82 per cent were renting from a private landlord, with the remaining 18 per cent renting public housing from state or territory housing authorities (ABS, 2006 Census Quick Stats: Australia).

1.2 Factors Affecting the Real Estate Property Sector

Demand for real estate property is controlled by taxation, monetary policies and many others factors, such as employment, immigration policy etc. The activities of the real estate sector are also influenced by financial support measures from government, both at the Commonwealth and the State levels. Examples include public housing policy and the financial assistance scheme (i.e., First Home Owner Grants and rental assistance).

1.2.1 Taxation

The Australian taxation system has played a significant part in increasing the demand for real estate property in Australia by providing favourable incentives for those choosing to invest in real estate property. Australia's personal progressive income tax system and the ability to offset losses incurred in running a rental property against income from other activities (e.g., negative gearing), have made this form of investment increasingly popular, particularly among higher income earners.

The Commonwealth taxation policies have impacted on the real estate property sector through income tax, Capital Gains Tax (CGT), depreciation allowance and the Goods and Services Tax (GST). Investment in real estate property has been encouraged by amendments to the CGT and depreciation allowance legislation from time to time.

Capital Gains Tax (CGT) was introduced in September 1985 as a tax on the real capital gain of an asset and applied when the asset was sold. When first introduced, CGT was levied on the real increase in a capital asset at a rate equivalent to the taxpayer's marginal rate of income tax. Following the 1999 Commonwealth's review of business taxation (commonly known as the Ralph Inquiry), changes were made to CGT under the New Tax System (NTS) package. For assets bought after 21 September, 1999, and held for at least one year, individual taxpayers were to pay tax on half of the nominal gain at the personal marginal tax rate (i.e., 48.50 percent), superannuation funds were taxed on two-thirds of the nominal gain at 10 percent and companies were taxed on the whole of the nominal gain at the company tax rate, currently at 30.00 percent. Averaging of capital gains was no longer available for assets disposed of after 21 September 1999 (The Ralph Report, 1999c).

Capital losses were offset against capital gains so as to provide maximum benefits to the taxpayer. The capital losses could also be offset against capital gains net of frozen indexation or the full nominal capital gain before it reduced to determine the amount included in assessable income. For investors, the change in CGT will benefit those taxpayers on high marginal tax rates and those with properties in areas of high capital appreciation. For owner occupiers, the CGT exemption on a taxpayer's principal residence may also encourage investment in housing over alternative investments (The Ralph Report, 1999c).

In term of depreciation allowance, prior to the introduction of the New Tax System (NTS), up to 20 percent of the cost of a high quality residential apartment could be depreciated at the accelerated rate: for commercial buildings 35 percent and for a five-star hotel up to 50 percent. In each scenario, the cost could be written off in five years with the balance depreciated at 2.5 percent or in the case of hotels and manufacturing building 4.00 percent. The introduction of the New Tax System (NTS) removed the accelerated depreciation and replaced with a system which considered the effective life of the asset. Effective from 1 July 2000, the new simplified depreciation was the immediate write-off of assets acquired for less than $1,000. A common pool of all depreciable assets acquired for $1,000 or more with an effective life of less than 25 years (including existing assets) – would attract a write-off rate of 30 percent per year, using straight line depreciation method (or 37.5 percent using reducing balance method) – and effective life treatment is applicable to all depreciable assets with an effective life greater than 25 years (Antoniades, 2006).

The new arrangements (which replaced building allowances) only applied to buildings constructed after 1 July 2000. If the building was eligible for depreciation, the difference between the sale price of the building and its written down value would be subject to ordinary income tax, not Capital Gains Tax. If land and buildings were sold together, an apportionment of the proceeds from the sale would be necessary. Buildings which were held (or where construction had commenced) prior to 1 July 2000 continued to be subject to Capital Gains Tax (The Ralph Report, 1999c).

The general principle of the amended Capital Gains Tax was to treat depreciable assets consistently across a large range of various types of depreciable assets. This means that real estate property investors lost the benefit of accelerated

depreciation for plant and equipment used in rental properties; that is, by removing accelerated depreciation the effective available tax deduction for new property investors had been halved (Antoniades, 2006).

The states taxation impacts on the housing sector through stamp duties on conveyance, residential and commercial property leases and mortgages. These taxes impact the transfer costs of moving from one property to another as payment of these is subject to 'bracket creep' with the price of the transferred property or of the lease, and in the case of stamp duties on conveyance, are a significant proportion of the purchase price of a property.

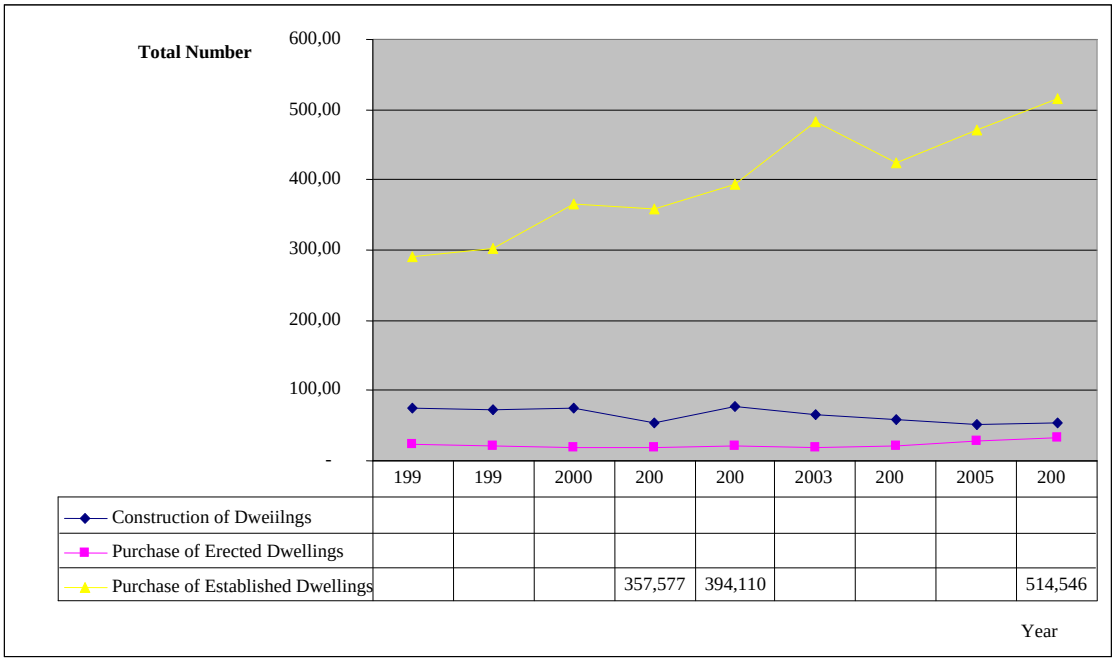
1.2.2 Government Incentives

Besides providing taxation benefits to home owners, governments also provide direct subsidies. The Federal Government implemented a First Home Owners Grant (FHOG) scheme between October 1983 and August 1990, which offered up to $7,000 (reduced in 1985 to $6,000) to eligible first home buyers. The grant was means-tested but it has been argued (Paris, 1993) that the payment of such grants pulls forward the decision to purchase and helps only people who would have eventually bought the property. The major beneficiaries, according to Paris, are the building industry, real estate agents and the lenders of home finance.

The Federal Government re-introduced a first home owners' grant in July 2000, as part of its New Tax System package to offset the effect of the GST on home ownership. It is a national scheme funded by the states and territories and administered under their own legislation. Under the scheme, a one-off grant of $7,000 is payable to first home owners that satisfy all the eligibility criteria.

The non-means tested grant of $7,000 was available to buyers of both established dwellings and new homes. The grant, therefore, did not help the housing industry as there was little impact in offsetting the general slump in the market caused by the introduction of the GST. The grant for buyers of new homes was doubled to $14,000 for the calendar year 2001, after which it was reduced to $10,000 and back to $7,000 from June 2002. Again, it appears likely that the grant has brought forward the decisions of first home buyers who would have bought at some stage in the future.

Figure 1.1: Total Number of Dwelling Financed by Type



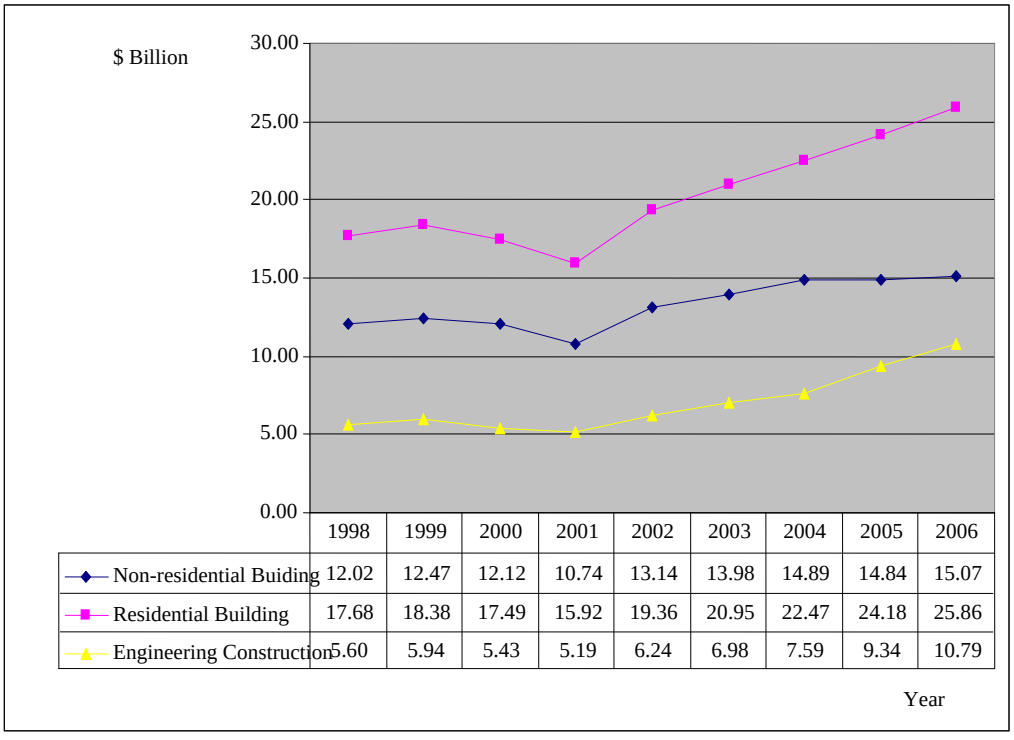
Source: ABS, Cat. No. 5609.0

As shown in *Figure 1.1* the bank financing of the construction of new dwellings and purchase of established dwellings was affected substantially by the introduction of the First Home Owners Grant (FHOG). Between the 1999 and 2000 financial year, the total number of dwelling financed for the construction of new dwellings increased from 73,489 units to 75,682 units. This total increased to a record high of 77,547 units in 2002 as a result of the increase in FHOG, however

decreased constantly thereafter. The approval of finance for purchase of established dwellings continue to increase to a record high of 483,499 units in 2003. The demand for finance to purchase established dwelling decreased to 433,401 units in 2004 before gaining momentum in 2005 and 2006.

The impact of the New Tax System (NTS) and higher grant for new first home construction is clearly evident in *Figure 1.2*, which shows the acceleration in residential building activity to record levels of $18.38 billion in 1999 prior to the implementation of the NTS in July 2000, followed by a substantial downturn to $15.92 billion in 2000-01. The total construction work done across all sectors surpassed 1999 levels for the first time in 2002 and has increased steadily since.

Figure 1.2: Total Construction Work Done



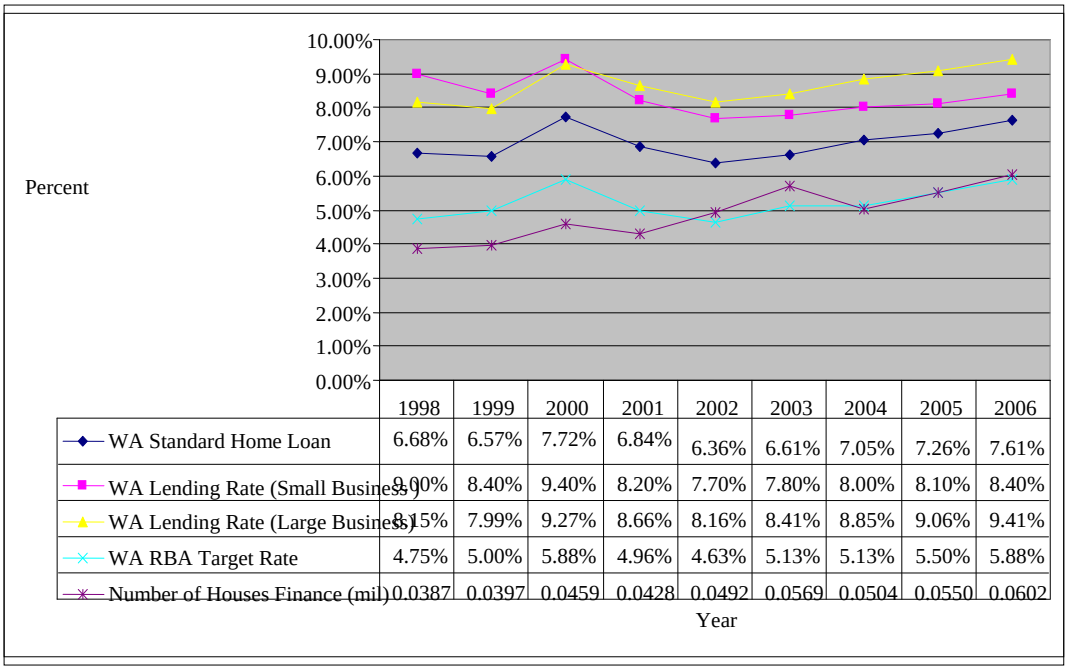
	1998	1999	2000	2001	2002	2003	2004	2005	2006
Non-residential Buiding	12.02	12.47	12.12	10.74	13.14	13.98	14.89	14.84	15.07
Residential Building	17.68	18.38	17.49	15.92	19.36	20.95	22.47	24.18	25.86
Engineering Construction	5.60	5.94	5.43	5.19	6.24	6.98	7.59	9.34	10.79

Source: ABS Cat. 8755.0

1.2.3 Interest Rates

Government use monetary policy to control the demand for housing as well as controlling the housing sector's activities. The home loan interest rates have a direct impact on residential property prices. Low interest rates increase household affordability and entice more investors to purchase residential property. These factors have been key drivers contributing to the strength of the Australian residential property market in recent years. The movements of official cash rate, housing loan rate and the Property Price Index are presented in *Figure 1.3.*

Figure 1.3: Weighted Average Interest Rates and Number of Houses Financed (*)



	1998	1999	2000	2001	2002	2003	2004	2005	2006
WA Standard Home Loan	6.68%	6.57%	7.72%	6.84%	6.36%	6.61%	7.05%	7.26%	7.61%
WA Lending Rate (Small Business)	9.00%	8.40%	9.40%	8.20%	7.70%	7.80%	8.00%	8.10%	8.40%
WA Lending Rate (Large Business)	8.15%	7.99%	9.27%	8.66%	8.16%	8.41%	8.85%	9.06%	9.41%
WA RBA Target Rate	4.75%	5.00%	5.88%	4.96%	4.63%	5.13%	5.13%	5.50%	5.88%
Number of Houses Finance (mil)	0.0387	0.0397	0.0459	0.0428	0.0492	0.0569	0.0504	0.0550	0.0602

Source: RBA (F05 Indicator Lending Rates), ABS, Cat. 6416.0
(*) Number of houses financed show in million units.

The Reserve Bank of Australia (RBA) is mandated by the Federal Government to use monetary policy to maintain inflation within a range of 2 percent to 3 percent over the course of any economic cycle. The RBA achieves this by adjusting interest rates to keep inflation within its target range. Interest rates are determined in accordance with the movements of official cash rates determined by the RBA on a regular basis for home loans and business lending. By historical

standards, the interest rates on residential mortgage loans have remained low since 1998, and have created a strong housing market.

Since 2003, the RBA has been concerned that the strength of the residential property market, the numbers of new dwellings being constructed, record housing finance approval rates and rapid increases in household debt, could inflate domestic demand and overheat the economy. The RBA increased interest rates in late 2003 and generally maintained a tightening bias until it increased the official cash rate to 5.50 percent in 2005 and 5.88 percent in 2006. The interest rates for housing loan, small business and large business were increased accordingly to 7.61, 8.40, and 9.41 percent respectively in 2006, the same interest rate level in 2000 when the RBA was forced to increase the official rate to beat the increased demand for housing caused by the rush by home-buyers to avoid the impact of the GST implementation in July 2000.

Despite the latest increases in official cash rates which were only 50 basis points in the aggregate in 2003, they were enough to reduce demand for residential property and significantly slow the rate of growth in residential property. As shown in Figure 1.3, a substantial increase in the total number of home loan approvals increased strongly during the 2000-2003 periods, from 428,000 units to 569,000 units. Investor demand has slowed in direct response to the RBA's implied threat to use monetary policy to slow the residential property market. The 50 basis points increased in official interest rate brought the approval down to 505,000 units in 2004 before picking up again from 2005.

In summary, the recent low interest rates and changes to taxes brought about by the introduction of the New Tax System (NTS) have contributed to the increased demand for housing, the activities of the building construction and the property and

business industries in Australia. Given the importance of the housing sector and its related industries to the economy, the impact of the NTS on the level of activity of real estate property enterprises enhances a separate study on how these firms react in financing investment activities.

1.3 Background to the Research Problem

Taxation has significant implications for corporate behaviour and the impact of taxes on resource allocation and economic welfare has long been a topic of much interest to academics, policy makers and the wider community. From the perspective of the financial sector, the primary focus has been on the implications of taxes (personal and corporate) for asset valuation particularly in the areas of corporate capital structure policy.

The implementation of the New Tax System (NTS) in 2000 changes the relative advantage of debt versus equity financing and requires a re-examination of corporate financing policies from a strategic decision making perspective. The introduction of the NTS also provides an opportunity to retest the testable hypotheses on the corporate financing decision developed in prior studies.

The NTS, with the introduction of a Goods and Services Tax (A New Tax System (Goods and Services Tax) Act (1999)) on the consumption of most goods and services in Australia as a key feature, incorporated a number of major tax changes which directly or indirectly impact upon corporate financing. The New Tax System:

- Replaced the wholesale sales tax, which was paid at wholesale level on many goods at rates ranging from 12 percent to 45 percent, with a new consumption tax – the Goods and Services Tax;

- Abolished various state's indirect taxes, such as financial institutions duty, stamp duties and bank account debits tax;
- Reduced the company tax rate to 34 percent from 1 July, 2000 and to 30 percent from 1 July, 2001 and is currently at 30 percent;
- Lowered Capital Gains Tax;
- Maintained the imputation tax system on dividend income; and
- Removed the accelerated depreciation for plant and equipment acquired after 21 September 1999, with depreciation to be based on the effective life of the asset, rather than the accelerated rates previously available (The Ralph Report, 1999c).

These changes had potentially important implications for corporate behaviour, especially the relative advantage of debt versus equity financing. The reduction of the corporate marginal tax rate from 36 percent pre-NTS to 34 percent (from 1 July 2000) then to 30 percent post-NTS may, in general, decrease the effective tax rates for all corporations.

The reduction in personal and Capital Gains Tax may also affect the debt-equity decision. While corporate taxes favour debt financing as the interest expenses can be deducted from the taxable income (Modigliani and Miller, 1963), personal taxes favour equity financing as no gain is reported until stock is sold and long-term gains are taxed at a lower rate (Givoly et al., 1992; Graham, 1999; and Overesch and Voeller, 2008).

The removal of accelerated depreciation for plant and equipment acquired after 21 September, 1999 may also result in lower levels of non-debt tax shields (NDTS) after the passage of the New Tax System. Therefore, *a priori*, one would expect that

on average, the firms' NDTS during the post-NTS period should be lower relative to their levels during the pre-NTS period (Antoniades, 2006).

Despite a number of empirical studies on the impact of tax policies on leverage decisions for various industries such as banking (Casey and Dickens, 2000), cross-sectional (Schulman et al., 1996), manufacturing firms (Titman and Wessels, 1988), electric-utility companies (Miller and Modigliani, 1966), non-profit hospitals (Wedig et al., 1988) and agricultural firms (Jensen, Lawson and Langemeier, 1996; and Barry, Bierlen and Sotomayor, 2000), the impact of changes in the tax legislation on capital structure decisions of real estate property enterprises is still a relatively under-explored area. To date, we do not have a clear picture of the characteristics of capital structure and the factors influencing the decision making of real estate property enterprises. Indeed, a number of seemingly fundamental questions concerning real estate property enterprises in relation to recent taxation changes remain unanswered to date.

The ownership of real estate property may be as simple and straight forward as ownership of the family home or an investment property by individuals, or as complex as the ownership of investment properties through companies, trusts and unit funds. Thus, ownership of real estate property may involve taxation matters relevant to Capital Gains Tax, small business taxation and company taxation. Real estate property may be income producing – a fact which means that taxation laws relating to the deductibility of items and negative gearing of real property are pertinent. Structures constructed on real estate property generally depreciate in value, raising issues with regard to changes in the laws dealing with accelerated depreciation. The changes in the tax laws brought about by the passage and implementation of the New Tax System (NTS), as discussed above, provide a unique

opportunity to again empirically test hypotheses relating to the strategic choice between debt and equity financing, especially in the unexplored area such as the real estate property sector within the new Australian taxation environment.

This research focuses on the passage of the NTS with all changes in taxation mentioned above. The emphasis is on compensating for GST-induced housing price increases which boosted the activities of the real estate property enterprises during the enactment and post-NTS periods. It was a difficult study to prepare particularly given the distortion of housing demand caused by these two variables and other conventional factors such as interest rate, employment levels**,** as well as the general macro-economic condition of the economy. Moreover, forecasting and analysis is becoming increasingly difficult given the diverse range of short-term and long-term demand drivers and how they each impact, to a greater or lesser extent, on housing sector related activities.

In addition, the unique regulatory environment of the listed real estate investment sector provides an opportunity to gain new insight on these competing theories. Under the Australian income tax law (ITAA, 1997), the Australian listed real estate investment trusts (AREITs), formerly known as listed property trusts (LPTs), are non-taxable entities. Cash flows from operations can be passed through to equity holders, as long as at least 95 per cent of taxable earning is paid annually in the form of a dividend. This in effect, nullifies two significant benefits of debt financing. Firstly, the tax deductibility of interest payments and the tax shield is non-existent. Secondly, since most of the earnings is distributed to the equityholders as dividends, debt servicing has only limited value insofar as agency cost of free cash flow is concerned. Cost of financial distress further reinforces the preference for equity (Capozza and Seguin, 1999).

1.4 Objectives of the Research

The primary objective of this research is to evaluate the impact of the New Tax System (NTS) on the debt and equity financing of the real estate property enterprises during the period 1998-2006. In this study, the listed real estate property enterprises include all listed direct real estate property development and investment, and indirect investment vehicles such as listed property trusts (LPTs). The secondary objective is to re-evaluate relevant explanatory variables which previous literature has suggested are important determinants of the level of debt employed in the firm's capital structure.

The achievement of the primary objective involves an investigation of the following matters:

1. To assess whether a firm's tax status affects its capital structure over the sample period of 1998-2006, using reported data of the Australian real estate property enterprises listed on the Australian Stock Exchange (ASX). The relationship between total debt and equity ratio (DER) and firm's effective tax rate (ETR) will be examined, in conjunction with various determinants commonly found in previous empirical studies, such as type of business operations, firm size (SIZE), assets structure (AS), growth opportunities (GROW), profitability (PROF), and business operation risk (BRISK). In particular, to capture firm-specific characteristics when examining the tax effects, an effective tax rate will be identified to reflect the current tax status. Since effective tax rates are expected to vary with different tax benefits, liabilities and tax status, the property enterprises currently operated on or have been enjoying. The effects will also be analyzed and compared in a three-period sample: NTS, Post-NTS1 and post-NTS2, with NTS period

serving as the bench mark for comparison, and with three different groups of real estate property enterprises, based on their primary activities such as investment, development and hybrid activities.

2. To examine the impact on corporate finance decisions of the real estate property enterprises as a result of reduction in capital gains tax.
3. To examine if the debt-equity ratio of the real estate property enterprises changed as a result of elimination of accelerated depreciation provisions.

In addition, achieving the secondary objective involves an investigation of the following matters:

1. To examine the impact of other firms' specifics such as type of business operation, assets structure, growth opportunities, profitability and business operation risk on the leverage level of real estate property enterprises.
2. To identify the impact of interest rates on the corporate financing decision of the real estate property enterprises.
3. To examine the impact of the general market performance on the leverage decision of the Australia's listed real estate property enterprises (AREITs).

1.5 Research Questions

In order to attain both the primary and secondary objectives, it is necessary to identify specific research questions. The research questions relevant to the primary objectives are described in sub-section 1.5.1. Research questions associated with the secondary objectives are described in sub-section 1.5.2.

1.5.1 Impact of the New Tax System

The current tax regimes in Australia permit firms to offset the interest paid on debt against taxable profit resulting in a tax saving which reduces the cost of debt capital. The value of the firm rises as debt is added to the capital structure because of the tax benefits (or tax shield).

To the extent that tax incentives influence the use of debt financing, changes in tax laws that alter these incentives will lead to changes in corporate capital structures. In 1999, the introduction of a business New Tax System (A New Tax System (Goods and Services Tax) Act, 1999) in Australia represented a significant change to the relative advantage of debt versus equity financing. This requires a re-examination of corporate financing policies from a strategic decision making perspective and provides an opportunity to retest the testable hypotheses of prior studies.

Graham (1996a, 1996b) tests the relationship between marginal tax rate and debt ratio, using Compustat data and finds that a firm with high marginal tax rate has greater incentive to issue debt, relative to a firm with low marginal tax rate allowing it to take advantage of interest deductibility. The reduction of the corporate marginal tax rate from 36 percent pre-NTS to 34 percent (from 1 July, 2000) then to 30 percent post-NTS may, in general, decrease the effective tax rates of all corporations. This leads to the first research question:

Research question 1*: Do real estate property enterprises with a high marginal effective corporate tax rate decrease their leverage more than those with a low marginal effective corporate tax rate in response to the decrease in the statutory corporate tax rate?*

Moreover, Miller (1977) points out that tax on individuals also affect the corporate leverage choice. The New Tax System (NTS) reduces the preferential tax

treatment of capital gains, diminishing the advantage to the individual receiving equity income relative to debt income. If differential personal taxes on debt and equity are reflected in their relative cost to the firm, according to Givoly et al. (1992) and Graham (1999a, 1996b), this tax change by itself, should bring about an overall increase in leverage, since debt is now relatively more attractive to investors than it was before the introduction of the NTS. To address this issue, the second research question is proposed as:

Research question 2*: Is there a correlation between changes in personal and capital gains taxation and changes in the leverage of the real estate property enterprises?*

The removal of accelerated depreciation for plant and equipment acquired after 21 September 1999 may also result in lower levels of non-debt tax shields (NDTS) after the introduction of the New Tax System. Therefore, *a priori,* one would expect that on average, the firms' NDTS during the post-NTS period should be lower, relative to their levels during the pre-NTS period (Antoniades, 2006).

DeAngelo and Masulis (1980) have shown that the value of the tax benefit from debt financing to a firm depends on the existence of non-debt tax shields (NDTS), such as investment loss, losses carried forward, etc.. DeAngelo and Masulis argue that, in the presence of tax shield substitutes, the expected marginal corporate tax benefit associated with debt financing declines as a firm's capital structure becomes more leveraged. If the loss in NDTS exactly offsets the gain from the reduction in tax rates, there should be a relatively insignificant change in a firm's effective tax rate. Otherwise, whether there is an increase or a decrease in a firm's effective tax rate will depend on the dominant of the two effects.

The New Tax System (NTS) removed the accelerated depreciation provisions for plant and equipment acquired after 21 September 1999, with depreciation to be based on the effective life of the asset, rather than the accelerated rates previously available. This would lead to a depreciation loss for the firms in the post-NTS period. To address this issue, the third research question posed is:

Research question 3*: Does the loss of the non-debt tax shield as a result of the removal of the accelerated depreciation provisions affect the changes in leverage of the real estate property enterprises during the post-NTS period?*

1.5.2 Impact of Other Factors

In addition, the achievement of the secondary objectives involves an investigation of the following matters.

Barkham (1997) and Oii (1999b) classify real estate property enterprises as property investment companies (PICs) and property trading companies (PTCs), based on the nature of business activities of the enterprises. PTCs buy and develop property assets with a view to selling them on in the short term, while PICs engage in the acquisition and development of property assets to augment their portfolio which is held for long term. Barkham notes that the PTCs are more focused on profits whereas the PICs are more concerned with delivering returns to their shareholders via share price movements. The PTCs operate against the constant danger of insolvency and indeed when the market turns they become unable to meet interest payments almost immediately. Due to their different ethos, the capital structures of property companies in the two categories are not the same (Barkham, 1997). This gives rise to the fourth research question.

Research question 4*: Does the more risky real estate property enterprise employ more debt?*

It is argued that the type of assets the firm holds plays a significant role in determining that firm's capital structure. The reason can be that when a large fraction of the firm's assets is tangible, assets can serve as collateral which diminishes the risk of the lender incurring the agency costs of debt. As Rajan and Zingales (1995) point out, the liquidation value of the firm's assets will also be higher with tangible assets, which will decrease the probability of mispricing in the event of bankruptcy and make lenders more willing to supply the loans, even at a lower interest rate (Williamson, 1998). To test this proposition, research question 5 is:

Research question 5*: Does the asset structure affect the leverage decision of the real estate property enterprises?*

Myers (1977) argued that due to information asymmetries, companies with high leverage ratios might have the tendency to undertake activities contrary to the interests of debtholders (under-investing in economically profitable projects). Therefore, it can be argued that companies with growth opportunities tend to have low leverage ratios. To test this proposition, research question 6 is proposed:

Research question 6*: Do the growth opportunities affect the leverage decision of the real estate property enterprises.*

Size is an important determinant of capital structure. As a firm recurs to debt it endows third parties (neither shareholders nor bondholders) with rights over the firm, should it face bankruptcy. According to Ferri and Jones (1979), large firms have a comparative advantage in securing debt as they can recur to capital and obtain better credit ratings, thereby lowering the cost of their capital. To test the impact of the firm's size on the leverage decision, research question 7 is:

Research question 7*: Does the firm's size affect the leverage decision of the real estate property enterprises?*

According to the pecking order theory and the work of Harris and Raviv (1990), Rajan and Zingales (1995) and Booth *et al*., (2001), firms prefer using internal sources of financing first, then debt, and finally external equity obtained by stock issues. All things being equal, the more profitable the firms are, the more internal financing they will have, and therefore a negative relationship between leverage and profitability is expected. As the New Tax System reduces the corporate tax, it is expected that the firms tend to have lower debt levels and higher retained earnings. The retained earnings as opposed to debts, are expected to finance new investment. To address this issue, research question 8 is formulated as:

Research question 8*: Is the debt level of more profitable firms higher that that of the less profitable firms?*

Intuitively, firms are more likely to use debt when the cost of borrowing is low. Conversely, when interest rates are high, companies would be inclined to use equity financing since higher interest rates increase the probability of financial distress.

Frank and Goyal (2003) confirm this issue. Their work shows that the real value of tax deductions on debt is higher when inflation is expected to be high. This suggests a positive relationship between leverage and expected inflation. A positive relation can also arise if managers time the debt markets prior to issue new debt. If managers are timing, then they will issue debt when expected inflation is high relative to current interest rates. To re-address this issue, research question 9 is:

Research question 9*: Is there a correlation between changes in interest rates and changes in the leverage of property enterprises?*

Jalilvand and Harris (1984) and Bayless and Diltz (1991) highlight that firms time their equity issues to coincide with favourable market conditions due to the low prospect of their shares being under-valued in a buoyant stock market. To test this proposition, research question 10 is:

Research question 10*: Is there a correlation between general market conditions and changes in the leverage of property enterprises?*

Answers to these research questions will provide a clearer picture of how real estate property enterprises in Australia react in the combined new taxation environment and the favourable economic condition.

1.6 Significance of the Research

In examining how the unique characteristics affect the real estate property enterprises' financing decisions, this research offers an opportunity to combine two important bodies of knowledge, namely, real estate and corporate finance. Unlike previous studies in the main stream finance literature, this study extends the range of theoretical determinants to cover characteristics that are unique to the real estate property sector. While most of the existing studies employed the ordinary least squares (OLS) regressions, this study utilises recent developments in the econometrics of panel data to estimate the parameters in the capital structure model. A distinct advantage of panel data is that it facilitates testing of economic relationships over time and across companies. Therefore, the effects of macro-economic factors, such as the property market cycle and interest rates, on the firm's leverage decisions can be examined.

In particular, this study is expected to make a significant contribution with practical implications for the following market participants in Australia, including public policy makers and investors.

1.6.1 Public Policy Makers

The level of interest rates and reduction in personal taxes are major determinants of the demand for housing, along with the level of consumer confidence. Although this study focuses on the impact of the new tax legislation upon the capital structure of real estate property enterprises, its implications could be extended to help the public housing policy makers in deriving appropriate programs to attract the investment in public housing development from private investors. This study also provides different level of government (i.e., State and Commonwealth) insight into future development of macro-economic policies, such as new taxes and interest rate changes to induce the contraction or expansion in the activities level of housing as the first step in controlling the growth level of the economy.

1.6.2 Investors

Investors require relevant information to determine when would be the ideal time to invest. An improved understanding of management debt financing incentives could help investors make decisions on which stock to buy or sell and how much to spend on an information search based on their evaluation of a firm’s debt financing initiatives.

Similarly, this study also provides insight on how real estate property enterprises manage their corporate debt-equity policy to creditors and lenders. This

information is required to enable the creditors and lenders to make better evaluations of the inherent risk of engagement and the related lending/borrowing decisions.

This research is not only significant to the abovementioned market participants in Australia, but also to prospective overseas investors looking for investment opportunities in the real estate property sector in Australia and to market participants including regulators in the housing sector in other countries.

1.7 Introduction to the Research Methodology

As shown in *Figure 1.4*, this study is to be completed in five stages: a) identify research problem, b) current literature review, c) research design and methodology, d) empirical data processing, and e) thesis compilation.

1.7.1 Identify Research Problem

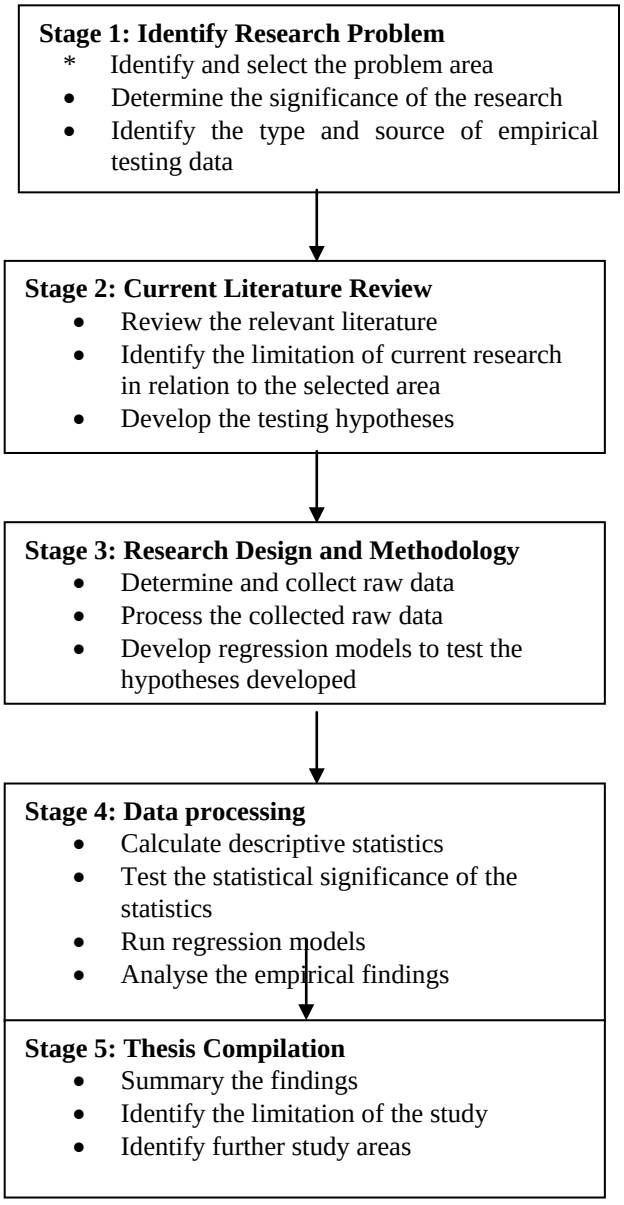
This stage involves identifying and selecting the problem area for the study, determining the significance and contribution of the study, and identifying the type and sources of empirical testing data.

1.7.2 Current Literature Review

This stage involves selection and review of current literature relevant to the corporate financing decision, focusing on the theoretical framework and the theoretical models developed. The limitation of current literature in relation to the study will also be discussed.

Ten testable hypotheses will be developed and tested to find the impact of the introduction of the New Tax System.

Figure 1.4: Research Design Flowchart



1.7.3 Research Design Data and Methodology

The stage involves defining the variables to be used in the statistical analysis and in the regression models, determining the data required, the sources of data and the sample selecting process.

The new Panel Data Multivariate Regression Models will be developed to estimate the coefficients between the debt-equity ratio and a set of pre-defined explanatory variables

1.7.4 Data Processing

This stage involves the calculation of descriptive statistics, testing the significance of the statistics, estimating the coefficients between the debt-equity ratio and a set of pre-defined explanatory variables, and analysing the empirical findings.

The pair-wise correlation between variables in the testing models will also be calculated and analysed to determine if a multicollinearity among the variables exists, which may affect the regression results.

1.7.5 Thesis Compilation

This stage involves summarising all activities performed and the empirical findings measured and analysed in Stage 1 through to Stage 4. The limitation of the study will be identified with recommendations given to the relevant problem areas that requiring further investigation.

1.8 Overview of the Thesis

This Chapter selects and discusses the area of interest and relevant development that requires investigation; sets out objectives and contribution of the study; and discusses briefly the resources required and the methodology to be employed.

Chapter Two reviews the literature related to the capital structure of firms. The review includes developments in the theoretical framework and theoretical

models to explain the leverage decisions. Empirical results from previous studies of capital structure are also reviewed, with emphasis on the previous empirical studies relating to the corporate financing decision of the real estate enterprises. Ten hypotheses associated with ten research questions are proposed.

Chapter Three presents the research methodology. This chapter also details the methods of investigating the hypothesised test. Data collection method, sample selection, method determining changes in the leverage of property enterprises and other non-tax selective factors will be discussed. The ANOVA test and linear regression models will be discussed, together with details of the variables used.

Chapter Four presents and discusses the descriptive statistical analysis of the variables used in the testing models. Coefficients of correlation of variables are also examined.

Chapter Five discusses the empirical results of the hypothesised tests on the impact of New Tax System variables as well as other firm specific and general market factors that directly influence the debt financing decisions of property enterprises. Results from regression analysis will be reported. Further results will be reported and analyzed by nature of the business operations of the real estate property enterprises as well as pre/post-NTS changes.

Chapter Six presents a summary of this study. This chapter includes conclusions and discussions of the findings, along with the implication of the research. The limitations and possible future research areas will also be identified and discussed.

1.9 Summary of Chapter

This Chapter provides a brief introduction to the background of the housing sector in Australia, giving particular attention to the real estate property sectors. It also discusses the background to the research problem, identifies the objectives of this study and the issues to be examined. The Chapter also highlights the contribution of this study concerning the impact of the New Tax System on the capital structure of the real estate property enterprises in Australia and the methodology employed. The structure of this thesis is also outlined.

The next chapter provides a review of the current literature on the development of the capital structure theories and models employed.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

Firms can finance their activities in two basic ways. The first way is to issue debt in the form of bonds, notes and other primary securities, and take on liabilities in the forms of loans from individuals and financial institutions. Bonds, notes and other primary securities of the firm may be sold into active, organised markets or placed directly with the ultimate investor. The second way firms obtain funds is through the sale of shares in the equity of the firm and from retention of earnings (Peirson et al., 2006).

There are three main reasons to issue debt.

1. One, it is generally a less costly source of funds.
2. Two, interest payments are tax deductible so that the tax shield adds value to the firm.
3. Three, the mandatory interest payment on debt mitigates the agency cost of the managerial proclivity to waste cash on poor investments. On the negative side, borrowing exposes the firm to bankruptcy costs; and leverage may prompt managers to avoid profitable investments to minimise transferring wealth to bondholders.

Like debt, equity raises cash, but issue costs can be significant if investors discount the value of shares out of suspicion that managers issue equity only when it is overvalued (Feng, Ghosh and Sirmans, 2005).

The theory of modern corporate capital structure – the mixture of debt and equity finance – has been a subject of interest to researchers since the publication of

famous works of Modigliani and Miller (MM, 1958). Conventional capital structure theory of the firm assumes that the goal of management is to maximise the present value of the profits of the corporation, which is tantamount to maximisation of the value of the firm. Modern theory of capital structure deals with real estate property companies (e.g., Balkam, 1997, Ooi, 1999a, b; Chiang, Chan and Hui, 2002) and regulatory real estate property enterprises such as U.S Real Estate Investment Trusts (REITs) (e.g., Capozza and Seguin, 1999; West and Worthington, 2006; Feng, Gosh and Sirmans, 2006) or Australia listed Real Estate Investment Trusts (AREITs), formerly known as listed property trusts (LPTs) (e.g., Schuck and Howard, 2005; Newell and Tan, 2005, Newell and MacIntosh, 2007) by defining appropriate determinants impacting the financing decision and performance of these enterprises.

Since the literature on capital structure is rather voluminous and extensive and the focus of this study is on the effects of taxes and non-tax factors on the capital structure decisions of the listed real estate property enterprises, the literature review will focus on relevant theoretical and empirical evidence.

2.2 Theoretical Framework

Conventional theory of capital structure of the firm concentrates on the trade-off between costs and benefits of taxes (Modigliani and Miller 1958, 1961; Miller, 1976), such as bankruptcy costs (Baxter, 1967) and agency costs (Jensen and Meckling, 1976). Later studies expand conventional theory to cover other factors such as non-debt tax shields (DeAngelo and Masulis, 1980), effects of information asymmetry or the pecking order theory (POT) (Myers and Majluf, 1984) and the market timing theory (Baker and Wurgler, 2003). The modern approach applies these

theories to examine the leverage decision of the regulatory real estate property sector. The literature review starts with the examination of the effects of financial leverage.

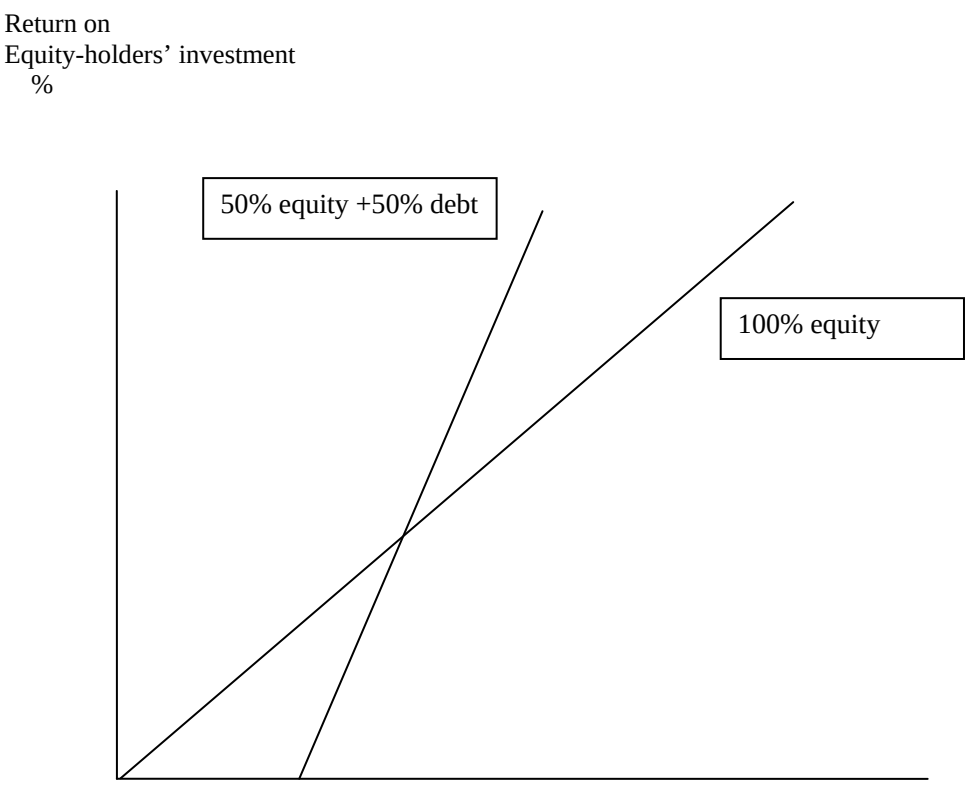
2.2.1 Effects of Financial Leverage

When entering into a particular line of business firms are subjected to business risk. The business risk may result from new barriers to entry, technology changes, new competitors entering, new government legislation introduced, etc.

If a firm is financed entirely by equity, then variations in the return to equity-holders are attributable only to business risk. However, when a firm uses equity finance as well as debt, the equity-holders are exposed to higher risk as the firm is obliged to pay interest to the lenders and providers of similar forms of finance (e.g., preference equity), even if the firm suffers from declining operating profits. Therefore, the risk faced by equity-holders is directly related to the proportion of debt in the firm's capital structure (Peirson et al., 2006).

As shown in *Figure 2.1*, by employing debt firms can increase the expected rate of return to ordinary equity-holders. As long as the rate of return on a firm's assets is greater than the interest rate payable on the debt employed, borrowing will increase the rate of return to equity-holders. This is the power of financial leverage. However, an important effect of financial leverage is that ordinary equity-holders are exposed to increased variability in the rate of return on their investment – that is, financial leverage exposes equity-holders to financial risk. A high portion of debt means that a small percentage change in the return on a firm's assets will generate a large percentage change in the profit available to equity-holders (Peirson et al., 2006).

Figure 2.1: Effect of Leverage On Return To Equity-holders



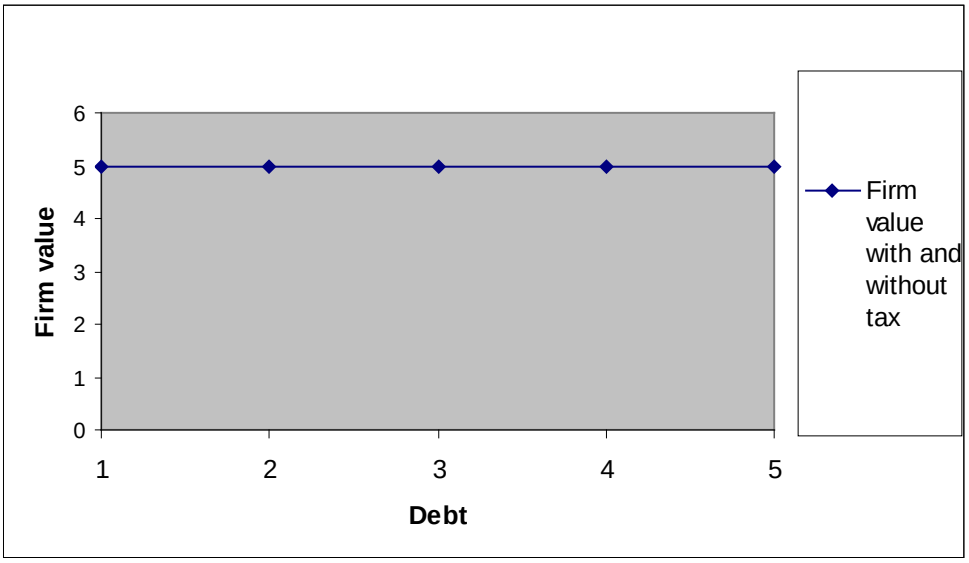
Source: (Peirson et al., 2006, p373)

2.2.2 MM Propositions I and II with No Tax

The theory of modern corporate capital structure began with the work of Modigliani and Miller (MM, 1958, 1961). Based on a strict set of assumptions of a perfect capital market that is, in the world of no taxes and other costs such as bankruptcy costs and agency costs MM suggest Proposition I which implies that the value of a firm is independent of its capital structure. In a perfect market, the value of firm does not relate to its capital structure and financing and risk management choices will not affect firm's value.

Figure 2.2 represents graphically the MM Proposition I. The graph depicts the relationship between the value of the firm and the amount of debt outstanding. Given the assumptions of a perfect capital market, the relationship is simply a flat line – the firm value is not affected by the amount of debt outstanding.

Figure 2.2: Firm Value with MM Proposition I with No Tax



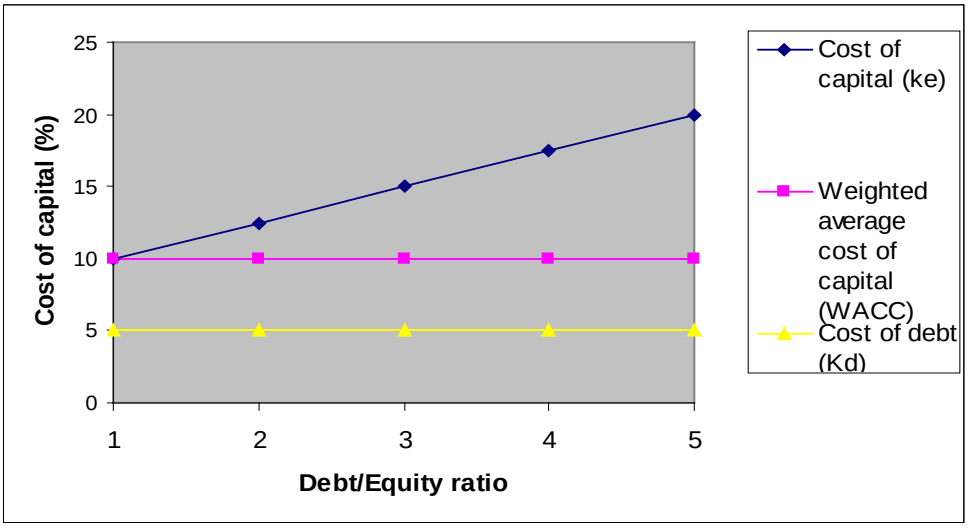
Source: Servas and Tufano (2006)

In the world of risk free debt and no taxes, MM's Proposition II states that a firm's cost of equity is a linear function of the firm's debt to equity ratio. A higher debt-to-equity ratio leads to a higher required rate of return on equity, because the higher risk associated for the equity-holders in a firm with debt. This implies that the weighted average of costs of capital (WACC) to a firm remains the same regardless of its capital structure because the gains from cheaper debt capital would be offset by the corresponding higher cost of the riskier equity capital.

MM's Proposition II with no tax and costs is best represented graphically as shown in *Figure 2.3*. The graph shows that if a firm can always borrow with no default risk, the cost of debt, k_d, will remain constant as the firm's debt-equity ratio increases, and the relationship between the cost of equity capital and the debt-equity ratio will be linear. Note that the expected rate of return on the assets, which is the weighted average costs of capital (WACC) of the firm does not change as more debt is employed in the capital structure. However, the expected rates of return on both

equity, k_e, and debt, k_d, increase as the firm employs more debt and the debt becomes more risky.

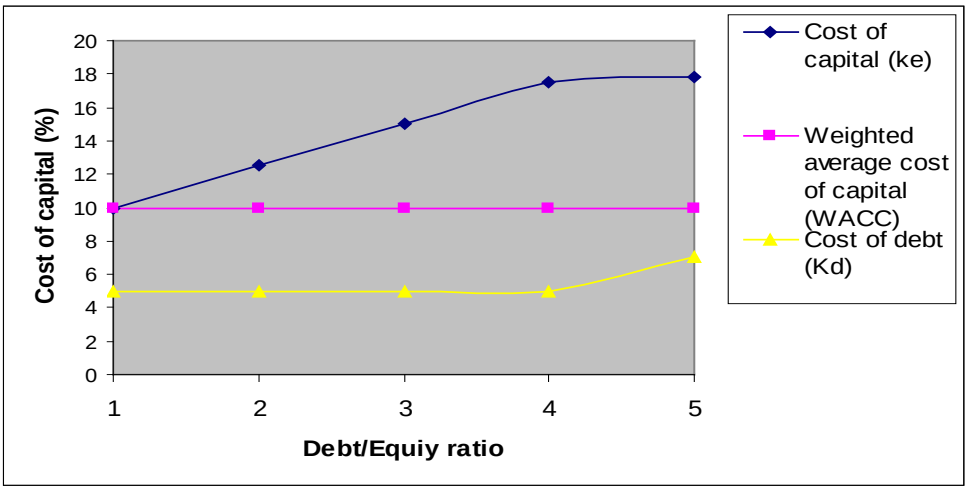
Figure 2.3: MM Proposition II with Risk Free Debt and No Tax



Source: Peirson et al., 2006, p380)

However, as more debt is employed and this debt becomes more riskier, the expected return on debt, k_d, increases as the lenders are bearing more of the firm's risk, as shown in *Figure 2.4*. Consequently, equity-holders bear proportionately less risk and the rate of increase in k_e diminishes. Moreover, the proportion of equity is decreasing and the combined effect of these changes is that the weighted average cost (WACC) of the two remains unchanged. Thus, the irrelevance argument suggests that the amount of debt financing employed in the firm does not affect value of the company (Servas and Tufano, 2006).

Figure 2.4: MM Proposition II with Risky Debt and No Tax



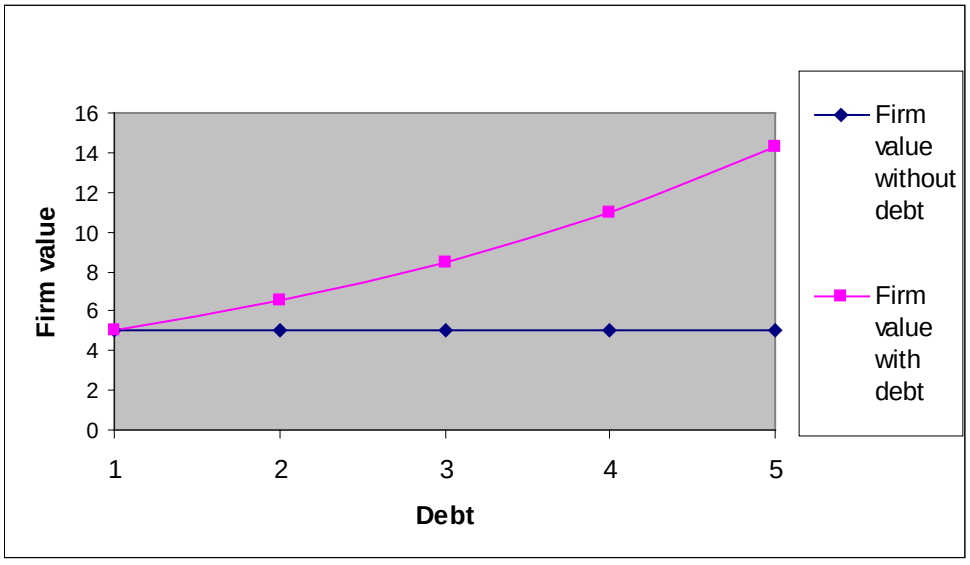
Source: Peirson et al., 2006, p380)

2.2.3 MM Propositions I and II with Taxes

Modigliani and Miller (MM, 1963) revised their theory saying that the firm value should be an increasing function of debt and equity ratio due to the benefits of attracting a tax shield of the interest paid on the debt capital employed. Under this tax-adjusted leverage propositions, the value of a firm is not independent of debt ratio in the capital structure. On the assumption that all returns are taxed equally at the personal level, and the tax saving from the use of debt can be regarded as a perpetual risk less flow, they assert that the market value of a firm should be proportional to its expected after-tax return. Unlike dividend payout that cannot be deducted, the interest payment on the debt capital employed is deductible from the firm's taxable income. Therefore, the higher level of debt implies the higher level of after-tax income, given before-tax earnings. Thus, the value of a firm increases as the debt ratio increases.

The relationship between the value of the firm and the amount of debt outstanding under these assumptions of perfect capital markets with corporate taxes can be best represented in *Figure 2.5* and *2.6*.

Figure 2.5: Firm Value under MM Proposition I With Taxes



Source: Servas and Tufano (2006)

Figure 2.5 represents MM Proposition I with corporate taxes. Under these market conditions, the more the firm borrows, the more its value increases. However, the implication for capital structure is clear but extreme: a firm should borrow as much debt as possible to take advantage of the tax savings until its tax bill is reduced to zero. In reality this is not always the case. If the firm is not profitable, it may have to carry forward tax losses. This may result in tax deductions in the future. However, the value of the tax losses carried forward is likely to be less than an upfront tax deduction because:

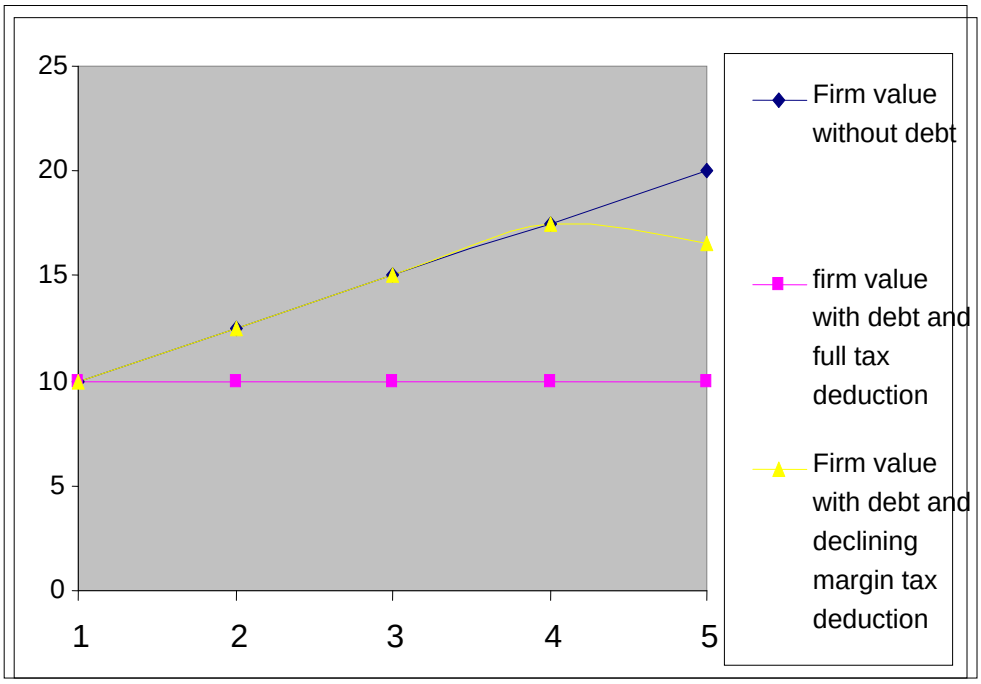
(i) tax-loss carry-forwards do not generate any return and cannot be traded or sold; and

(ii) the firm may go bankrupt before it has an opportunity to use the carry-forwards.

Also, in some jurisdictions the number of years a tax loss can be carried forward is limited and if the firm does not have enough profits to obtain the tax deduction, then the value of the future tax savings declines (Servas and Tufano, 2006).

In *Figure 2.6* if the firm does not have enough profits to obtain the tax deduction, then the value of the future tax savings declines as more debt is employed. However, as discussed in 2.2.2 and shown in *Figure 2.3* and *2.4*, the MM Proposition II with no taxes shows a positive relationship between the expected return on equity and leverage. The same intuition holds when corporate taxes are added

Figure 2.6: Firm Value with Corporate Tax and Risky Tax Shields



Source: Servas and Tufano (2006)

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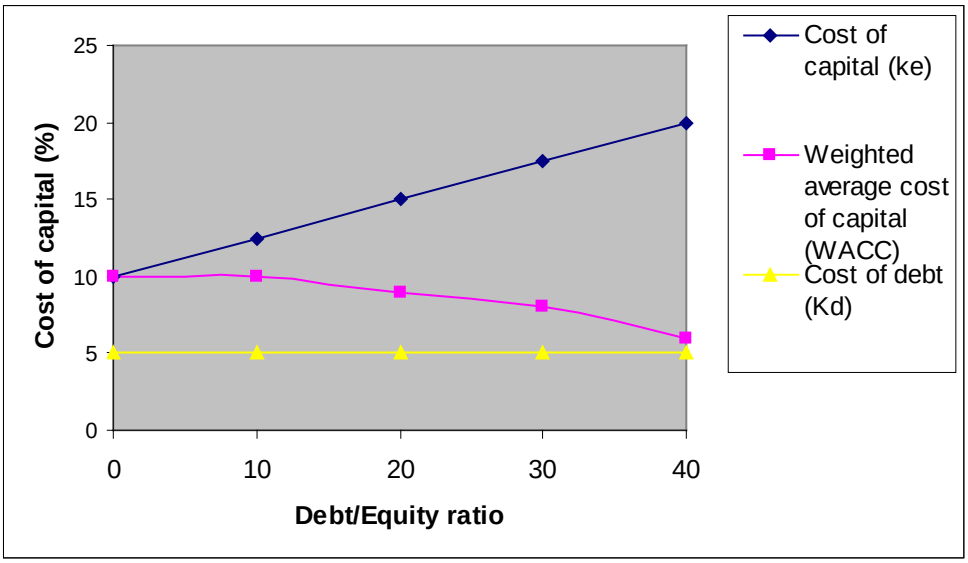
Figure 2.7 shows that when corporate taxes exist, a higher leverage level provides the firm with a lower WACC. This can be compared to *Figure 2.3* where WACC is constant even though leverage is increased.

MM's Proposition II with corporate taxes suggests that the value of the firm increases with higher leverage since WACC decreases. This implies that the larger the amount of debt, the higher the value of the firm. This also suggests that firm should employ 100 percent debt financing to take advantage of the income tax deductibility of interest incurred.

In other words, MM Proposition II with corporate taxes implies that the cost of equity is an increasing function of leverage but the after-tax return on equity capital is lower than that in the original proposition due to the tax deductibility of interest. As a result, the weighted average cost of capital (WACC) declines with

leverage in a world with corporate tax implies that firm value is not independent of capital structure.

Figure 2.7: MM Proposition II with Corporate Taxes



Source: Servas and Tufano (2006)

It is important to note the restrictive assumptions that must be fulfilled for the Modigliani and Miller (MM) propositions to hold. The most important assumption is that the MM Propositions ignore bankruptcy costs and agency costs which have been found to exist in reality. This has led to an increasing debate on the internal versus external capital financing. Empirical studies have shown that the theory seems to fail under certain circumstances, mostly including consideration of taxes, bankruptcy and agency costs. However, Frank and Goyal (2003) argue that even though the MM theory does not provide a realistic description of how firms should set up their capital structure, it does provide a theoretical framework of understanding why.

The pre-1990 empirical evidence of any significant relationship between corporate taxation and capital structure of firms is sparse. Mackie-Mason (1990) suggests that taxes are important, but have failed to show up in most previous studies because they were designed to test for average rather than marginal effects. He

argues that in most cases, non-debt tax shields cause only a small change in the probability of tax exhaustion, and a similar small change in a firm's expected marginal tax rate. Therefore, differences in expected marginal tax rates among companies will be small and difficult to measure. Another problem is that previous studies measured the leverage of firms using accounting ratios, which reflect the cumulative results of many separate financing decisions made over several years. MacKie-Mason overcomes this problem by examining individual financing decisions on a marginal basis for firms that are at, or near, the exhaustion point. Using this approach, he finds strong evidence that taxes do influence financing decision. Graham (1996) supports Mackie-Mason's (1990) conclusion by examining the incremental use of debt by more than 10,000 US companies for the period from 1980 to 1992. When allowance is made for the effects of operation losses and investment tax credits, he finds that marginal tax rate varies considerably across companies and that high tax-rate companies do borrow more heavily than those with low tax rates.

Using a Compustat sample Graham (2000) calculates the tax benefit of debt by constructing a firm-specific interest-deduction benefit function. By integrating the interest rate spread between taxable corporate bonds and tax-free municipal bonds he estimates the personal tax rate marginal investors in corporate debt. The estimated rates varied with the changes in statutory tax rates and is approximately 30 percent from 1993 to 1994, the last year covered by the study and the mean tax rate on equity is about 12 percent. He also examines and finds that large, liquid and profitable firms with the low expected distress costs use debt conservatively.

Recently, Klapper and Tzioumis (2008) examined the effect of taxation on corporate capital financing policy of privately-held and small and medium sized firms (SMEs) in Croatia, using the corporate tax reform in 2001. The findings

provide significant evidence that lower taxes affected the capital structure of Croatian firms, which resulted in increased equity levels and decreased long-term debt levels. The findings suggest that lower taxes decrease the incentive to hold debt due to decreasing tax-deductibility of the interest expense.

Fama and French (1998) examine the relationship between firm value and dividends and debt to measure the effects of corporate taxes on the capital structure, using cross-sectional regression and Compustat data. They regressed the firm value on the past, current and future value of dividends, interest payments, earnings, investment and research and development (R&D) expenditure. The results are inconsistent with their prediction. Unlike the prediction of a negative relationship between dividends and firm value due to the tax disadvantage of dividends, the result was positive. In contrast, the relationship between debt and firm value was negative and consistent with Miller's (1977) model.

On the contrary, Modigliani and Miller (1966) and Ross (1977) examine the relationship between market value of the firm and debt tax shield and find a significant positive relationship. In particular, Flath and Knoeber (1980) estimate the tax advantage of interest incurred by the firms in the sample is between 23.00 and 26.00 percent.

In recent study, Kemsley and Nissim (2002) also find that firm value is a positive and strong function of debt, using Compustat data and cross-section regression that is the reverse to Fama and French (1998). Recognizing that debt is correlated with the value of operations along non-tax dimensions, they develop an alterative approach to that of Fama and French (1998) to avoid the imperfect control problem. Thus, they regress the future operating profitability (EBIT × (1- T_C)) on the market firm value and debt, rather than regressing firm value on debt and

profitability, and then estimate debt tax shield (tax benefits from debt) by calculating the coefficient of debt when regressing firm value on debt. As a result, they find a positive and significant value for the debt tax shield as approximately 40 percent of debt balances, and 10 percent of the firm value. Their finding supports the Modigliani and Miller propositions and is consistent with Graham (2000).

On the other hand, Masulis (1980, 1983) examines the impact of capital structure change announcements on security prices, and obtains positive impacts His finding shows that both stock prices and firm values are positively related to changes in debt level. On the contrary, Lys and Sivaramakrishnan (1988) report a negative security market reaction after equity-for-debt swaps. Eckbo (1986), however, finds no detectable effect of corporate debt offerings on stock prices.

2.3 Expanding Models

The post MM era has witnessed numerous empirical studies expanding the MM models to include personal taxes (Miller, 1977), non-debt tax shields (NDTS) such as depreciation of assets employed in producing income, costs of research and development, income loss carried forward (DeAngelo and Masulis, 1980), bankruptcy cost (Baxter, 1967), and agency costs (Jensen and Meckling, 1976). These expanding models have drawn numerous empirical studies. However, the results are never conclusive.

2.3.1 Personal Taxes

Income from equity is in the form of dividend payments and capital gains that accrue to equity-holders as the result of earning retention is subject to personal income tax. Although the dividends historically have been taxed at the same rate as

ordinary income, the accrual of earnings in the form of capital gains is treated favourably. In practice, the gains typically are not taxed until they are realised, that is, until the appreciated equity is sold, and realised capital gains typically have been taxed at favourable rates. The fact that a firm can elect to retain, rather than distribute, its net earnings, and that the tax obligation on the resultant capital gains is delayed, is one source of the preferential treatment afforded equity income.

Miller (1977) argues that the observed capital structures have shown little change over time from 1920 to 1950, contrary to the MM tax-adjusted leverage propositions. He suggests that when the personal income tax on dividend, capital gains and interest is taken into account along with the corporate income tax, the gain from leverage for the equity-holders is reduced as the advantage of tax deductibility at the firm level that serves to offset the disadvantages of debt at the personal level, and the gain from leverage can vanish entirely or even turn negative.

King (1974, 1977) was the first who used tax variables to test the impact of corporate and personal taxes on firm's capital structure under the newly emerged capital structure theory – the tax discrimination theory. According to King, the interactions among the different taxes and the bilateral choices among debt, equity or retained earnings, under certain assumptions, depend on the following simple conditions:

1. If equity is given, and $(1 - i) > (1 - t)(1 - z)$, debt is preferred to retained earnings;
2. If retained earnings are given, and $(1 - i) > (1 - t)(1 - m)$, debt is preferred to equity;
3. If debt is given, and $(1 - m) > (1 - z)$, equity is preferred to retained earnings.

In these models, *z* is capital gains tax rate, *t* is corporate tax rate, *m* is marginal rate of tax on dividend income, and *i* is marginal rate of tax on interest income. The implication of these conditions is that '*1 - tax-rate'* is the after-tax retention rate for equity-holders of each dollar of revenue associated with any particular form of financing. The preferred form of financing is that which gives the higher retention rate. These conditions distinguish between equity and retained earnings by assuming that the payoff to equity is entirely in the form of dividends and that to retained earnings in the form of capital gains.

The above analysis is based on the classical corporate tax system under which income received as dividend was taxed at the corporate level and at the corporate tax rate. The dividend income was taxed again in hand of investors at the personal marginal income tax rate. Under the imputation tax system, if the corporate tax has been paid and the profits (after tax) are distributed to investors as franked dividends rather than retained, for corporate investors the effective tax on franked dividend received is *$(1 – Tc*), where Tc is the corporate tax rate. If the firm uses earning before interest and tax (EBIT) to pay interest to lenders, the corporate tax is zero since interest paid is tax deductible for the firm and the interest received is taxable in the hands of lenders at personal tax rate, Tp, so that the lender's net income after all taxes is *$(1 – Tp).* Alternatively, if the income is used to pay to equity-holders in the form of a dividend, then the firm will have to pay tax of *$Tc*, which leave after tax profit of *$(1 – Tc*). This profit can be used to pay a franked dividend of *$(1 – Tc)* carrying a franking credit of *$Tc*. The equity-holder will then be taxed on the grossed-up dividend which means that, after allowing for the franking credit, net personal tax will be *$(Tp - Tc*) – that is, the equity-holders' income after all taxes will be the cash dividend, *$(1 – Tc),* less net personal tax, *$(Tp – Tc).* In effect,

income distributed as franked dividends to resident equity-holders is effectively taxed once, at the personal tax rate (Peirson et al, 2006).

Overesch and Voeller (2008) examine impacts of personal and corporate taxation on companies' capital structure decisions. They investigate the effect of the difference in taxation of debt and equity financing on capital structures using a comprehensive panel of European firm-level. The finding suggests that a higher tax benefit of debt has the expected significant positive impact on a company's financial leverage. Particularly, the capital structures of smaller companies respond more heavily to changes in the tax benefit of debt. Additional analysis confirms that not only corporate taxes are relevant for corporate financial planning, but variation in capital income tax rates at the equity-holder level implicates significant capital structure adjustments. The finding also confirms the substitutive relationships between non-debt tax shields and the effect of the corporate tax rate on capital structures. (Green and Murinde, 2008) investigate the impact of tax policies reform on the leverage decisions of unquoted Indian companies and find similar conclusion.

There have been a number of studies on the impact of dividend taxes and firm value. Brennan (1970) suggests that high-dividend firms should impose a price penalty on shares since capital gains are tax-preferred relative to dividends. Auerbach (1979) suggests that dividend taxes should be capitalised into share prices for all firms. Miller and Scholes (1978) argue that prices are not likely to reflect dividend tax since the marginal investor could be a tax-exempt institution.

Bell and Jenkinson (2002) analyse the impact of a major change in dividend taxation, introduced in the U.K in July 1997 that abolishes the right of pension funds, the largest class of investors in the U.K equities. Before the tax reform, pension funds had a credit to be repaid – the advance corporation tax paid by companies that

distribute dividend to investors. As predicted, they find significant changes in the valuation of dividend income after the reform, in particular for high-yielding companies. The reform reduced the dividend income of pension funds by 20 percent. As measured by dividend yield, they obtain reductions in the average price drop to dividend ratio of 13 percent to 28 percent by analysing the ex-dividend day price. These results provide strong support for the hypothesis that taxation affects the valuation of companies. Similarly, Twite (2003) examines the impact of the introduction of a dividend imputation tax system in Australia in 1987 on the corporate financing decision of the Australian public companies. The introduction of dividend imputation tax system provides an incentive for firms to

a) reduce the level of debt financing utilised where this incentive varies across firms depending on the firm's effective corporate tax rate, and

b) increase the level of external equity financing.

The results present evidence consistent with these incentives.

On the other hand, Gentry, Kemsley and Mayer (2003) examine the influence of shareholder-level taxes on share prices using 167 Real Estate Investment Trusts (REITs) data. REITs are exempt from corporate tax, but must pay out the bulk of taxable income as dividend. By regressing the market value of equity on the market value of assets and corporate tax, they find that the firm value is positively related to dividend tax. The acquisition of real estate property provides depreciation tax shields and reduces the taxable component of dividends. As a result, it lowers future dividend taxes. Thus, the positive relationship between firm value and dividend tax supports the hypothesis that investors capitalise shareholder-level tax benefits from dividend tax into share prices. Their findings contradict Green and Hollifield (2003) who argue that share price repurchases are not viable substitutes for REIT dividends.

In term of personal taxes, Graham (1999) investigates the degree to which personal taxes affect corporate debt financing, using cross-sectional regression. He shows that debt usage is positively correlated with marginal tax rate. In particularly, adjusting the marginal tax rate for personal tax penalty is statistically important, relative to ignoring personal taxes. Unlike Miller's (1977) model, this result suggests that the personal tax penalty reduces. However it does not eliminate the tax incentive to use debt. Similarly, Overesch and Voeller (2008) suggest that variation in capital income tax rates at the equity-holder level results in significant adjustment in firm's capital structure. Conversely, Graham and Harvey (2001) find little evidence that firms directly consider personal taxes when financing in their survey.

More recently, Gottesman and Jacoby (2005) introduce personal taxation and stock repurchase to re-examine the relation between returns and the bid–ask spread using NYSE, AMEX, and NASDAQ data. Their evidence demonstrates that corporate payout policy has shifted from the nearly exclusive use of dividend payout to the inclusion of stock repurchase, primarily through open markets. This trend has been attributed to the tax advantages associated with repurchase relative to dividends. They conclude that the firm's choice of payout policy influences the relation between returns and spreads.

Further, Green and Hollifield (2003) examined the personal tax advantage of equity, as an attempt to show the overstatement of tax benefit of debt financing in the MM models. Using the empirical distribution pre-tax cash flow in Fama and French (1999), they evaluate the trade-offs between the costs of financial distress, the personal tax advantages of equity, and the corporate tax advantage of debt, and argue that the tax cost of capital is reduced by 0.8 percent through the use of share repurchases relative to dividend because of the option to defer capital gains on share

repurchases. They conclude that the personal tax advantages of equity are large enough to realise interior capital structure when there are small costs of financial distress, although not sufficient to offset the tax advantages of debt at the corporate level.

In relation to the imputation tax system, Shulman et al. (1996) examine the effects of imputation on corporate leverage in Canada and New Zealand where imputation tax was introduced in 1972 and 1988 respectively. New Zealand introduced a full imputation tax system while Canada introduced partial imputation and simultaneously introduced a capital gains tax on the sale of shares. These two changes have opposing effects: the introduction of the imputation tax should reduce the use of debt while a capital gains tax increases taxes on equity and favours the use of debt finance. The results for Canadian firms were consistent with these expectations. After the tax changes the average debt-equity ratio did not change significantly for firms experiencing an operating loss during the study and decreased significantly for all other firms. In the case of New Zealand, there was highly significant reduction in the average debt-equity ratio of the sample firms.

In Australia, Richardson and Lanis (2001) examine the impact of income taxes on the use of debt by Australian firms under imputation tax system. They use data for the 1997 year to study a sample of 269 non-financial listed firms. The main finding shows that under imputation, the tax advantage of debt is neutralised. In addition, the firms that do not pay dividends prefer internal equity to debt and firms that have high non-debt tax shields use less debt.

In summary, the implication of Miller's model is that taxes have two effects on corporate capital structure: the deductibility of corporate interest payments pushes firms towards more leverage; while the higher personal tax rate on debt relative to

equity pushes firms towards less leverage. Thus, the full effects of taxes depend on the magnitude of corporate tax benefit and personal tax cost under either the classical or imputation tax system applied.

2.3.2 Non-debt Tax Shields

Miller (1977) shows that the corporate tax advantage of debt is traded off against the personal tax disadvantage of debt income. In Miller's equilibrium, this trade-off is exactly matched at the margin such that there is no net advantage at the firm level for any particular capital structure. However, DeAngelo and Masulis (1980) demonstrate that the existence of a non-debt tax shield (NDTS) substitute for the tax advantage of debt, reduces the demand for debt, and leads to capital structure relevance once again at the individual firm level. NDTS can be defined as tax concession or allowance on all expenses other than interest expense on debt. Common NDTS include deductions generated by the purchase of fixed assets (i.e., depreciation), research and development expenditures (Trezevant, 1994) and loss carried forward (Cloyd et al., 1997).

In their work, DeAngelo and Masulis (1980) present a model of optimal capital structure that incorporates the impact of corporate tax, personal tax, and non-debt-related corporate tax shields. They argue that non-debt tax shields such as accounting depreciation, depletion allowance, and investment tax shields are substitutes for the debt tax shield, and if a firm uses sufficient tax shields from these non-debt tax shield elements to reduce taxable income to zero, debt may yield no additional tax benefit, and capital structure decisions will be based on non-tax considerations.

Many empirical studies have been trying to examine the effects of non-debt shields, as a substitute for debt. Bradley, Jarrell and Kim (1984) test the relationship between debt ratio and non-debt tax shields, using the annual Compustat file and OLS. Unlike DeAngelo and Masulis (1980), they find a significant, positive relationship between leverage and the level of non-debt tax shields. As a possible reason, they suggest that large investment in tangible assets generates higher non-debt shields, and results in higher leverage. In other words, non-debt tax shields work as an instrumental variable for the securability of firm's assets. However, Fischer, Heinkel, and Zechner (1985) use various forms of leverage to test whether non-debt tax shields reduce the use of debt, but cannot find significant tax effects. Similarly, Titman and Wessels (1988) analyse the relationship between six types of debt ratios and explanatory variables including non-debt tax shields, using Compustat data and the Lisrel system. Their model finds no evidence to support the prediction that debt ratios are significantly related to non-debt tax shields. The result is confirmed by the work of Graham, Lang and Shackelford (2004) who use a new proxy for non-debt tax shield, the exercise of executive/employee stock options. Their finding supports the view that these non-debt tax shelters can explain some, but not all, variations in the capital structure of the observed firms.

A relatively successful result is obtained by Mackie-Mason (1990). He clarifies the relationship between tax shields and the incentive to use debt. With two tax shields, tax loss carry forwards (TLCF) and investment tax credits (ITC), Mackie-Mason estimates the probability of choosing debt, using Compustat data and the Probit model. He predicts that firms with high tax loss carry forwards (TLCF), implying high probability of zero tax, are much less likely to use debt. In contrast, firms with ITC, implying profitability, do not reduce the probability of issuing debt

except nearly tax-exhausted firms. As predicted, TLCF is negatively related to the probability of choosing debt, and ITC alone has a positive coefficient, but has negative effects for firms near tax exhaustion. Mackie-Mason concludes that tax shields do affect financing when they are likely to change the marginal tax rate on interest deduction. Similarly, Graham (1996) tests the relationship between the non-debt tax shields (depreciation and ITC) and debt ratio, using Compustat data. Graham finds the negative effects by combining non-debt shields and Altman's (1968) Z-score, a measure of the probability of bankruptcy. His finding is consistent with Castanias (1983) who points out those firms with high failure rates tend to have less debt.

In later studies, Shyam-Sunder and Myers (1999) support a positive relationship between non-debt tax shield and firm leverage level. Their study finds a positive relationship between tax loss carry forwards and leverage. More recently, Overesch and Voeller (2008), investigate the effect of the difference in taxation of debt and equity financing on capital structure of European firms and conclude that there is substitutive relationships between non-debt tax shields and the effect of the corporate tax rate on capital structure. On the other hand, Fama and French (2002) find that firms with more non-debt tax shields (deductions for depreciation and R&D expenditures) have less leverage. Their findings are consistent with Korajczyk and Levy (2003) who also confirm that firms with large depreciation tax-shields have lower target leverage.

On the contrary, Graham and Tucker (2006) directly examine 44 tax shelter cases in which the government has accused the firm of sheltering activity. These large tax shelters (averaging nine percent of asset value) generate deductions three times as large as interest deductions of the comparable firms. Graham and Tucker

conclude that their sample of firms employ more debt after non-debt tax shelters are taken into consideration.

Recently, Schallheimand and Wells (2006) propose a new and simple proxy for non-debt tax shields called the tax spread - the difference between tax expense and taxes paid. The statistically significant determinants of the tax spread using accounting proxies for tax shielding activities. They then compare the tax spread to Graham's (2000) measure of under-leverage – called 'kink' – and find a significant and positive relationship between 'kink' and the tax spread. Their findings infer that firms are trying to find alternatives to debt to reduce taxable income.

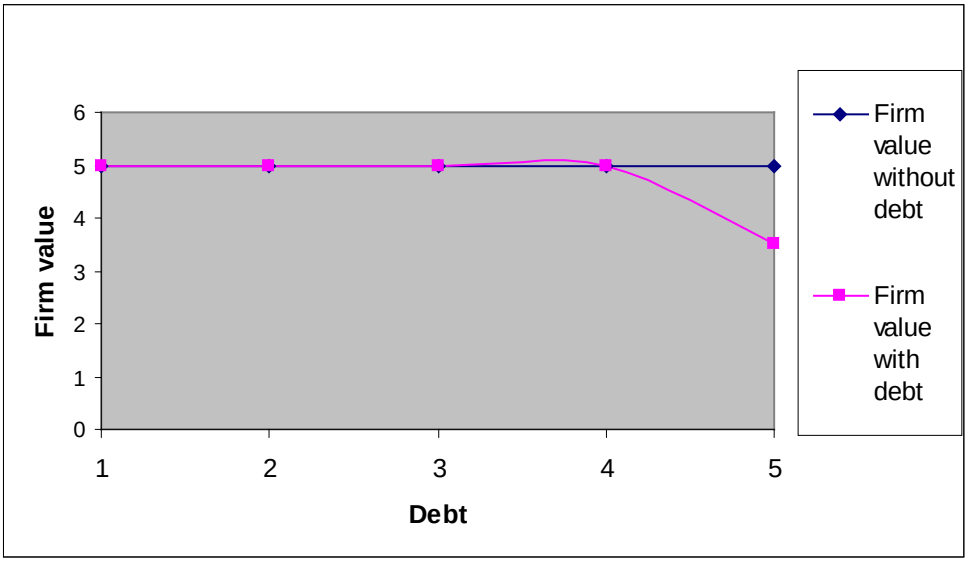
2.3.3 Bankruptcy Costs

Debt financing leads to the cost of financial distress as increasing a firm's debt-equity ratio will increase the risk that the firm will default on its debt. According to Baxter (1967), the expected costs of involuntary bankruptcy and re-organisation have significant impacts on the value of a leveraged firm. These costs include direct costs such as legal and accounting fees, court costs; and indirect costs such as cost of managerial time consumed in bankruptcy and re-organisation proceedings. In general, bankruptcy costs rise when profitability declines, and push less profitable firms towards lower leverage targets. Expected bankruptcy costs are higher for firms with high growth or more volatile earnings.

The theory of bankruptcy costs states that bankruptcy costs reduce the value of the assets of the firm because they reduce the cash flows generated by the assets. Increasing the level of debt increases the likelihood of distress and, hence, the expected costs of distress. If there are no offsetting benefits associated with debt financing (i.e., if there are no taxes), firms should not use any debt (Baxter, 1967).

Despite the fact that a recent survey undertaken by Deutsche Bank (2006) observes that financial distress, other than the loss of flexibility, was not considered particularly important when making debt financing decisions. It is likely, however, that the bankruptcy costs are very small for low levels of debt, increase gradually as more debt is added, and increase substantially at high levels of debt when the probability of bankruptcy is high.

Figure 2.8: Firm Value with Financial Distress Costs and No Taxes



Source: Servas and Tufano (2006)

Figure 2.8 illustrates that when effects of taxes are not present, the value of a leveraged firm decreases while the value of an unleveraged firm remains constant. The more debt employed the faster the value of the leveraged firm decreases as the probability of bankruptcy increases (Servas and Tufano, 2006).

While few would dispute the argument that the costs associated with financial distress can reduce firm value, there is some dispute about whether these costs are large enough to have an economically significant effect on firm value. While Scott (1977) suggests that the issuance of secured debt can increase the firm value, due to

the low probability of bankruptcy, Smith and Warner (1979) find that secured debt does not change the firm value.

While expected direct costs of financial distress appear to be very small, firms considered likely to fail may incur significant indirect costs. Warner (1977) estimated that the out-of-pocket expenses incurred in the administration of the bankruptcy process for failed US railroad companies averaged only 5.30 percent of the market value of their assets at the date of bankruptcy. This figure falls to 1.00 percent if company value is measured 7 years before the bankruptcy. Pham and Chow (1987) support this view and report the direct costs averaging 3.60 percent of company value at the date of bankruptcy for a sample of Australian companies. In recent study, Green and Hollifield (2003) simulate an economy to investigate the degree to which capital gains deferral on the tax benefits of debt. They calculate the cost of financial distress and find that the bankruptcy costs account for about 3 percent of pre-tax firm value or 4.6 percent of after-tax.

On the other hands, Altman (1984) estimates the direct and indirect costs of financial distress for a sample of twenty-six bankrupt US companies and finds that, in many cases, the aggregate costs exceeded 20 percent of the value of the company just before the bankruptcy. Adopting Altman's methodology to study a sample of fourteen failed Australian companies, Pham and Chow (1987) find that the aggregate costs of financial distress averaged 22.4 percent of company value just before the bankruptcy. These results are much greater than the level of direct costs reported by Warner (1977) and later studies.

2.3.4 Agency Costs

The agency costs model, initiated by Jensen and Meckling (1976), identifies two types of conflicts: conflict between managers and equity-holders and conflict between debt-holders and equity-holders. Conflict between managers and equity-holders occurs since managers capture only a fraction of the gain from their profit enhancement activities. While managers bear the entire cost of these activities, there is a conflict resulting from managerial prerequisites. Thus, the relative increases in the managers' fractional ownership caused by the increase in debt financing, mitigates the loss from the conflict. Moreover, as pointed out by Jensen (1986) and Stulz (1990), since debt forces the firm to pay out more of the firm's excess free cash, debt reduces the managers' discretion over free cash flow. As dividend and debt are substitutes for controlling free cash flow problems, the relationship between the target leverage ratio and the target payout ratio is negative.

The conflict between bondholders and equity-holders arises when debt employed is risky. As Jensen and Meckling (1976) suggest, by exchanging higher-risk for lower-risk assets, equity-holders may benefit from the risky projects at the expense of bondholders, which is called the asset substitution problem. Myers (1977) also argues that if most of the benefits from a profitable investment opportunity are to accrue to the debt-holder, then equity-holders may not invest the project, which is called the under-investment problem. He suggests that shortening the maturity of debt reduces the under-investment problem. Berkovitch and Kim (1990) show that increasing seniority of new debt decreases the incidence of the under-investment problem.

Various empirical studies on the effects of agency costs produce conflicting results. Considering agency costs, Jensen and Meckling (1976) argue that an optimal

structure can be obtained by trading-off the agency costs of debt against the relevant benefit. In the context of agency costs, Barclay et al., (2001) assess the importance of investment opportunities when they studied a sample of more than 6700 U.S industrial companies over a 30-year period, from 1963 to 1993. Their result provides strong support for the importance of investment opportunities as a determinant of leverage. In addition, while Harris and Raviv (1990), Rajan and Zingales (1995) and Morellec and Smith (2007) suggest that leverage is positively related to firm value, Jensen (1986) and Stult (1990) predict leverage is positively related to cash flows.

On the other hand, Fama and Miller (1972), and Myers (1977) suggest that firms with more investment opportunities have less leverage to minimise agency costs, and Jensen and Meckling (1976), and Peyer and Shivdasani (2001) argue that leverage is negatively related to growth opportunities. In addition, a recent survey undertaken by Deutsch Bank (2006) finds that firm managers do not employ debt to improve the way they manage the firm's assets.

2.3.5 Asymmetric Information

As opposed to the traditional view of capital structure which concentrates on the effects of taxes and taxation associated costs in explaining the capital structure decisions, the theory of capital structure with asymmetric information provides support for a larger role of debt beyond taxes. The behavioural model of capital structure with asymmetric information was developed through the works of Myers (1984) and Myers and Majluf (1984). In the asymmetric information theory, managers or insiders are assumed to possess private information about the firm's characteristics, prospects and the value of its risky securities. Myers and Majluf (1984) argue that capital structure is designed to mitigate inefficiencies caused by

information asymmetry. They show that managers use their superior information to issue risky securities when they are over-priced. Investors, however, recognise this asymmetric information problem and they discount the firm's risky securities. This under-investment problem can be avoided by using a security that is not so severely under-valued by the market such as retained earnings or riskless debt that involve no asymmetric information problem (or adverse selection problem). As a result, firms finance new investments, first internally with retained earnings, then with safe debt, then with risky debt, and finally with equity to minimise those costs. This order of corporate financing is known as the pecking order.

The major implication of the pecking order theory is that there is no optimal or target debt ratio, and firms do not aim at any target debt ratio, instead, the debt ratio is just the cumulative result of financing following the pecking order. Myers (1984) points out that dividends are less attractive for firms with less profit, large investment opportunities and high leverage because of high costs of equity financing. Thus, in a simple model, leverage is lower for more profitable firms, and higher for firms with more investments. He suggests that, however, firms with larger expected investments have less current leverage to balance current and future costs.

In contrast, Ross (1977) suggests another aspect of the symmetric information theory, based on the incentive signaling approach. In his model, managers know the true distribution of firm returns, but investors do not. Since managers are penalised if the firm goes bankrupt, managers of low quality firms do not imitate higher quality firms by issuing more debt. Thus, contrary to Myers and Majluf (1984), investors take larger debt levels as a signal of higher quality.

Bond and Scott (2006) test a sample of 18 U.K listed real estate companies over a seven year period up to 2004. Using dynamic specifications of the model's

inferences about firm financing behaviour, they find the financing patterns of the selected sample follow closely the pecking order pattern. Their finding supports the Shyam-Sunder and Myers (1999) result. However, other studies (Chirinko and Singha, 2000; Barclay, Morellec and Smith, 2001; and Frank and Goyal, 2004)) fail to verify these results and assign the contrary result to the techniques employed in the testing.

Whilst Welch (2004) observes that it is virtually impossible to distinguish between firms that truly follow the pecking order theory and those who have no policy at all, Leary and Roberts (2005) conclude that neither theory (e.g., trade-off and pecking order theory) dominate the financing decision. Leary and Roberts suggest that firms may simply choose the cheapest source of financing at any point in light of both the tax advantages of debt and asymmetric information costs of external financing.

In summary, the Asymmetric Information Model (pecking order theory) cannot be entirely corrected; otherwise firms would never issue equity when they could have issued investment-grade debt. Nevertheless, it does offer an explanation for some of the observations not explained by the static trade-off model. At the least, it helps in explaining the strong negative association between profitability and leverage found in various studies (e.g., Ghosh, Nag and Sirmans, 1999; Fama and French, 2002; Frank and Goyal, 2003; and Gaud et al., 2005).

2.3.6 Market Timing Theory

The Market Timing Theory was developed by Baker and Wurgler (2003). The theory is more behavioural in nature and scope and postulates that managers make financing decisions according to capital market conditions. The Market Timing

Theory departs from traditional capital structure theories not only because it examines capital structure changes from the capital market perspective, but it also relaxes the assumption of market efficiency. Equity market timing means that decisions to issue equity depend on stock prices and the debt market timing means that decisions to issue debt depend on the interest rate levels. The concept of an optimal leverage ratio is relegated to a secondary role in the market timing theory. In other words, the security choice of a firm depends on market conditions rather than some pecking order (Ooi, Ong and Li, 2008).

Empirical studies on the underlying reason for equity and debt market timing remain inconclusive. Equity market timing gains support from two different hypotheses: information-based market timing (Korajczyk, Lucas and McDonald, 1992; Li et. al., 2007; Ooi, Ong and Li, 2008) and market-efficiency based market timing (Loughran and Ritter, 1995; Howton, Howton and Friday, 2000). The information-based market timing hypothesis focuses on the variations in adverse selection costs of equity offerings arising from asymmetric information. Since managers issue equity only when stock prices are high or overvalued, equity offerings should precipitate a fall in stock prices. Li et al. (2007) examine the security choice of REITs to evaluate the market timing theory. The empirical results from 1993 through 2004 support the information-based market timing theory for equity offerings and backward looking market timing in debt issuances. On the other hands, in their study, Korajczyk, Lucas and McDonald (1992) conclude that market asymmetric information is not fixed over time, and firms tend to issue equity when the market is most informed about the quality of the firm, for example, after earnings releases.

The market-efficiency based equity market timing hypothesis is predicated on post offering long-run stock performance. The problem of the equity price

underperformance after IPO (Howton, Howton and McWilliams, 2003) and long-run underperformance after equity issues (Loughran and Ritter, 1995), suggest that managers capitalise on the inefficiency in capital markets by timing the market. The evidence on market inefficiency-related market timing is mixed and there are methodological concerns in the test for long-run anomaly (Ooi, Ong and Li, 2008).

In their study, Baker and Wurgler (2002) and Ooi, Ong and Li (2008) show empirically that market timing has persistent effects on capital structure, and that the capital structure is the cumulative outcome of past attempts to time the equity market. In particular, they find that leverage has a strong negative correlation with market-to-book ratio, which is the usual measure for market timing opportunities. On the other hands, Feng, Ghosh and Sirman (2007) show that REITs with historically high market-to-book ratio tend to have persistently high leverage ratio. In other words, firms with high growth opportunity and high market valuation raise funds through debt issues.

In fact, both information-based market timing and market-efficiency based equity market timing hypotheses could explain the negative long-run correlation between leverage and market-to-book ratio. Under the information-based market timing, the market-to-book ratio is inversely related to adverse selection, and temporary fluctuations in the market-to-book ratio measure variations in adverse selection. The market inefficiency timing theory assumes that managers time the equity market when they perceive that investors overvalue the firm. They would use the market-to-book ratio as a proxy of market misevaluations. Since market-to-book ratio could represent both adverse selection and market misevaluations, it is difficult to differentiate which market timing hypothesis dominates.

Empirical work on the market timing theory is provided by Graham and Harvey (2001) and Ooi, Ong and Li (2007, 2008) where they show that managers would issue equity when their stocks are overvalued and issue debt when interest rates are low. Both debt and equity would be issued when investors are more risk-averse. According to Li et al. (2007), the long-run relative underperformance of stocks after initial public offerings or secondary equity offerings is consistent with the market timing theory.

On the other hands, Baker, Greenwood and Wurgler (2003) find that the maturity of debt issues is negatively related to the term spread. Ooi, Ong and Li (2007, 2008) also support market timing in debt issuances in that firms tend to issue long-term debt when interest is low and term spread is narrow, and issue short-term debt when interest is high and term spread is wide. Further, Barry et al. (2005) investigate the debt issuing decision of firms in relation to historical interest rates, and conclude that the amount and number of debt issues are higher when current interest rate is lower compared to historical interest rates.

2.4 Other Empirical Factors

In addition to the benefits and costs of taxes, information asymmetric and market timing factors discussed so far, various empirical studies on the capital structure of real estate property enterprises have used a number of common determinants in explaining the leverage decision behaviour. These determinants can be classified into two categories: firm specific and general market condition factors. The firm specific factors include type of property enterprises, asset structure, firm size, growth opportunity, profitability and business risk. The general market condition factors include interest rate and general market performance index. The

firm specific factors have been used to test the operation of the pecking order theory. The general market condition factors have been used to test the market timing theory.

2.4.1 Asset Structure

Tangible assets such as real estate properties have a great deal of collateral that can be used to support high levels of debt. As the value of intangible assets disappears in the cases of bankruptcies, the presence of tangible assets is expected to be important in external borrowing as it is easy to pledge them. Similarly, it reduces agency costs since debts can be secured with known tangible assets that have alternative re-deployable uses in case of default. This general discussion converges to conclude that there should be positive relationship between leverage and fixed assets.

Examining the capital structure decision of the Real Estate Investment Trusts (REITs) in the USA, Allen (1995), Frank and Goyal (2003), and Bond and Scott (2006) find that such firms employed more leverage because their assets are well-suited as collateral on debt financing. Other studies by Capozza and Seguin (1999), Ooi (1999a,b), Shyam-Sunder and Myers (1999), Hovakimian, Opler and Titman (2000) and Korajczyk and Levy (2003) also show that firms with more tangible assets tend to borrow more.

On the other hand, Rajan and Zingales (1995) and Booth et al. (2001) find a low but significant negative relationship between total debt and asset tangibility and a slightly significant positive relationship between long-term debt and asset tangibility. However, Titman and Wessels (1988) failed to find significant result.

2.4.2 Size

It is generally accepted that size is an inverse proxy for the probability of bankruptcy (Rajan and Zingales, 1995). Thus larger firms, because of diversification, are likely to have higher debt capacity and are expected to borrow more to maximize the tax benefit.

Fama (1985) argues that the information content of small and large firms is not the same due to monitoring costs being relatively higher for smaller firms. Thus larger firms, due to lower information asymmetry, are likely to have easier access to debt markets and are able to borrow at lower cost. Since the probability of bankruptcy is inversely related to size, such cost might be less important for large firms while raising debt capital. Large firms can generally be easier and more diversified and the transaction costs are relatively lower when issuing debt on the financial markets.

Although its relation to leverage is not sufficiently straightforward, size is generally agreed to be positively associated with leverage. The positive correlation between long-term debt ratio measured at book value and firm size represented by market value of total asset has been proved by most studies (e.g., Rajan and Zingales, 1995; Graham et al, 1998; Hovakimian, Opler and Titman, 2000; Booth et al, 2001; Korajczyk and Levy, 2003; and Westgaard et al., 2008), however, if the costs of financial distress are low, the positive relationship should not be strong. This proposition is empirically supported by the findings of Ferri and Jones (1979) and Kim and Sorensen (1986). Further, Frank and Goyal (2003) find the same results using log sales as a proxy for firm size.

On the other hand, Titman and Wessels (1988) find that short-term debt ratio is negatively related to firm size, reflecting the relatively high transaction cost when issuing long-term debt.

2.4.3 Growth Opportunity

For firms with growth opportunities, the use of debt is limited as in the case of bankruptcy and the value of growth opportunities will be close to zero (Auerbach, 1985). Jung et al. (1996) show that firms should use equity to finance their growth because such financing reduces agency costs between shareholders and managers, whereas firms with less growth prospects should use debt because it has a disciplinary role (Jensen, 1986; Stulz, 1990).

Myers (1977) shows that firms with growth opportunities may invest sub-optimally, and therefore creditors will be more reluctant to lend for long horizons. This problem can be solved by short-term financing (Titman and Wessels, 1988) or by convertible bonds (Jensen and Meckling, 1976; Smith and Warner, 1979). From a pecking order theory perspective, growth firms with strong financing needs will issue less securities subject to informational asymmetries, i.e. short-term debt. If these firms have very close relationships with banks, there will be less informational asymmetry problems, and they will be able to have access to long term debt financing as well.

Rajan and Zingales (1995) find a negative relationship between growth opportunities and leverage. They suggest that this may be due to firms issuing equity when stock prices are high. As mentioned by Hovakimian et al. (2001), large stock price increases are usually associated with improved growth opportunities, leading to a lower debt ratio.

2.4.4 Profitability

The Pecking Order theory of capital structure (Myers 1984) suggests that firms prefer to finance new investments from retained earnings and raise debt capital only if the internal capital is insufficient. As the availability of internal capital (retained earnings) depends on profitability of the firm, one could expect an inverse relationship between leverage and profitability. As predicted, Rajan and Zingales (1995), Shyam-Sunder and Myers (1999), Booth et al. (2001) and Korajczyk and Levy (2003) find strong negative relationship between debt ratio and profitability. Frank and Goyal (2003), however, argue that the pecking order theory is not the only possible interpretation of the relationship, although they find the same result. They suggest that current profitability can also serve as a signal of investment opportunities, similar to suggestion of Kaplan and Zingales (1997).

On the other hand, Fama and French (1998) show positive relationship between earnings and firm value, and Titman and Wessels (1988) investigate that profitable firms have less debt relative to the market value of their equity. Moreover, many studies such as Graham (1996), Mackie-Mason (1990), and Graham, Lemmon and Schallheim (1998) that examine the positive relationship between tax rate and debt ratio also find the profitability is positively related to leverage, as found in the trade-off model.

2.4.5 Interest Rate

In spite of the tax savings on interest, higher interest rates cause higher weighted average cost of capital resulting in a decline in the value of the firm. Since the interest on loan is a relatively long-term fixed commitment, firms do not prefer to raise loan capital when the market rate of interest is high. Moreover, firms with

higher interest commitments face higher risk of bankruptcy, should the earnings level drop below the level of interest liability. Such liability increases with the increase in the rate of interest (Graham, 2000). Thus, managers are likely to consider the market rate of interest while deciding the capital structure.

Under the market timing theory, firms are more likely to use debt when the cost of borrowing is low and to issue equity when interest rates are high. Ooi, Ong and Li (2007) show that REITs time their equity offerings to coincide with periods of high stock valuation and issue debt securities when the long-term interest rate is low and the credit spread is narrow. Similarly, Barkham (1997) and Ooi (1999a) also find that property companies use more debt when interest rates are low.

Gau and Wang (1990) examine the financing decisions of real estate investors and the choice of capital structure when acquiring income-producing properties and find that interest rate is a prominent determinant of the capital structure of real estate property investors.

On the other hands, higher interest rate implies higher cost of bankruptcy. Ooi (1999) examines the capital structure of listed U.K property companies and finds that financial distress has a significant influence on the corporate financing decisions. In their study, Howton, Howton and McWilliams (2003) examine the determinants of the security issue decision for REITs of 664 REIT security issuances in the 1993-2001 period. REITs differ from industrial enterprises because they are sheltered from paying corporate income taxes if they pay out 95 percent of income as dividends. This restriction forces REITs to use the external markets to raise capital more often than their industrial counterparts. The results of the study show that the decision to issue equity is directly related to the expected cost of issuing debts.

In their recent study, Ooi, Ong and Li (2007) support the conclusion of Howton, Howton and McWilliams (2003) and confirm that REITs issue debt securities when the long term interest rate is low and the credit spread is narrow.

2.4.6 Market Performance

It is often argued that firms prefer to issue equity after its share price increase. Marsh (1982) states that in choosing between debt and equity, firms are heavily influenced by the past history of stock prices and market conditions. As explained by the Pecking Order Theory (POT), information asymmetry between firms and outside investors forces firms to sell the equity at a discount. Firms offer such a discount when the benefit of raising external equity capital outweighs the cost of the discount.

When shares are overvalued, a discount could be offered without any loss in the wealth of existing equity-holders. This is possible if equity is issued after a share price increase. This suggests an inverse relationship between the increase in share price and leverage ratio. However, such an inverse relationship with market-leverage may be observed due to artificial statistical distortions as the market value of equity increases with the change in market price even if there has not been any further equity issued.

Jallilvand and Harris (1984), Bayless and Diltz (1991) and Ooi (1999a) confirm that companies time their equity issues to coincide with favourable market conditions because the prospect of their shares being under-valued in a bull market is low. In addition, Casey, Sumer and Packer (2006) find that capital structure of limited partnership of REITs was directly influenced by market factors. The REITs debt levels are influenced by the price-to-book ratio and negatively relates to the percentage of institutional ownership and price-to-cash flow.

Conversely, equity capital is likely to be substituted with debt capital in a declining stock market as confirmed in Howton, Howton and McWilliams (2003) and Ooi, Ong and Li (2007). While this observation may reflect the reluctance of firms to issue under-valued equity stocks, it can also be explained by an increase in debt usage as well as a fall in asset values (Barkham, 1997).

2.5 Capital Structure Theory and Real Estate Property

As reviewed in the various sections above, the capital structure of firms under MM propositions is relevant and significant for three reasons: taxes, bankruptcy, and agency costs. Logically, under their theory, if none of these three factors are present, then capital structure should be irrelevant and there should be no pattern or cross-sectional differences in the use of debt in the capital structure. This view is reasonably aligned to the methods employed by the listed real estate property enterprises, especially the U.S listed Real Estate Investment Trusts (REITs) or Australian listed Real Estate Investment Trusts (AREITs), formerly known as Listed Property Trusts (LPTs).

For the purpose of this study, listed real estate property enterprises include listed real estate property companies which are directly involved in real estate property investment and/or the development of real estate property, and listed Australian real estate investment trusts (AREITs) which are involved mainly in real estate property investment.

Under the Australian income tax law (Income Tax Assessment Act 1936 (ITAA36) and Income Tax Assessment Act 1997 (ITAA97)) listed real estate property companies are taxable entities. The AREITs, however, are non-taxable entities, as long as at least 95 percent of taxable income is paid annually in the form

of a dividend. This, in effect, nullifies two significant benefits of debt financing. The first is the tax deductibility of interest payments and secondly that non-debt tax shield is non-existent. The second is that since most of the earnings are distributed to the equity-holders as dividend, debt servicing has only limited value insofar as agency cost of free cash flow is concerned. Costs of financial distress further reinforce the preference for equity of the REITs (Capozza and Seguin, 2004).

In relation to the bankruptcy costs, Capozza and Seguin (1999) argue that the effect of bankruptcy costs is less in the REITs sector than in others for two reasons. The first is that the larger and more economically significant type of bankruptcy costs, namely, the discount to book value when attempting to liquidate inherently illiquid assets, is greatly mitigated for REITs. Since there is an active, liquid market for underlying real estate assets the managers of a distressed REIT could liquidate some or all of their assets in a timely fashion at prices that do not represent large discounts from their normal market value. The second is that the direct costs of bankruptcy such as the fixed costs associated with lawyers, bankruptcy court costs and consultant fees, may still be pertinent. But, given the ability of a REIT to partially liquidate, full-blown bankruptcy procedures are rare. Therefore, given the low *ex ante* probability of incurring bankruptcy, managers need not consider them when creating or modifying a trust's capital structure.

In relation to agency costs, or the ability of managers to enhance themselves compensation at the expense of equity-holders wealth, as with bankruptcy costs, there is not a potential for agency costs for a REIT's structure. The REITs structure mitigates agency costs for at least two reasons. First, since the parallel market for real assets provides benchmark prices for assets, external equity-holders can quickly determine whether managers are engaging in empire building by over-spending on

real assets. The existence of this parallel market, which is unique for REITs, mitigates agency costs. The second advantage is the transparency of the income statement. Unlike more traditional firms, where extravagant or inefficient spending can be “hidden” under “Sales” or “Research and Development”, REITs have much less discretion in its accounting. Indeed, in their study of U.S REITs financing decisions, Capozza and Seguin (1999) observe that equity-holders are good at identifying even small deviations in general and administrative expenses, the one discretionary account REITs have, and deviations in these expenses have an economically and statistically significant impact on equity valuations. They conclude that the transparency of REITs makes it difficult for managers to engage in wealth destroying activities without being immediately detected.

2.6 Limitation of current studies

Despite numerous empirical studies conducted in the real estate property sectors, the review of the literature on issues related to the capital structure of the listed real estate property enterprises reveals that there is currently limited literature on this theme and the studies completed may not be directly relevant. In addition, the vast majority of the researches are in the U.S, Canada and U.K context. In the U.S, studies have reached different conclusions on the impact of taxation on capital structure of real estate partnership and real estate investment trusts (REITs) such as the findings of Capozza and Seguin (1999), Howe and Shilling (1988), Maris and Elayen (1990). In Canada, Gau and Wang (1990) examine the capital structure of real estate investment at a project level. In the U.K, Barkham (1997) examines the financial structure and ethos of property companies. The main conclusion of the study is that the classification of property companies as property investment companies (PICs) and property trading companies (PTCs) is valid and the property

development firms borrow more than trading firms, as the former are believed to be riskier. Similarly, Ooi (1999a, b) studies capital structure and its determinants for property firms. The study concludes that large and profitable firms that undertake property trading and have more fixed assets tend to employ more long term debt. Westgaard et al. (2008) investigate the determinants of capital structure in 308 U.K real estate companies by using the accounting data from the fiscal years 1998-2006, and find that profitability, tangibility and size are positively related to leverage, while asset turnover and earnings variability are negatively related. The significant positive relationship of profitability contradicts major findings in the capital structure literature. More recently, Chiang, Chan and Hui (2002) study the capital structure and profitability of property and construction sector in Hong Kong. Their study concludes that profitability, cost of equity and capital structure is interrelated.

In Australia, most studies concentrate on the performances of the Australian Real Estate Investment Trusts (AREITs), formerly known as Listed Property Trusts (LPTs), under various aspects such as macroeconomic factors (West and Worthington, 2006), specific sections of the real estate industry such as retail (Newell and Hsu, 2007) and industrial (Newell and Feng, 2007). The impacts of taxation on the corporate financing pattern of real estate property enterprises have been neglected.

Because the ownership of real estate property may be as simple and straight-forward as ownership of the family home or an investment property by individuals, or as complex as ownership of investment properties through companies, trusts and unit funds, study on the AREITs alone do not provide adequate answers to how the Australian real estate property enterprises decide their corporate financing decision. This study aims at filling the gap by examining the combined effects of tax policies

and of the other determinants on the leverage decision making of the Australian listed real estate property enterprises, in the wake of the introduction of the New Tax System in 2000.

2.7 Hypotheses Development

Firms' leverage levels may be affected by changes in the corporate tax, the personal tax structures, and relevant legislation that affects the ways in which firms run their businesses. The introduction of the New Tax System (NTS) changes both tax structures and the operation costs. Since firms differ with respect to their corporate tax attributes and because they may also differ with respect to the tax attributes of their security holders, a test of the trade-off and pecking order theories of capital structure should account for both effects. As reviewed in Chapter 2, the trade-off theory is concerned with the costs and benefits of taxes and the pecking order theory relates to the preferential source of funds the firm employ to finance its activities. To test this, ten testable hypotheses associated with ten research questions identified in Chapter One are proposed.

2.7.1 Impact of Corporate Taxes

The corporate tax structure favors the issuance of debt over equity since interest is deductible. Consequently, some of the theoretical analyses suggest that firms' leverage increases with an increase in the corporate tax rate. This prediction is difficult to test since, at any given point in time, all corporations face the same statutory tax rate. However, leverage decisions are not based on the statutory tax rate, but rather on the marginal effective tax rate. The marginal effective tax rate, which is the present value of future tax payments arising from an additional dollar of taxable

income per year, varies across firms. This variation enables us to analyse the relation between leverage and corporate tax rates.

Cross-sectional differences in marginal effective tax rates result from different opportunities for tax deferral or tax reduction among firms, as well as from imperfect inter-period transfers of tax losses. A given change in the statutory tax rate brings about a greater change in the marginal effective tax rate of firms that initially have a higher marginal effective tax rate. Therefore, firms with a higher marginal effective tax rate will change their capital structure more than firms with a lower marginal effective tax rate in response to a given change in the statutory tax rate. The hypothesis regarding the effect of the reduction in the corporate tax rate, in the wake of the introduction of the New Tax System (NTS), is proposed as follows:

Hypothesis 1: *At the firm level, there is a direct relationship between changes in firms' effective tax rates and changes in leverage.*

2.7.2 Impact of Personal taxes

Another factor affecting leverage choice is taxes on individuals. Because of the lower tax rate on capital gains prior to the NTS, the tax structure for individuals was biased in favor of equity income over debt income. The NTS reduces the preferential tax treatment of capital gains, diminishing the advantage to the individual of receiving equity income relative to debt income. If differential personal taxes on debt and equity are reflected in their relative cost to the firm (see, e.g., Miller, 1977), this tax change, by itself, should bring about an overall increase in leverage, since debt is now relatively more attractive to investors than it was before the introduction of the NTS.

The ability to test the above prediction in a cross-sectional setting is predicated upon the existence and observability of cross-sectional differences in the personal tax advantage of equity income relative to debt income of the marginal investor. As Long's (1977) analyses show, when dividends and capital gains are taxed differentially, investors in different tax brackets may choose different portfolios. Specifically, high-tax-bracket investors tilt their holdings toward low-dividend-yield portfolios and vice versa. Further, a reduction in the personal tax advantage of capital gains would be more pronounced for high-tax-bracket investors than for low-tax bracket investors. If dividend clienteles exist, this implies that the New Tax System's (NTS) reduction in the personal tax advantage of equity income would be greater for low-dividend-yield stocks than for high-dividend-yield stocks. Leverage changes would then be expected to be negatively correlated with dividend yields. Formally, assuming that personal taxes affect capital structure decisions and that the impact of the NTS on the equilibrium value of personal tax effects is correlated with the dividend yield, the following hypothesis is proposed.

Hypothesis 2**:** *At the firm level, there is a direct relationship between changes in personal tax advantage of equity income and changes in leverage.*

2.7.3 Impact of Non-debt Tax Shields

Non-debt tax shields (NDTS) do not require existent debt in order to be effective by definition. Since a firm does not have to issue debt in order to be able to enjoy tax shields, it does not have to suffer from the costs of debt imposed by the personal interest income taxation as discussed in Miller (1977). This makes the use of debt less favorable for a firm with non-debt tax shields than for a firm without them.

DeAngelo and Masulis (1980) suggest that there is substitution between debt and other deductions in shielding corporate income from taxes. Because the NTS reduced the amount of some non-debt tax shields, the enactment of this legislation enables us to examine the trade-off between debt and non-debt tax shields. Therefore, the following hypothesis is proposed.

Hypothesis 3: *At the firm level, there is an inverse relationship between changes in NDTS and changes in leverage.*

2.7.4 Impact of Asset Structure

Harris & Raviv (1990) argue that debt is an instrument to retrieve information on the true state of the firm. As mentioned previously the optimal amount of debt is determined by balancing the informational benefits of debt against the bankruptcy costs incurred by it. Assumed that the informational return on one dollar of debt is fixed it is the amount of bankruptcy costs incurred by one dollar of debt that determines the optimal amount of debt. If the marginal bankruptcy cost of debt is low, more debt is issued to create information. If it is high less debt is issued. There are two aspects that affect the marginal bankruptcy cost of debt: one is the cost incurred by an investigation in case of a default. If it is high the marginal bankruptcy cost is high and vice versa. The second aspect relates to the probability of making the right decision on whether to liquidate or to continue in the case of a default. If the probability of being able to make the right decision is high, then the marginal bankruptcy cost of debt is lower and more debt is issued. An increase in liquidation value of a company raises the probability that liquidation is the best (right) solution in case of default. This higher probability of choosing the “right strategy” lowers the bankruptcy cost of debt. It follows:

Hypothesis 4*: Firms that display a relatively higher tangible assets-over-total assets ratio have a relatively higher debt-equity ratio.*

2.7.5 Impact of Firm Size

Size is an important determinant of the capital structure of property companies. Most empirical studies show that firm size is positively related to leverage. Rajan and Zingales (1995), Graham, Lemmon and Schallheim (1998), Hovakimian, Opler and Titman (2000), Booth, Aivazian, Kunt and Maksimovic (2001), Graham and Harvey (2001), and Korajczyk and Levy (2003) find positive relationships. Fama and French (2002) also obtain positive relationships between leverage and firm size, and between dividend payout and size. Frank and Goyal (2003) find the same results using log sales as a proxy for firm size. Titman and Wessels (1988), however, find that short-term debt ratio is negatively related to firm size, reflecting the relatively high transaction cost when issuing long-term debt. In line with these studies, the following hypothesis is proposed.

Hypothesis 5*: Large firms employ more debt than smaller firms.*

2.7.6 Impact of Growth Opportunities

According to Jensen and Meckling (1976), the asset substitution effect increases the price of debt and thus the residual loss. It follows that firms that are not believed to be able to take advantage of the asset substitution effect, i.e. they are faced with a relatively small set of investment opportunities and receive debt at a lower price. Such firms have lower marginal agency costs of debt and, thus, are expected to display a higher debt-equity ratio. This implication can also be derived from Stulz's (1999) work where the optimal capital structure is determined by

trading off the benefit of debt in reducing over-investment against the cost of debt in preventing under-investment. Hypothesis 6 is in accordance with this since firms with high growth opportunities are concerned with not losing precious opportunities of growth and apply lower debt levels. Using growth opportunities as a proxy for firm growth opportunity, it follows:

Hypothesis 6*: Firms with higher growth opportunities have a lower debt-equity ratio.*

2.7.7 Impact of Profitability

Profitable firms have relatively more taxable income than firms that are not as profitable. Therefore, they also have a larger tax bill to pay. The tax bill in turn lowers firms' value. It is intuitive that larger firms have a bigger incentive to protect their income from taxes by issuing debt and creating thereby tax shields. Profitable firms also have a bigger debt capacity since they can handle a larger debt burden without risking default. This lowers the probability of bankruptcy and the marginal bankruptcy costs.

In term of cash flow Jensen (1986) argues that free cash flow provides the management with funds to invest into below cost projects and organisational inefficiencies. A firm creates free cash flow when it is profitable. The higher the profitability the more free cash flow is generated. Debt reduces free cash flow, since it commits the management to regular interest payments and is so preferred over capital financing. In order to reduce ever higher levels of free cash flow, ever higher debt levels are needed. It follows:

Hypothesis 7*: Relatively, more profitable firms have a higher debt-to-equity ratio.*

2.7.8 Impact of Business Operations Risk

Business risk is defined as the uncertainty inherent in projections of future returns on assets (ROA) if no debt is used. The greater fluctuation in ROA, the larger is the firm's business risk. The larger the firm's business risk, the lower is its optimal leverage level. Business risk is therefore one of the most important factors when making the capital structure decision. Business risk could either be determined by fundamental factors as stated below or by unleveraged beta. Unlevered beta is derived from beta equity. Beta equity consists of a firm's business and financial risk; consequently the beta equity must be unleveraged in order to refine the business risk. A higher leveraged company will have a higher equity beta since a larger financial risk is used (Copeland & Weston, 1992).

A firm that is experiencing a period of financial distress with high probability of bankruptcy should be less inclined to increase debts for two reasons. First, it is likely that the firm pays no taxes in that period and in the near future. This reduces the marginal tax rate and the incentive to exploit interest deductibility. Secondly, debt usage increases the probability of bankruptcy. Bankruptcy may have non-trivial direct and indirect costs such as legal fees, diversion of management time, loss in sales and difficulties in the relations with suppliers. A firm in financial distress should therefore be more cautious when using debt. To test if these observations are valid in the real estate property enterprises case, the following hypothesis is proposed:

Hypothesis 8*: Risky firms have a lower debt-to-equity ratio.*

2.7.9 Interest Rate

The general level of interest rates has been lowered during the examined period. When the interest rate is low, the cost of employing debt is low since less interest is paid to the debt-holders. In addition, lower interest rates also decrease the probability of financial distress. According to Barkham (1997) and Ooi (1999a) real estate property companies use more debt when interest rates are low. To test whether or not real estate property enterprises employ more debt capital between 1998 and 2006 the following hypothesis is proposed:

Hypothesis 9*: Firms are likely to employ more debt when the borrowing cost is low.*

2.7.10 General Market Performances

Firms tend to time their equity issues to coincide with favourable market conditions because the prospect of their shares being under-valued in a buoyant stock market is low. On the other hand, debt capital is likely to be substituted with equity capital when property stocks are performing well (Ooi, 1999a; Frank and Goyal, 2004). To test if real estate property enterprises follow these assumptions, the following hypothesis is proposed:

Hypothesis 10*: Firms employ less debt when property stocks are performing well.*

2.7 Chapter Summary

The Chapter reviews the theoretical framework of the capital structure of firm in terms of the trade-off between benefits and costs of debt, agency and pecking order theories. The review starts with analysing the famous MM's propositions I and II,

without and with taxes. The extended theories include the impact of financial distress, agency costs, information asymmetry (pecking order theory) and other factors that have been determined as important elements in previous empirical studies, help in explaining the leverage decisions by firms. The implication of capital structure theories was discussed in term of the regulatory environment of the listed real estate property enterprises, especially in the case of real estate investment trusts, such as Real Estate Investment Trusts (REITs) in U.S and Listed Property Trusts (LPTs) in Australia. Existing empirical studies were insufficient in helping to explain the corporate financing behaviour of the real estate property enterprises and a specific study on the impact of tax reforms on the capital structure of the real estate property enterprises is the centre of this study. Finally, ten testing hypotheses were developed to provide answers to the research questions proposed in Chapter 1. Details of the research design and methodology employed in testing these hypotheses are discusses in Chapter 3.

CHAPTER 3

RESEARCH DATA AND METHODOLOGY

3.1 Introduction

Firms' leverage levels may be affected by changes in the corporate tax, personal tax structures, and relevant legislations that affect the ways in which firms run their businesses. The introduction of the New Tax System (NTS) in 2000 changes both tax structures and the operational costs. This research considers the effect of three prominent provisions: the reduction in corporate tax rate; the change in depreciation allowances; and at the individual level, the reduction of the preferential treatment of capital gains. Since firms differ with respect to their corporate tax attributes and because they may also differ with respect to the tax attributes of their security holders, a test of the Trade-off, Pecking Order and Market Timing theories of capital structure should account for both effects. In addition, the newly emerged tax discrimination theory also helps to explain the effect on the change in the dividend, personal and capital gains taxes.

The first part of this Chapter discusses the time period determination for the required examination and for the sample selection. The second part identifies the source of data and discusses the sample selection process. The third part identifies the variables and discusses the calculation of relevant descriptive statistics. The fourth part introduces the panel data analysis technique, identifies the dependent variable and a set of explanatory variables used in the panel data multiple regression models, developed to test the impact of the New Tax System and other factors on the financing decisions of the listed real estate property enterprises. Various tests for

evaluation of the panel data regression model will be discussed. The final part discusses briefly the calculation of the descriptive statistics required for further analysis.

3.2 Determine Testing Period

On 2 December 1998, the Federal Government introduced the 'A New Tax System (Goods and Services Tax) Bill 1998' into the House of Representatives. After significant amendments negotiated by the Democrats the Bill was passed by the Senate on 25 June 1999 and became an official law on 8 July. The New Tax System (NTS) made effective from 1 July 2000, featured the introduction of a Goods and Services Tax (GST) on the consumption of most goods and services in Australia.

Soon after the proposed tax changes were announced, it was expected that firms would adjust their activities and capital structure to capture the benefits and incentives of the new tax. Firms that had not done so were expected to adjust their activities and leverage level accordingly after the provisions of the New Tax System, especially after the GST became effective (i.e., from July 1st, 2000). These adjustments were required to be reflected in the accounting information reported in the annual reports. According to McMillan (2002) whose study examined the ability and explanatory power of reported earnings by examining their associations with contemporaneous stock returns and future earnings, changes in revenue, operating margin and other expenses jointly have predictive ability and information content beyond the change in aggregate reported earnings with respect to one-year ahead annual earnings and contemporaneous annual stock returns.

Three particular periods will be examined in this study, namely: NTS, post-NTS1 and post-NTS2. The NTS period covers 1998-2000 financial years and serves

as a bench mark period for comparing firm's behaviours with subsequent periods. This period may have seen some anticipatory leverage adjustments during the period from August 1999 to June 2000 as the final form of the tax legislation became clearer, and firms were also clearly aware of the new incentives that became available.

The post-NTS1 period covers financial years from 2001 to 2003. In this period firm's leverage is expected to be fully adjusted to reflect the effects of the New Tax System.

The post-NTS2 period covers financial years from 2004 to 2006. This period is expected to disclose the impact of other factors rather than those of the New Tax System upon the financing decisions of the examined real estate property enterprises.

3.3 Sources of Data and Sampling Process

3.3.1 Source of Data

Data required for analysis in this study were collected from the Australian Stock Exchange (ASX), Connect4, the Reserve Bank of Australia (RBA), the Australian Bureau of Statistic (ABS) and the Property Council of Australia's (PCA).

All real estate property enterprises listed and classified under the Real Estate classification for each financial year, started from 1998 to 2006, were extracted from the ASX's database and used to compile a short list of enterprises that remain listed continuously from 1998 to 2006. The year-end accounting data of each enterprise in the short list were extracted from the Connect4 Annual Reports' database. In case the relevant data was not available from the Connect4's database, the missing data was supplemented with manually compiled data from the annual report of the relevant enterprise. Connect4 is a wholly owned Australian private company, specialising in providing information of companies listed on the Australian Stock Exchange (ASX)

to universities, government departments, banks, stockbrokers and other such finance researchers in Australia as well as in the Asia Pacific region.

Since this study is an event study, the accounting information contained in the annual reports of the sample is suitable and sufficient. According to Brown and Riddiough (2003) and McMillan (2002), the accounting information (i.e., income numbers) captures about half of the net effect of all information available throughout the 12 months preceding their release. They also find that 85 to 90 per cent of the net effect of information regarding annual income is already reflected in security prices by the month of its announcement.

Other relevant information such as interest rate, property performance index and others macro-economic information were obtained from the database of the Reserve Bank of Australia (RBA), the Australian Bureau of Statistic (ABS) and the Property Council of Australia's (PCA).

While the sample data set employed in this study relates only to listed real estate property enterprises in Australia it can be easily extended to other industries and sectors, both in Australia as well as overseas countries.

3.3.2 Sampling Process

In the process of selecting the sample for the study, the following enterprises were eliminated from the sample:

1) enterprises de-listed or just listed between 1998 and 2006, enterprises operate overseas or more than 50 per cent of income come from overseas activities,

2) enterprises do not have financial year ending between 30 June and 30 September,

3) enterprises with missing observations for key variables, and

4) enterprises with negative total assets value.

The first criterion eliminates enterprises that were not continuously listed and traded on the Australian Stock Exchange (ASX) during 1998 – 2006 periods. The second criterion eliminates enterprises that were not fully affected by the Australian tax law. The third criterion eliminates enterprises that did not have financial year ending between June and September to ensure the availability of the relevant accounting data and to ensure the comparison periods (i.e., the introduction of the NTS and the post-NTSs periods) are the same for each enterprise. The fourth criterion eliminates enterprises with missing key information required for the full evaluation and comparison. The fifth criterion eliminates all observations with negative total assets value because several proxies used in the regression models are scaled by total assets.

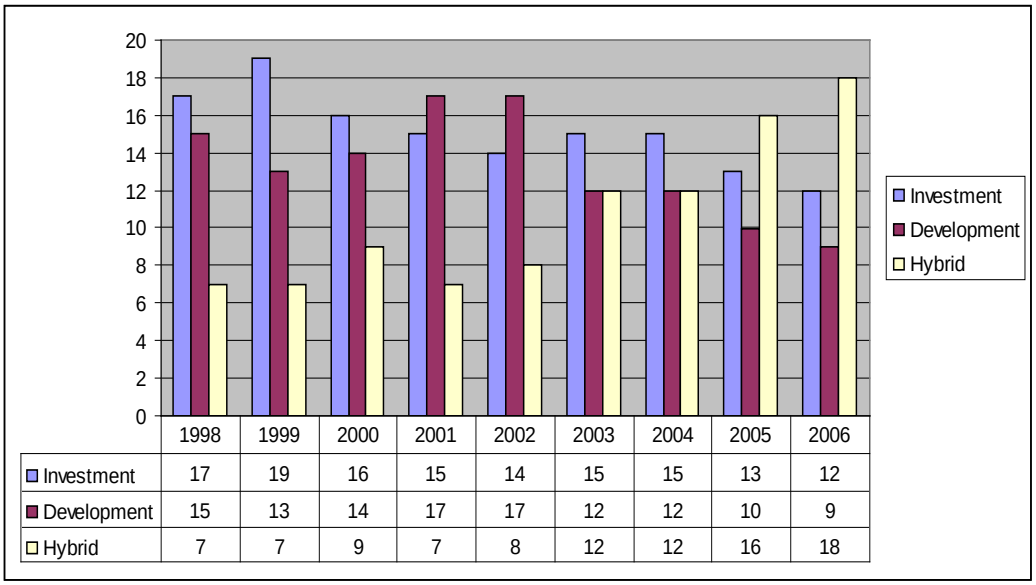
The population of the data comprises essentially of the accounting data of 105 Australian real estate property enterprises on the Australian Stock Exchange (ASX) during 1998-2006 periods. However, only 39 listed real estate property enterprises across the section of the real estate industry that met all five selection criteria described, were selected and yielded a total of 351 firm-year observations. The selected enterprises in the final data sample set also include the enterprises either consolidated or merging during the examining period. This inclusion was required as the real estate property enterprises had been listed and de-listed quite often during the observing period through consolidating with other enterprise (Schuck and Howard, 2005; and Newell and Tan, 2005).

The selection criteria defined may reduce the generality of the results and the selected sample is biased towards surviving enterprises. However, as defined in

Section 1.4, the primary objective of this research is to evaluate the full impact of the New Tax System (NTS) on the debt and equity financing of the real estate property enterprises, which remain listed continuously during the sample period of 1998 – 2006 and the selection of the sample that meets all selection criteria is necessary. Furthermore, each enterprise in focus is used as its own control for non-tax incentives to use debt throughout the examined periods. In addition, the resulting data set accounts for approximately 52.00 percent of the of the total market capitalization of the real estate property enterprises listed on the Australian Stock Exchange at the time (DBO, 2006). Hence, it may represent the total listed real estate property market.

Furthermore, the distribution of the sample is presented in *Figure 3.1*. The data displays a constant increase in the number of the Hybrid real estate property enterprises at the expense of real the estate investment and development enterprises over the period from 1998 - 2006. The number of Investment enterprises decreased from 17 in 1998 to 12 in 2006. Likewise, the number of Development enterprises decreased from 15 in 1998 to 9 in 2006. On the other hand, the number of the Hybrid real estate property enterprises increased from merely 7 in 1998 to 18 in 2006. This reflects the trend identified in recent studies (e.g., Schuck and Howard, 2005; Newell and Tan, 2005; and Moody's, 2006) where the Australian real estate property enterprises, especially the Listed Property Trusts (LPTs), are moving away from high quality domestic property assets to a more volatile investment area by incorporating property development activities via stapled securities.

Figure 3.1: Distribution of Sample by Year



	1998	1999	2000	2001	2002	2003	2004	2005	2006
Investment	17	19	16	15	14	15	15	13	12
Development	15	13	14	17	17	12	12	10	9
Hybrid	7	7	9	7	8	12	12	16	18

(Compiled from selected sample of 39 listed real estate property enterprises across the section of the real estate industry and remain listed continuously from 1998-2006.)

3.3.3 Organisation of Data

The analysis is performed on three data sets: data set one contains reported accounting data of selected enterprises in the 1998–2000 periods. Data set two contains accounting data of selected enterprises for the 2001–2003 periods. Data set three contains accounting information reported for the 2004-2006 period. Data set one represents the introduction of the New Tax System (NTS), where there was some impact of the NTS expected. The period form 2001-2003 represents the Post-NTS1 period in which full impact of the New Tax System was expected. Data set three represents the Post-NTS2 period in which the impact of the NTS was expected to be insignificant and the impact of other factors revealed.

For each data set, the analysis was also performed on each sub-dataset based on the business operation activities of each of the enterprises in the sample. Following Barkham (1997) the selected enterprises in the data set were categorised

into Property Investment Enterprises (PIEs) and Property Trading Enterprises (PTEs) according to the proportion of income derived from business operation activities. Generally, PIEs engage in the acquisition and development of real estate for periodic rental income and long-term capital appreciation, whilst PTEs buy and develop property assets with a view of selling them in the short-term. Where the proportion of income derived from both trading and investment activities the enterprises were classified as Hybrid,[1]

Each of the three data sets defined above were further sorted by the type (TYPE) of the real estate property enterprises and organised into three subsets: Investment (TYPE = 1), Development (TYPE = 2), and Hybrid (TYPE = 3). Following Barkham (1997) and Ooi (1999a, b) TYPE is assigned the value of 1, 2 and 3, dependent on the nature of the operations income received in the observed financial year. If more than 75 percent of the operation income received in a particular financial year comes from the investment property, the nature of business operation of the observed enterprise is of an investment nature and TYPE has the value of 1[1]. Likewise, if more than 75 percent of the operation income received in a

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[1] This study adopts the legal requirement for a listed Real Estate Investment Trust (REIT) to be able to retain the REIT status and to enjoy the non-payment of corporate tax, a REIT has to fulfil certain requirements from the second year of its taxation obligation. A REIT does not have to pay corporate tax as long as:

* 75 percent of the company's assets are composed of real estate held for the long term;
* 75percent of the company's income is derived from real estate;
* a maximum of 50 percent of shares are held by a maximal five individuals like those mentioned; and
* the company pays out at least 90 percent of its taxable income to shareholders.

particular financial year comes from the trading of the development activities, the nature of business operation of the observed enterprise is of a development nature and TYPE has the value of 2.

In practice, it is not easy to classify property companies as either pure property investment or property trading or development. This is because many property enterprises are involved simultaneously in the property investment and trading markets. In determining the status of the examined sample, we can separate the income from sales of properties and from property rentals and calculate the ratio of rental revenue over total revenue and the trading income over total revenue. The observation is classified as Hybrid and the value of TYPE is 3 if in any particular observed financial year:

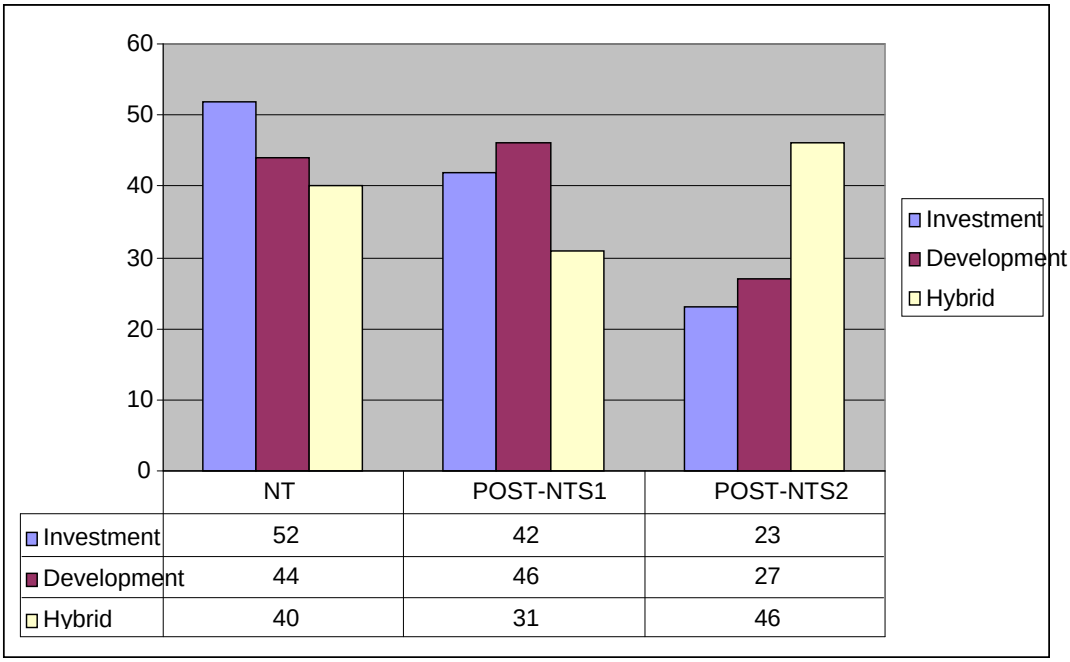
- the ratio of trading income over total revenue is less than 75 percent and
- the ratio of rental revenue over total revenue is less than 75 percent.

The impact of the introduction of the New Tax System on the corporate financing pattern of the real estate property enterprises will be examined in three periods, according to the sub-data set mentioned above. The NTS is the introduction period that covers the financial year from 1998 to 2000. The post-NTS1 period covers 2001 to 2003, and the post-NTS2 covers 2004 to 2006. The NTS period serves as the benchmark against which the data of Post-NTS1 and Post-NTS2 periods will be compared.

Distribution of the sample by comparing periods is presented in *Figure 3.2*, according to the periods and type of business operations of the real estate property enterprises in the sample. Similar to the trend identified in *Figure 3.1*, the data shows a significant increase in the number of the Hybrid type of enterprises in Post-NTS2 period. This increase was at the expense of the decrease in the number of Investment

enterprises and Development enterprises in the NTS and Post-NTS1 periods. The possible explanation is that there has been increasing trend where the Australian real estate property enterprises, especially the Australian Real Estate Investment Trusts (AREITs), are incorporating property development activities via stapled securities into their current business operation activities (Newell and Tan, 2005; and Moody's, 2006).

Figure 3.2: Distribution of Sample by Comparing Periods (in Total Units)



	NT	POST-NTS1	POST-NTS2
Investment	52	42	23
Development	44	46	27
Hybrid	40	31	46

(Compiled from selected sample of 39 listed real estate property enterprises across the section of the real estate industry and remain listed continuously from 1998-2006.)

Other additional information required includes interest rates and the Property Performance Indices reported. The Reserve Bank of Australia's (RBA) official cash rate, home loan rate, small business and large business lending rates were obtained from the RBA's database and summarised in *Table 3.1*.

This data shows that during the examined periods, all home loans and commercial lending rates were moving closely with the official cash rate determined by the RBA. Therefore, the RBA weighted cash rates are used as a proxy for the interest rate in this study. As the rates are closely correlated with each other, the descriptive statistics and the regression results will not be expected to be sensitive to the definition of debt financing cost if other weighted average rates are used.

Table 3.1: Weighted Average Interest Rates (%)

	1998	1999	2000	2001	2002	2003	2004	2005	2006
WA Standard Home Loan Rate	**6.68**	**6.57**	**7.72**	**6.84**	**6.36**	**6.61**	**7.05**	**7.26**	**7.61**
WA Rate of Small Business Loan	**9.00**	**8.40**	**9.40**	**8.20**	**7.70**	**7.80**	**8.00**	**8.10**	**8.40**
WA Rate of Large Business Loan	**8.15**	**7.99**	**9.27**	**8.66**	**8.16**	**8.41**	**8.85**	**9.06**	**9.41**
RBA Weighted Cash Rate	**4.75**	**5.00**	**5.88**	**4.96**	**4.63**	**5.13**	**5.13**	**5.50**	**5.88**

Source : RBA (2007)

Furthermore, the quarterly Property Investment Performance Index (PIPI, ASX/LPT300) was obtained from the Property Council of Australia's (PCA) database and summarised in *Table 3.2.* The PIPI was chosen for three reasons. Firstly, the index was compiled with data collected from more than 35 of Australia's largest property enterprises listed on the Australian Stock Exchange, which account for the vast majority of the capitalisation of the Australian real estate market. Secondly, these shares source the majority of their returns from rental income. Thirdly, the index includes the major property sectors namely retail (i.e., shopping centres), commercial (i.e., office buildings) and industrial (i.e., warehouses, factories etc.).

Table 3.2: Weighted Average Property Investment Performance Index

(ASX/LPT300)

Quarter	1998	1999	2000	2001	2002	2003	2004	2005	2006
MAR	518	542	547	619	725	826	941	1,129	1,337
JUN	495	517	579	660	759	852	998	1,182	1,396
SEP	541	540	591	687	768	816	1,053	1,230	1,544
DEC	563	535	631	725	810	881	1,165	1,313	1,760
WA INDEX	529	533	587	672	766	844	1,039	1,213	1,509

Source: Property Council of Australia (2008)

The PCA's Property Investment Performance Index (PIPI) has been established for over 20 years and is Australia's leading and most credible direct property index. The Index is an appraisal based, capital value weighted index which measures the income, capital and total returns from institutionally owned property in Australia. The Index has been developed to provide property owners, fund managers and analysts with a benchmark of institutional property performance in Australia. As a leading indicator of the property market performance, the PIPI reduces the likelihood of a mechanical increase (or decrease) in leverage due to a contemporaneous downward (or upward) revision in property assets value.

3.4 Regression Model and Measurement

3.4.1 Introduction to Panel Data Regression

Panel data analysis is an econometric method, which deals with two-dimensional data. The data are usually collected over time and over the same individuals and then a regression is run over these two dimensions. A panel data is described as balanced if there is an observation for every unit of observation for every time period, and as unbalanced if some observations are missing. Despite the fact that the data set employed in this study was created by eliminating all units of observation with missing observations, the resulting data set account for 52.00 percent of the total capital of the listed real estate property enterprises at the time.

The advantages of using panel data analysis over the cross-sectional models include:

1) it can be used to overcome the problem of bias caused by unobserved heterogeneity, a common problem in the fitting of models with cross-sectional data sets;
2) it may be possible to exploit panel data sets to reveal dynamics that are difficult to detect with cross-sectional data; and
3) panel data sets often have very large numbers of observations.

The panel regression equation differs from a regular time-series or cross-section regression by the double subscript attached to each variable. Hence, given the existence of observations on i^{th} firms over t year, the basic panel data regression model looks like:

$$DER_{it} = \alpha_i + \Sigma\beta X_{it} + \varepsilon_{it} \qquad \text{(Eq. 3.1)}$$

Where DER_{it} is the dependent variable which represents the capital structure of firm *i* in year *t*, α_i is the intercept or fixed effects, $\Sigma\beta X_{it}$ is the matrix of all explanatory variables relevant to firm *i* in year *t*, and ε_{it} is the error term. [(2)]

The panel data analysis technique is employed in this study, given the nature of the firm's specific characteristics of the listed real estate property enterprises, interest rates and general market performance indicator upon the leverage choice of firms. The next section discusses in detail the dependent and explanatory variables employed in the panel data regression model developed.

3.4.2 Empirical Variables

3.4.2a Dependent Variable

Debt-Equity Ratio (DER) is a dependent variable and is measured as the total debt to equity ratio. The DER was decomposed according to the maturity of debt as long-term and short-term to examine the significance of each type of debt employed by the real estate property enterprises.

DER is expressed in book-value terms. The book-value of the ratio is derived by dividing the book value of debt by the sum of the book value of debt and the book value of equity. The use of book value in this study is justified because although the market values of debt and stock are important in the security market evaluation of a

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(2) The general form of the Panel Data Regression Model can also be expressed as:

$DER_{i,t} = \alpha_i + \Sigma\beta X_{i,t}^{j} + \epsilon_{i,t}$, $i = 1,\ldots,N$, $t = 1,\ldots T$, and $j = 1,\ldots,n$.

Where DER is dependent variable, α and β are coefficients, X is the independent variables, the subscript *i* is the individual dimension, *t* is the time dimension and *j* is the *th* number of independent variable use in the panel data regression model.

firm's leverage and the use of book values for debt might raise few concerns, Schulman and Thomas (1996) and Mulford (1985) argue that the accounting (or book) measures of equity ratio using the debt book values are equally useful in the evaluation of capital structure. In addition, Amoako-Adu (1983) finds that Canadian equity securities experienced significant reactions to the 1972 tax integration legislation. Hence, the use of market values in the denominator of the ratio would impound price variances arising from the tax legislation being studied, as well as other extraneous events affecting security values (i.e., September 11). Therefore, according to Amoako-Adu et al., (1992), the book value of equity is consistent with the theory of capital structures and should provide a better measure of the internal decisions of the firm since it is affected only by corporate financing decisions.

In calculating the DER, this study follows Barkham (1977) and Ooi (1999a) to include short-term debt since it constitutes a significant proportion of total debt employed by real estate property enterprises, especially in the case of the development enterprises

3.4.2b Explanatory Variables

As far as explanatory variables are concerned, ten proxies that have been most used in previous empirical studies of capital structure, as discussed in Chapter 2, will be employed. The explanatory variables are divided into 3 groups: tax factors, firm's specifics and general market indicators. The list of the explanatory, their abbreviation, hypothetised sign and definition is presented in *Table 3.3***.** The inclusion of these variables in this study is necessary for following reason:

1. the tax factor variables are used to test the impact of the New Tax System,

2. since firms behave differently according to inherited factors such as the size, the type and nature of assets owned, growth opportunity etc., the firm's specifics variables are used to examine the non-tax behavior of the firm, and
3. the general market indicator variables are used to examine the firm's behaviour when the general market conditions changed.

Different theories of capital structure can be used to justify different combinations of these variables and, sometimes also, different signs. The hypothesised signs shown in *Table 3.3* are those that were found in a majority of empirical studies, that were suggested by several theories and are used to test the hypotheses developed in this study. The second signs in parentheses were included as a second reference in case the literature does not exhibit a clear consensus as to the sign of the variable.

The last column of *Table 3.3* provides reference to prior studies and the significance level and direction of the variables used in the study.

Table 3.3: Definitions of Variables

Variables	Abb	Hypothesised Sign	Definition	Previous Empirical Studies and Results
Dependent				
Total Debt/Equity Ratio	DER		Total Debt/Equity ratio	
Long-Term Debt/Total Assets Ratio	LTDER		Total Long-Term Debt/Total Assets	
Short-Term Debt/Total Assets Ratio	STDER		Total Short-Term Debt/Total Assets	
Explanatory				
Tax factors				
Effective Tax Rate	ETR	+	(Tr - Td)+(iTc/BTCF)	Mackie-Mason (1990/+), Givoly, et al. (1992/+), Shum (1996/+), Prasad et al. (2001/+), Graham (2002/+) , Twite (2003/+) and Klapper and Tzioumis (2008/+)
				Jordan et al (1998/-) ,Michaelas et al. (1999/-) and Booth et al., (2001/-)
King's Tax Condition	KTC	+	(1-td)/(1-tcg) >1	King (1974/+), King (1979/+), Graham's (2002/+) and (Green and Murinde, 2008/+)
NDTS	NDTS	-	*NDTS =EBTDA –(tax paid/tc)*	DeAngelo and Masulis (1980/+), Feng, Ghosh and Sirmans (2007/+)
Firm Specifics				
Asset Structure	AS	+	Property assets + inventory/Total Assets	Harris and Raviv (1990a/+), Rajan and Zingales (1995/+), Kremp *et al*., (1999/+) Frank and Goyal (2002/+) and Morri and Beretta (2008/+)

Table 3.3: Definitions of Variables (Continue)

Size	SIZE	+	Ln(Total Assets)	Rajan and Zingales (1995/+), Booth et. Al. (2001/+), Bouallegui (2006/+), Ramalho and Vidigal da Silva (2007/+), Myers(1984/+) and Ghosh et al., (2007/+).
Growth Opportunity	GROW	-	[Total income(t) - total income (t_{-1})]/total income(t_{-1})	Morri and Beretta (2008/+/-) Shyam-Sunder and Myers (1999/+) Ramalho and Vidigal da Silva (2007/+) and Morri and Beretta (2008/+)
Profitability	PROF	+/(-)	EBITDA/Total assets	Myers, 1977/-, 1984/-) and Chikolwa (2009/-) Meckling (1976/+)Westgaad et. al. (2008/+)
Business Risk	BRISK	-	Variance of ROA/covariance of ROI of the assets	Morri and Beretta (2008/-), Ooi et al. (2007/-), Rajan and Zingales (1995/-), Ghosh, Nag and Sirmans (1999/-), Fama and French (2002/-), Frank and Goyal (2003/-) and Morri and Beretta (2008/-) Morri and Beretta (2008 -) Westgaard et. al. (2008/-) and Chikolwa (2009/-)
Market indicators				Givoly et. al (1992/+) and Ooi, (1999a, 1999b/.+)
Interest rate	INT	-	RBA weighted average official cash rate	Gau and Wang (1990/+), Ooi (2000/+) and Howton et al. (2003/+)
Market Conditions	MKT-IND	-	PCA weighted average ASX/LPT300 Performance Index	Allen et al., (2000/-) and Ooi et al., (2007/-) Ooi (1999a/-), Frank and Goyal (2004/-), Baker and Wurgler (2000/-) Ooi (2000/+), Brown and Riddiough (2003/+)

3.4.2b1 Effective Tax Rate (ETR)

Although the statutory corporate income tax rate is standardised for all companies, the effective tax rate may vary across companies due to presence of tax shields. Real estate property enterprises, in particular, can obtain tax relief from capital allowances in respect of the cost incurred on plant and machinery and on the construction of industrial buildings and other buildings within enterprise zones. Another source of non-debt tax relief arises from losses carried forward from previous years or from other companies within the same group.

The proxy for effective corporate tax rate is ETR. The variable is included in the model to test if the reduction in the statutory corporate tax rate, capital gains tax and the lost of favourable treatment of depreciation allowance affects the income tax payment of real estate property enterprises during the examined periods. Following Homaifar et al., (2006), the firm effective corporate tax rate (ETR) can be defined as:

$$[(T_R - T_D) + IT_C]/BTCF \qquad \text{(Eq. 3.2)}$$

where T_R is reported tax payments, T_D is tax deferral that occurred during the year, T_C is statutory corporate tax rate, I is the firm's gross interest expenses, and BTCF is before-tax cash flow, which is the sum of income before extraordinary items, total income tax, minority interest, interest expense, and depreciation.

3.4.2b2 King Tax Conditions (KTC)

The King's Tax Conditions variable is included in the testing models to test the combined impact of the change in corporate tax rate, capital gains tax and personal tax on firm's capital structure of real estate property enterprises brought about by the introduction of the New Tax System.

The proxy for King's Tax Condition is KTC. Following King (1974, 1979) the KTC bilateral conditions are defined as:

Debt-Retained earning : $(1 - i) / (1 - t) * (1 – z) > 1$ (Eq. 3.3)

Debt-Equity : $(1 – i) / (1 – t) * (1 – m) > 1$ (Eq. 3.4)

Equity-Retained earning : $(1 – m) / (1 – z) > 1$ (Eq. 3.5)

where *i* is marginal tax rate on interest income, *t* is corporate tax rate, *z* is tax rate on capital gains, and *m* is marginal tax rate on dividend income.

Table 3.4: Values of King's Tax Conditions

	1998	1999	2000	2001	2002	2003	2004	2005	2006
Capital Gains Tax Rate (z) *	0.485	0.485	0.243	0.243	0.243	0.243	0.243	0.243	0.243
Corporate Tax Rate (t)	0.360	0.360	0.340	0.300	0.300	0.300	0.300	0.300	0.300
Marginal Rate on Tax on Div Income (m) **	0.125	0.125	0.145	0.185	0.185	0.185	0.185	0.185	0.185
Marginal Rate on Tax on Interest Income (i)	0.485	0.485	0.485	0.485	0.485	0.485	0.485	0.485	0.485
Debt-Retained Earning (D-R)	0.414	0.414	0.591	0.557	0.557	0.557	0.557	0.557	0.557
Debt-Equity (D-E)	0.704	0.704	0.667	0.600	0.600	0.600	0.600	0.600	0.600
Equity-Retained Earning (E-R)	1.699	1.699	1.129	1.076	1.076	1.076	1.076	1.076	1.076

(*): Marginal tax rate on capital gains for 1998 to 1999 was based on the full highest personal tax rate of 47% plus 1.5% Medicare levy. From 2000 to 2006, only 50% of capital gains was subject to tax or half of marginal tax rate applied.

(**): Assume dividend imputation tax applied and fully franked dividend received.

Applying equations 3.3 – 3.5, the values of KTC for bilateral choices were calculated and summarised in *Table 3.4*. Only the values of 'Equity–Retained Earning' were selected and included in the testing models as they were all greater than 1. It should be noted that, although there is no cross-sectional variation in King's Tax Conditions at a point in time, there is cross-sectional variation in the sample because of variations in the duration and end-dates of company accounting years.

3.4.2b3 Non-Debt Tax Shields

Interest payment on debt capital is not the only tax-shield from which firms may benefit. Non-debt tax shields can include a range of deductible cash or non-cash expenses (such as depreciation), investment allowance (such as R&D) or loss carry forwards.

By definition, non-debt tax shields do not require existent debt in order to be effective. Since a firm does not have to issue debt in order to be able to enjoy tax shields, it does not have to suffer from the costs of debt imposed by the personal interest income taxation as discussed in Miller (1977). This makes the use of debt less favorable for a firm with non-debt tax shields than for a firm without them. It follows that firms with relatively more non-debt tax shields have a lower debt-equity ratio than firms with relatively less non-debt tax shields. Therefore, it is expected a negative relationship between non-debt tax shields and firms' leverage.

The proxy for Non-Debt Tax Shield in used in this study is NDTS. In calculating the value of the NDTS, let NDTS = total non-debt tax shields, EBTDA = earnings before tax, depreciation and amortisation (but after interest) and T_C= corporate tax rate. Follow Titman and Wessels (1998) NDTS is estimated in two steps:

$$\text{Tax paid} = T_{C*}(\text{EBTDA} - \text{NDTS}) \qquad \text{(Eq. 3.6)}$$

$$\text{Thus: NDTS} = \text{EBTDA} - \text{tax paid}/T_C \qquad \text{(Eq. 3.7)}$$

Non-debt tax shields can only be used if they are positive. More negative are the calculated shields which have less potential use as they are a substitute for debt. In order to avoid any spurious effects associated with measurement, the NDTS is measured as the natural logarithm of EBTDA - tax paid/T_C.

3.4.2b4 Assets Structure (AS)

The type of assets the firm holds plays a significant role in determining the level of debt in the firm's capital structure. As a nature of the business, real estate property enterprises have a great deal of tangible assets that can be used to support high levels of debt.

The proxy for property asset intensity is AS. The variable is included to test if the high level of tangible assets held by the real estate property enterprises affects the leverage decisions. In this study, AS is hypothesised to have a positive relationship with leverage.

In line with Ooi (1999a, b; 2000) and Hall et al. (2000), AS is measured as the ratio of total real estate assets over total assets, both expressed in book values. Real estate assets include investment properties held as fixed assets as well as trading stocks held as current assets in the balance sheet statements of the development enterprises.

3.4.2b5 Size (SIZE)

Size is an important determinant of capital structure as large firms have a comparative advantage over small firms in securing debt as they can recur to capital and obtain better credit ratings, and hence, lower the cost of their capital (Ferri and Jones, 1979).

The proxy for the size of the firm is SIZE. SIZE was included in the model to test its impact on the financing decisions of the sample over the examined periods and is expected to have positive relationship with debt to equity ratio. In line with Homaifar et al., (1994) and Ooi (1999a, 2000), SIZE is measured as total assets reported in the annual report. In order to avoid any spurious effect associated with

the measurement of the size of the firm this variable is measured as the natural logarithm of total assets.

3.4.2b6 Growth Opportunity (GROW)

Firms need additional capital to finance growth. This additional capital could be in the form of new equity issue, new debt issue or by employing the firm's internal fund (retained earnings). The proxy for the firm's growth opportunity in this study is GROW. GROW is included to test if firms with higher growth opportunities will have lower leverage level. GROW is hypothesised to have a positive relationship with debt to equity ratio.

In line with Ooi (1999b, 2000) and Hall et al. (2000), GROW is measured as the rate of changes in the firm total income reported in the annual report, with the base year is the 1998 financial year.

3.4.2b7 Profitability (PROF)

Myers (1984) states that the most profitable firms are the ones that obtain debt least often. The amount of debt firms include in their financing structure is due more to the need to finance growth (depending on investment opportunities) to the desire to maintain some room for financial flexibility, rather than to the search for a normative capital structure. This logic suggests a negative relationship between debt and firm profitability.

However, the signs showing the relationship between leverage and profitability of the firm are still theoretical controversies. According to the Pecking Order Theory, firms prefer using internal sources of financing first, then debt and finally external equity obtained by stock issues. All things being equal, the more

profitable the firms are, the more internal financing they will have, and therefore a negative relationship between leverage and profitability is expected. This positive relationship is one of the most systematic findings in the empirical literature (Harris and Raviv, 1991; Rajan and Zingales, 1995; Booth *et al*., 2001).

On the other hand, in a Trade-Off Theory framework, an opposite conclusion is expected. When firms are profitable, they should prefer debt to benefit from the tax shield. In addition, if past profitability is a good proxy for future profitability, profitable firms can borrow more as the likelihood of paying back loans is greater.

The proxy for business profitability in our model is the firm's gross profitability (PROF). PROF is measured as the ratio of earnings before interest and tax over total revenues reported in the annual report.

3.4.2b8 Business Risk

Business Risk is defined as the uncertainty inherent in projections of future returns on assets (ROA) if no debt is used. The greater fluctuation in ROA, the larger the firm's Business Risk. The larger the firm's Business Risk, the lower its optimal leverage level as the earnings level dropping below the level of their debt service commitments. Business Risk is therefore one of the most important factors when making the capital structure decision. Business risk could either be determined by fundamental factors as stated below or by unlevered beta. Unlevered beta is derived from beta equity. Beta equity consists of a firm's business and financial risk; consequently the beta equity must be unlevered in order to refine the business risk. A higher leveraged company will have a higher equity beta since a larger financial risk is used (Copeland & Weston, 1992).

A firm that is experiencing a period of financial distress with high probability of bankruptcy should be less inclined to increase debts for two reasons. Firstly, it is likely that the firm pays no taxes in that period and in the near future. This reduces the marginal tax rate and the incentive to exploit interest deductivity. Secondly, debt usage increases the probability of bankruptcy. Bankruptcy may have non-trivial direct and indirect costs such as legal fees, diversion of management time, loss in sales and difficulties in the relations with suppliers. A firm in financial distress should therefore be more cautious in using debt.

According to the trade-off models, firms with high business risk are more likely to incur bankruptcy and should use less debt. In line with this prediction we anticipate a negative relationship between business risk and the debt to equity ratio.

The firm's business risk is proxied by the coefficient of variation of its operating income after depreciation over the 9-year periods, as follows:

$$BRISK = \frac{\text{(Std. dev of operating income after depreciation over 9 years)}}{\text{Absolute[Mean of operating income after depreciation over 9 years]}} \quad \text{Eq.3.8)}$$

3.4.2b9 Interest Rates (INT)

Higher Interest Rates can raise the cost of debt, reduce the non-debt tax shelter and increase the probability of incurring financial distress. Therefore, the higher the interest rate, the lower the optimal loan amount.

The interest rate variable is included to test the effect of the movement in the general interest on the corporate finance decisions of the sample. There are several indices that can be used to proxy the costs debt financing; namely, the year's closing interest rates for prime lending, the risk-free cash rate (i.e., official cash rate).

The proxy for interest rates used in this study is INT. INT is the Reserve Bank of Australia's (RBA) weighted average official cash rates. The rates are used because the official cash rate determined by the RBA have been used as a bench mark for determination of the level of interest charged by major banks and financial institutions. The value and calculation of the RBA's weighted average cash rates were presented in Table 3.1 of this Chapter.

Barry et al. (2005) and Ooi, Ong and Li (2007) investigate the debt issuing decision of firms in relation to historical interest rates and conclude that the amount and number of debt issues are higher when the current interest rate is lower compared to historical interest rates. In line with their finding, the relationship between leverage and interest rate is expected to be negative.

3.4.2b10 Market Performance (MKIND)

Market Performance is included to test the effect of general market conditions on the corporate financing decisions of real estate property enterprises. Studies by Marsh (1982), Jalilvand and Harris (1984) and Bayless and Diltz (1991) have shown that firms time their equity issues to coincide with favourable market conditions because the prospect of their shares being under-valued in a buoyant stock market is low.

The proxy used in this study to reflect the property stock market sentiment is MKTIND. The value of MKTIND is the weighted average Performance Index which is the mean of the quarterly movement indices for each year from 1998 to 2006.

In line with Harvey (2001) and Ooi, Ong and Li (2007) who study the market timing theory and find that firms issue equity when their stocks are overvalued and

issue debt when interest rates are low, it is expected the relationship between MKTIND and DER is positive.

3.4.3 Regression Model and Measurement

The empirical model used in this study is Panel Data Multivariate Regression Model (PDMRM). The PDMRM regresses the debt-equity ratio on a set of explanatory variables that are predicted to be important in explaining the capital structure decision. PDMRM is the model to use when the control for omitted variables that differ between cases but are constant over time, is required. It allows the use of changes in the variables over time to estimate the effects of the explanatory variables on the dependent variable.

Panel Data Multivariate Regression Model estimates the impact of the explanatory variables on the firms' leverage using the variables presented in *Table 3.3* and defined in previous section of this Chapter. The estimation procedure involves four stages. In each stage, a separate estimation was regressed for each examined period, namely New Tax System (NTS), post-NTS1 and post-NTS2, and on each type of real estate property enterprises selected, namely investment (TYPE=1), trading (TYPE=2) and hybrid (TYPE=3).

Stage One examines the impact of the NTS variables on the debt-equity ratio. The PDMRM model employed is:

$$DER_{it} = \alpha_i + \beta_0 ETR_{it} + \beta_1 KTC_{it} - \beta_2 Ln(NDTS_{it}) + \varepsilon_{it}, \; i = 1, \ldots N; \; t = 1, \ldots T \quad \text{(Eq. 3.9)}$$

Stage Two examines the impact of the firm factors on the debt-equity ratio. The PDMRM model employed is:

$$DER_{it}=\alpha_i+\beta_4 AS_{it}+\beta_5 Ln(SIZE_{it})-\beta_6 GROW_{it}+\beta_7 PROF_{it}-\beta_8 BRISK_{it+}\varepsilon_{it,\ i=1,}\ ...N;\ t = 1,\ ...T \quad \text{(Eq. 3.10)}$$

Stage Three examines the impact of the general market conditions on the debt-equity ratio. The PDMRM model employed is:

$$DER_{it} = \alpha_i -\beta 8INT_{it}-\beta_9 MKTIND_{it} +v_{it,\ i=1,}\ ...N;\ t = 1,\ ...T \quad \text{(Eq. 3.11)}$$

In Stage Four, the nested model allows the examination the total impact of the tax factors (i.e., New Tax System), firms specifics and general market conditions. The nested model of the PDMRM is:

$$DER_{it}=\alpha_i+\beta_0 ETR_{it}+\beta_1 KTC_{it}-\beta_2 Ln(NDTS_{it})+\beta_4 AS_{it}+\beta_5 Ln(SIZE_{it})-\beta_6 GROW_{it}+\beta_7 PROF_{it}-\beta_8 BRISK_{it}-\beta 8INT_{it}-\beta_9 MKTIND_{it} +v_{it,\ i=1,}\ ...N;\ t = 1,\ ...T \quad \text{(Eq. 3.12)}$$

3.4.4 Regression Model Evaluation

Regression Model Evaluation involves three tests: Test for Significance, Test for Robustness and Test for Heteroskedasticity.

3.4.4a Testing for Significance

The Test for Significance tries to establish if each individual explanatory variable has some linear correlation with the dependent variable. The test requires separate regression, using Equation 3.12, for each examined period and also for each type of the real estate property enterprises in the sample. The summary of these regression are presented in Appendix 5.1. The values of R^2 and F-Statistic obtained were examined to determine if the null hypothesis is rejected.

3.4.4b Testing for Robustness

The Test for Robustness of data employs the Chow (1960) technique. A separate regression, using Equation 3.12, for the controlling period (i.e. NTS) and the testing periods (i.e. Post-NTS1 and Post-NTS2) was estimated and summarised in Appendix 5.2. The *F*-statistic from the estimations was compared to determine if the difference in the estimated regression between the various testing periods and the control period is insignificant.

3.4.4c Test for Heteroskedasticity

The Test for Heteroskedasticity uses the White's (1980) General Test. For each examined period and for each type of real estate property enterprises in the sample, the residuals from the first regression of Equation 3.12 will be used to regress again on all the explanatory variables, also using the Equation 3.12. The summary of each regression estimation is presented in Appendix 5.3. The value of R^2 obtained from these regressions are compared to determine if the null hypothesis of a constant variance is rejected.

3.4.4d Test for Multicollinearity

The pair-wise correlation of variables was calculated and presented in *Table 3.5.* Overall the pair-wise relationship between the Debt-equity Ratio (DER) and each of the explanatory variables does not present a problem of multicollinearity. Details of the relationship between and among the variables will be discussed further in Section 4.2 of Chapter 4.

3.5 Pair-wise Correlation Calculation

The correlations between and among the variables used in the testing mode were calculated and presented in *Table 3.5*. The calculated correlation coefficients will be used to help identifying if a multicollinearity among variables exists. Detail of the analysis will be discussed in detail in Chapter 4.

Table 3.5: Pair-wise Correlation of Variables

	STD/ TLASS	*LTD/ TLASS*	*TDEBT/ EQTY*	*NTS*	*TYPE*	*EFT*	*KTC*	*NDTS*	*AS*	*SIZE*	*GROW*	*PROF*	*BRISK*	*IRATE*	*MKT-IND*
STD/ TLASS	1.000														
LTD/ TLASS	-0.282	1.000													
TDEBT/ EQTY	0.385	0.418	1.000												
NTS	-0.035	0.014	0.066	1.000											
TYPE	0.104	-0.064	0.165	0.152	1.000										
EFT	0.169	-0.035	0.146	-0.137	0.155	1.000									
KTC	-0.027	-0.045	-0.095	**-0.689**	-0.114	-0.103	1.000								
NDTS	-0.167	-0.133	-0.122	0.120	-0.026	-0.642	0.136	1.000							
AS	-0.179	0.174	-0.131	-0.049	-0.190	-0.170	0.139	0.080	1.000						
SIZE	-0.104	-0.157	-0.020	0.184	0.157	-0.059	-0.145	0.406	-0.068	1.000					
GROW	0.348	-0.203	0.268	-0.068	0.230	0.231	0.070	-0.073	-0.204	-0.013	1.000				
PROF	0.309	-0.131	0.091	-0.178	0.126	0.374	-0.121	-0.251	-0.162	-0.184	0.120	1.000			
BRISK	-0.265	0.023	-0.322	0.000	-0.161	-0.070	0.000	0.038	0.048	-0.103	-0.186	-0.037	1.000		
IRATE	-0.003	0.033	0.042	0.124	0.079	0.014	-0.316	0.051	-0.023	0.122	-0.088	-0.018	02.50-	1.000	
MKTIND	-0.039	0.024	0.064	**0.888**	0.170	-0.170	**0.555**	0.201	-0.026	0.213	-0.092	-0.217	**3.13E-**	**0.437**	1.000

Note 1: The pair wise correlation coefficients are based on the final 351 firm-year observations. The regressors are defined as follows: Total Debt/Equity Ratio (DER), type of Business Operations (TYPE), Effective Tax Rate (ETR), King's Tax Conditions (KTC), Non-debt Tax Shield (NDTS), Assets Structure (AS), Firm Size (SIZE), Growth Opportunity (GROW), Profitability (PROF), Business Risk (BRISK) Interest Rates (INT), and Market Performance Index (MKTIDX).

3.6 Descriptive Statistics Calculation

The mean, standard deviation, minimum value and maximum value of all variables defined in the regression model were calculated for each comparing period and for each type of real estate property enterprises in the sample. The descriptive statistics for the pooled data are summarised in *Table 3.6.* Descriptive statistics of the Investment enterprises for each examining period are calculated and summarised in

Table 3.7. Likewise, descriptive statistics of the Development and Hybrid enterprises for each examining period are calculated and summarised in *Table 3.8* and *Table 3.9*. These tables present the data in aggregate form. The relevant data of each variable will be extracted and presented for detailed analysis in Chapter 4.

Table 3.6: Descriptive Statistics of all Types of R/E Property Enterprises (%)

Variables Period	NTS	POST-NTS1	POST-NTS2
Short-Term Debt/Total Assets	19.11	21.66	17.56
Long-Term Debt/Total Assets	35.07	36.39	35.78
Total Debt/Equity	69.31	72.01	72.90
Effective Tax Rate	19.17	23.44	10.83
King's Tax Condition (Decimal Point)	1.51	1.08	1.08
Non-Debt Tax Shield	8.56	6.70	9.90
Asset Structure	75.36	61.57	67.25
Size (log (total assets))	12.769	12.96	13.43
Growth Opportunity	0.77	0.77	0.65
Profitability	35.78	50.29	11.56
Business Risk (Decimal Point)	0.70	0.70	0.70
Interest Rate	5.21	4.91	5.37
Market Performance (Decimal Point)	576.33	805.33	1412.67

Note: 1 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).

2 - All figures are the average of all types of real estate property enterprises over the examined period. Interest rate and Market performance are the weighted average of all quarterly rates and indices over the sample.

3 – Data is extracted from Appendix 4.1 – 4.3.

Table 3.7: Descriptive Statistics of R/E Investment Enterprises (%)

Variables Period	NTS	POST-NTS1	POST-NTS2
Short-Term Debt/Total Assets	11.74	14.19	14.61
Long-Term Debt/Total Assets	37.31	41.03	37.46
Total Debt/Equity	57.99	67.64	67.66
Effective Tax Rate	11.06	9.08	8.87
King's Tax Condition (Decimal Point)	1.52	1.076	1.08
Non-Debt Tax Shield	9.27	7.81	9.65
Asset Structure	96.14	92.86	74.12
Size (log (total assets))	12.65	12.80	13.12
Growth Opportunity	0.34	0.43	0.42
Profitability	19.56	15.64	12.08
Business Risk (Decimal Point)	0.78	0.76	0.77
Interest Rate	5.19	4.91	5.31

Market Performance (Decimal Point)	573.69	805.23	1391.60

Note: 1 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).

2 - All figures are the average of all R/E Investment enterprises over the examined period. Interest rate and Market performance are the weighted average of all quarterly rates and indices over the sample.

3 – Data is extracted from Appendix 4.1 - 4.3.

Table 3.8: Descriptive Statistics of R/E Development Enterprises (%)

Variables Period	NTS	POST-TS1	POST-TS2
Short-Term Debt/Total Assets	29.67	28.56	28.34
Long-Term Debt/Total Assets	31.23	31.70	35.07
Total Debt/Equity	78.33	76.11	86.87
Effective Tax Rate	24.13	36.47	16.91
King's Tax Condition (Decimal Point)	1.51	1.08	1.08
Non-Debt Tax Shield	8.20	5.89	8.86
Asset Structure	61.83	37.56	58.44
Size (log (total assets))	12.75	13.07	13.25
Growth Opportunity	1.29	0.99	0.97
Profitability	54.07	81.98	10.43
Business Risk (Decimal Point)	0.65	0.67	0.58
Interest Rate	5.02	4.88	5.31
Market Performance (Decimal Point)	577.00	797.11	1385.48

Note: 1 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).

2 - All figures are the average of all R/E Development enterprises over the examined period. Interest rate and Market performance are the weighted average of all quarterly rates and indices over the sample.

3 – Data is extracted from Appendix 4.1 - 4.3.

Table 3.9: Descriptive Statistics of R/E Hybrid enterprises (%)

Variables Period	NTS	POST-TS1	POST-TS2
Short-Term Debt/Total Assets	16.47	22.10	12.86
Long-Term Debt/Total Assets	37.02	36.85	34.80
Total Debt/Equity	78.43	72.14	68.05
Effective Tax Rate	28.44	24.66	8.43
King's Tax Condition (Decimal Point)	1.48	1.08	1.08
Non-Debt Tax Shield	7.61	6.26	10.83
Asset Structure	53.10	51.46	67.20
Size (log (total assets))	13.07	13.02	13.84
Growth Opportunity	0.81	0.94	0.63
Profitability	39.10	52.76	11.87
Business Risk (Decimal Point)	0.60	0.66	0.72
Interest Rate	5.27	4.94	5.38
Market Performance (Decimal Point)	581.09	819.52	1449.30

Note: 1 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).

2 - All figures are the average of all R/E Hybrid enterprises over the examined period. Interest rate and Market performance are the weighted average of all quarterly rates and indices over the sample.

3 – Data is extracted from Appendix 4.1 – 4.3.

3.7 Chapter Summary

In this Chapter, the source and types of data, the process of selecting the sample and testing the data were discussed. The panel data analysis technique was introduced in broad terms. The independent and explanatory variables of the regression model were identified and their definition was discussed in detail. The Panel Data Multivariate Regression Model (PDMRM) was developed and used to estimate the sign and the relationship between the independent and the explanatory variables. Various tests to evaluate the newly developed regression model were highlighted. Finally, the descriptive statistics of variables were discussed briefly and the calculated descriptive statistics for each type of real estate property enterprises were summarised and presented in aggregated forms. The descriptive statistics of variables will be analysed in detail in Chapter 4 and the empirical analysis of regression results will be discussed in Chapter 5.

CHAPTER 4

DESCRIPTIVE STATISTICS ANALYSIS

4.1 Introduction

This Chapter analyses the impacts of the introduction of the New Tax System on the debt financing pattern of the real estate property enterprises during the 1998-2006 period. The analysis is based on the descriptive statistics and distribution patterns of the sample which consists of 39 real estate enterprises listed continuously on the Australian Stock Exchange from 1998 to 2006 with a total of 351 firm-year observations collected. All descriptive and distribution statistics were calculated using the Descriptive Analysis function of the EXCEL software, included in the Microsoft Office, version 2003.

The descriptive statistics information includes the mean, standard deviation, minimum and maximum values of each variable. For each variable required analysis, the descriptive statistics will be extracted from *Tables 3.6 – 3.9* in Chapter 3 and organised into three observing periods, namely NTS, Post-NTS1 and post-NTS2 and classification of the sample – investment, development and hybrid real estate enterprises. The analysis involves comparing the data of each type of enterprise, with the NTS period serving as the bench mark for the comparison and explaining the possible factors involved.

4.2 Pair-wise Correlation of Variables Analysis

4.2.1 Examining the Existence of Multicollinearity

The correlations between and among the variables used in the testing model are examined to identify if a multicollinearity exists. The pair-wise correlation coefficients of the dependent and explanatory variables were calculated and presented in *Table 4.1*.

Table 4.1: Pair-wise Correlation between Total Debt-Equity Ratio and Explanatory Variables (Pooled Data)

	DER	*EFT*	*KTC*	*NDTS*	*AS*	*SIZE*	*GROW*	*PROF*	*BRISK*	*IRATE*	*MKTIND*
DER	1										
EFT	-0.015	1									
KTC	0.0676	-0.103	1								
NDTS	-0.024	-0.404	0.0043	1							
AS	0.0099	-0.174	0.1405	0.0651	1						
SIZE	-0.026	-0.054	-0.138	0.4036	-0.062	1					
GROW	0.2153	0.1424	0.0175	-0.065	-0.155	0.0532	1				
PROF	0.0075	0.3703	-0.124	-0.173	-0.168	-0.187	0.0419	1			
BRISK	-0.039	-0.07	0	-0.032	0.0413	-0.092	-0.064	-0.042	1		
IRATE	-0.024	0.0138	-0.316	0.1101	-0.02	0.1075	0.008	-0.012	0	1	
MKTIND	-0.005	-0.17	-0.555	0.2081	-0.021	0.2149	-0.045	-0.217	0	0.4376	1

Note: The pair-wise correlation coefficients are based on the final 351 firm-year observations. The regressors are defined as follows: Total Debt/Equity Ratio (DER), type of Business Operations (TYPE), Effective Tax Rate (ETR), King's Tax Conditions (KTC), Non-debt Tax Shield (NDTS), Assets Structure (AS), Firm Size (SIZE), Growth Opportunity (GROW), Profitability (PROF), Business Risk (BRISK) Interest Rates (INT), and Market Performance (MKTIDX).

The data in *Table 4.1* suggests that the MKTIND variable might cause multicollinearity problem since the pair-wise correlation coefficient between MKTIND and the King's Tax Conditions (KTC), Size (SIZE) and Interest Rates (IRATE) is -0.555, 0.2149 and 0.4376 respectively. The variable MKTIND was

removed, the Equation 3.12 was modified and the adjusted R^2 was re-estimated. The result is summarised in *Table 4.2.*

Table 4.2: Adjusted R^2 and F-Statistic for Examining the Existence of Multicollinearity

Variables	Adjusted R2	F-Statistic
Regression with MKTIND included	0.1497	6.1347**
Regression without MKTIND	0.1512	6.6680**

Note: 1 - * significant at 5%, and ** denotes significant at 1%
2 - Adjusted R^2 and F-statistic are extracted from Appendix 5.1 and 5.2.

The Adjusted R^2 obtained in the regression of all variables is 0.1497 and with MKTIND removed is 0.1512, both are statistically significant at 1 percent. The data shows a marginal impact on the value of R^2 when MKTIND was removed (i.e., only 1 percent improvement). This result indicates that multicollinearity does not cause alarming problem in the regressions.

Table 4.3: Interpretation of Correlation Coefficients

Size of correlation	**Interpretation**
0.9 to 1	Very high correlation
0.7 to 0.89	High correlation
0.5 to 0.69	Moderate correlation
0.3 to 0.49	Low correlation
0 to 0.29	Little if any

Source: Compiled from Cramer (1998, p. 141)

Likewise, applying Cramer's (1998) interpretation of size of correlation coefficients as summarised in *Table 4.3,* the pair-wise correlation coefficients of the dependent and explanatory variables presented in *Table 4.1* are generally low, with the highest coefficient is -0.5555 between the King's Tax Conditions (KTC) and

Market Performance (MKTIDX). The insignificant coefficients between pair-wise dependent variable, Debt-equity Ratio (DER) and explanatory variables and among explanatory variables confirm that multicollinearity does not cause alarming problem.

4.2.2 Interpretation of Correlation between Variables

The correlation between effective tax rates (ETR) and the firm size (SIZE) are positive, revealing that large firms pay proportionately more taxes than smaller firms.

Inconsistent with the life-cycle hypothesis that the growth rate of an organisation will slow down as it matures, the firm size (SIZE) and Growth Opportunities (GROW) is positively related. This reflects the current trend of large size real estate investment vehicles such as Listed Property Trusts (LPTs) expanding their investment to the emerging property sectors (Newell and Tan, 2006). On the other hand, the GROW is negatively associated with fixed real estate Assets Structure (AS). This is consistent with the view that firms with a high proportion of their market value in tangible property assets have lower growth opportunities.

Positive correlation between Profitability (PROF) and Debt-Equity Ratio (DER) indicates that firms with more profit have more to shield by the use of debt as predicted by the Trade-Off Theory.

Negative correlations between DER and Business Operations Risk (BRISK), Interest Rate (IRATE) and Market Performance (MKTIND) indicate that leverage decreases as BRISK, IRATE and MKTIND increase.

The correlation between DER and Growth Opportunity (GROW) is positive, indicating that debt capital was used finance new investment. The positive

correlation between DER and AS confirms this and also reveals that real estate property assets ware used as security for the loans.

The correlation coefficient between Non-Debt Tax Shields (NDTS) and GROW is negative, revealing that the firms with high growth opportunities did not utilise the benefit of non-debt tax shield. This is because the firms can enjoy the benefits of the non-debt tax shield only if sufficient income is generated.

4.3 Descriptive Statistics Analysis

4.3.1 Total Debt-Equity Ratio (DER)

The data in *Table 4.4* shows the presence of the huge cross-sectional and longitudinal variations in the leverage level of the real estate enterprises. This displays several issues. In the first place, the mean of the total debts-equity ratio of the sample amounted to 69.31 percent of the firm's equity in the NTS period and constantly increased from 72.00 percent in the Post-NTS1 period to 72.90 percent in the Post-NTS2 period. This confirms the view that the real estate property enterprises had been employed more debt to finance new investment during the examined period. In addition, the size of the debt-equity ratio varied widely between a minimum of 18.10 percent and a maximum of 99.71 percent in NTS period, between 20.00 and 99.39 percent in the post-NTS1 and between 16.12 and 99.03 percent in the post-NTS2 period.

In splitting total liabilities into short-term liabilities (repayable in less than one year) and long-term liabilities (repayable in more than one year), the figures show that overall, the real estate enterprises in the sample relied more on the long-term debt finance during the observed periods, employing 35.07 percent long term debt compared to 19.15 percent short-term debt in the NTS period, 36.40 percent

compared to 21.66 percent in the post-NTS1 and 35.78 percent compared to 17.56 percent in the Post-NTS2 period. The size of the loan of short-term debt fluctuated widely in each examined period, between a minimum of 13.66 percent to a maximum of 90.69 percent in the NTS period, 2.83 to 93.05 percent in the post-NTS1 and between 5.68 to 85.61 percent in the post-NTS2.

Table 4.4: Descriptive Statistics of Debts Employed by Examined Period (%)

Period		NTS	POST-NTS1	POST-NTS2
Short-term Debt/Total Assets	**Mean**	**19.11**	**21.66**	**17.56**
	Min	1.55	3.3	2.00
	Max	69.51	66.61	61.68
Long-Term Debt/Total Assets	**Mean**	**35.07**	**36.39**	**35.78**
	Min	1.37	2.83	5.68
	Max	90.70	93.05	85.62
Total Debt/Equity	**Mean**	**69.31**	**72.01**	**72.90**
	Min	18.10	19.99	16.12
	Max	99.71	99.40	99.04

Note: 1 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).
2 - All figures are the average of all types of R/E enterprises over the examined period. Interest rate and Market performance Index are the weighted average of all quarterly rates and indices over the sample.
3 – The data was extracted from Table 3.6 – 3.9, Chapter 3.

Data in Table 4.4 shows that there are big gap between minimum and maximum value of the debt ratio employed by the real estate property enterprises during the examined period, resulting from significant variation in size of the explanatory variables. This may result in the robustness of the regression result. To address this issue, the Chow's test was employed and the result obtained was insignificant (See Section 5.2.2 for detail). This indicates that the difference in the estimated regression between the various testing periods and the control period is

insignificant. And as the winsorised estimators are usually more robust to outliers than their unwinsorised ones therefore, the data in this study does not require to be winzorised.

Table 4.5: Changed in Leverage by Type of Business Operations (%)

	Leverage	NTS	POST-NTS1	POST-NTS2
Investment	**Short-term debt/Tot Assets**	**11.74**	**14.19**	**14.61**
	Long-Term Debt/Total Assets	37.31	41.03	37.46
	Total Debt/Equity	57.99	67.64	67.66
Development	**Short-Term Debt/Total Assets**	**29.67**	**28.56**	**28.34**
	Long-Term Debt/Total Assets	31.23	31.70	35.07
	Total Debt/Equity	78.33	76.11	86.87
Hybrid	**Short-Term Debt/Total Assets**	**16.47**	**22.10**	**12.86**
	Long-Term Debt/Total Assets	37.02	36.85	34.80
	Total Debt/Equity	**78.42**	**72.13**	**68.05**

Note: 1 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).

2 - All figures are the average of all types of R/E enterprises over the examined period. Interest rate and Market performance Index are the weighted average of all quarterly rates and indices over the sample.

3 – The data was extracted from Table 3.6 – 3.9, Chapter 3.

As observed by Barkham (1997) and Oii (1999a, b), *Table 4.5* shows that debt finance of the real estate enterprises in the sample corresponds with the nature of the business operations. While investment and hybrid real estate enterprises relied on the long-term debt to finance their assets, the development enterprises relied more on the short-term debt finance during the sampled periods.

In addition, the total debt-equity ratio (DER) of all types of real estate property enterprises varied widely. The Investment enterprises' DER varied between 57.99 percent in the NTS and over 67.60 percent in post-NTS1 and post-NTS2 periods, reflecting the current merger and acquisition activities of listed real estate enterprises (Newell, 2006). The total debt-equity ratio of the Development enterprises decreased from 78.33 percent in the NTS down to 76.11 percent in the Post-NTS1 period and increased 86.87 percent in the Post-NTS2, reflecting the contraction in the development activities in the Post-NTS1 as a result of the 'beat the GST' movement and the increase in interest rates as discussed in Chapter 1. The total debt-equity ratio of the Hybrid real estate enterprises decreased constantly over the examined periods, from 78.42% in the NTS period to 68.05 percent in the Post-NTS2. The movement in the debt-equity ratios in the periods of comparison reflected current practice of the listed real estate enterprises, especially the Listed Property Trusts (LPTs) incorporating property development activities via stapled securities (Schuck and Howard, 2005).

4.3.2 Effective Tax Rates (ETR)

Regarding the statistics of the Effective Tax Rates (ETR), *Table 4.6* shows that the real estate property enterprises paid 19.17 per cent, 23.44 percent and 10.83 percent on their taxable income in NTS, Post-NTS1 and Post-NTS2 periods respectively, These effective tax rates are significantly lower than the prevailing statutory company tax rates of 36.00 percent and 34.00 percent in NTS, and 0.30 percent in the Post-NTS1 and Post-NTS2 periods.

The decrease of the mean of the ETR of Investment enterprises in Post-NTS2 reflects the changes in income tax legislation that allow the capital pooling

investment vehicle such as Listed Property Trusts (LPTs) to avoid paying penalty income tax if 100 percent of net income generated from investment properties is distributed to the unitholders (ASX, Taxation issues for LPTs, 2007) .

Table 4.6: Change in the Effective Tax Rates (%)

Period	NTS	POST-NTS1	POST-NTS2
All types	19.17	23.44	10.83
Investment	11.06	09.10	08.87
Development	24.13	36.47	17.00
Hybrid	24.44	24.66	08.43

Note: 1 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).

2 - All figures are the average of all types of R/E enterprises over the examined period. Interest rate and Market performance Index are the weighted average of all quarterly rates and indices over the sample.

3 – The data was extracted from Table 3.6 – 3.9, Chapter 3.

The sharp increase in the ETR of the Development enterprises in the Post-NTS1 period reflects the extra income tax payment on the completed and sold of extra properties built up during the NTS period as a consequence of the full-forward effect of the introduction of the Goods and Services Tax (GST) as shown in *Figure 1* of Chapter 1. The reduction in the Post-NTS2 reflects the decrease in the Corporate Income Tax rate from 34 percent in the Post-NTS1 period down to 30 percent.).

The low effective tax rates enjoyed by the Hybrid enterprises also reflects a favourable income tax treatment on the portion of income generated from investment properties, similar to the investment enterprises.

4.3.3 King's Tax Condition

With the exception of the NTS period, the means of King's tax condition effects of personal taxes on capital gains and dividend income are the same for all types of real estate enterprises in each comparing period, as shown in *Table 4.7*. The higher means in the NTS period compared to those in the Post-NTS1 and Post-NTS2 reflect the higher corporate tax rate during 1998-2001 (i.e., 36 percent and 34 percent compared to 30 percent).

Table 4.7: Change in King's Tax Condition Effects

Period	NTS	POST-NTS1	POST-NTS2
Investment debt-retention	**0.40**	**-0.04**	**-0.03**
debt-equity	-0.08	-0.10	-0.10
equity-retention	0.52	0.08	0.08
Development debt-retention	**0.39**	**-0.03**	**-0.03**
debt-equity	-0.08	-0.10	-0.10
equity-retention	0.51	0.08	0.08
Hybrid Debt Retention	**0.35**	**-0.03**	**-0.03**
debt-equity	-0.08	-0.10	-0.10
equity-retention	0.48	0.08	0.08

Note: 1 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).
2 - All figures are the average of all types of R/E enterprises over the examined period. Interest rate and Market performance Index are the weighted average of all quarterly rates and indices over the sample.
3 – The data was extracted from Table 3.6 – 3.9, Chapter 3.

The differences in the mean of the King's tax effect of personal taxes of each type of business operation of the real estate enterprises in the NTS period reflects the reduction of corporate tax rate from 34 percent in 2000 to 30 percent in 2001. It

seems that the introduction of the New Tax System only have major impact on investors' behaviour in the NTS period as the means of King's tax conditions are constant in the Post-NTS1 and Post-NTS2 periods. This means that other factors and/or new changes in the tax legislation affect the investors' behaviour rather than those changes introduced by the New Tax System.

4.3.4 Non-debt Tax Shields (NDTS)

In relation to the non-debt tax shields, firms can only enjoy the tax benefit of the non-debt tax shields expenses if enough income is generated. *Table 4.8* shows that, in general and with exception of the Post-NTS1 period, the real estate enterprises in the sample enjoyed the benefit of the non-debt tax shields. The average values of non-debt tax shield (NDTS) for all types of real estate enterprises were positive and significant in the NTS and Post-NTS2 periods. However, in breaking into the business operation types, the data shows that the Development and Hybrid real estate enterprises did not benefit from non-debt tax shields during the Post-NTS1 period as they generate lesser NDTS income. This may be due to the fact that lack of new capital investment occurred in this period to replace the deleted stock, built up during the NTS period as a consequence of the full-forward effect of the introduction of the Goods and Services Tax (GST). As a consequence, the lack of utilising the non-debt tax shield by the Development and Hybrid real estate enterprises, resulted in the higher effective tax rates, 36.47 percent and 24.66 percent respectively, as compared to 17.00 percent and 8.43 percent respectively in the Post-NTS2, as shown in *Table 4.6, Section 4.3.2*.

Table 4.8: Average Value of Non-Debt Tax Shields

Period	NTS	POST-NTS1	POST-NTS2
All types	**8.56**	**6.70**	**9.90**
Investment	9.27	7.81	9.65
Development	8.20	5.89	8.86
Hybrid	7.61	6.23	10.83

Note: 1 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).
2 - All figures are the average of all types of R/E enterprises over the examined period. Interest rate and Market performance Index are the weighted average of all quarterly rates and indices over the sample.
3 – The data was extracted from Table 3.6 – 3.9, Chapter 3.

The increase in the value of NDTS of all types of real estate property enterprises in the Post-NTS2 period reflects the increase in the development activities as a result of increase in the level of the First Home Owner's Grant and the decrease in the interest rate.

The substantial increase in the value of NDTS of Hybrid enterprises in the Post-NTS2 period to 10.83, from 6.23 in the Post-NTS2 period, reflects the trend that the Investment enterprises are incorporating property development activities via stapled securities into their current business operation activities (Newell and Tan, 2005; and Moody's, 2006).

4.3.5 Assets structure (AS)

With respect to asset structure, *Table 4.9* shows that the mean of the asset structure of the sample represents about 75.36 percent, 61.57 percent and 67.25 percent of the total assets for the NTS, Post-NTS1 and Post-NTS2 periods respectively. In general, the Investment and Hybrid enterprises invest more in real

estate property than the Development enterprises in all observed periods. The substantial decrease in the assets structure of the Investment enterprises in the Post-NTS2 period was equally matched by an increase in the same period of the Hybrid enterprises. This reflects the current trend of the listed investment vehicle such as Listed Property Trusts (LPTs) especially incorporating property development activities via stapled securities (Schuck and Howard, 2005) and the stapled enterprises were classified as hybrid in this study.

Table 4.9: Average value of asset structure (%)

Period	NTS	POST-NTS1	POST-NTS2
All types	**75.36**	**61.57**	**67.25**
Investment	96.14	92.86	74.12
Development	61.83	37.56	58.44
Hybrid	53.10	51.47	67.20

Note: 1 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).
2 - All figures are the average of all types of R/E enterprises over the examined period. Interest rate and Market performance Index are the weighted average of all quarterly rates and indices over the sample.
3 – The data was extracted from Table 3.6 – 3.9, Chapter 3.

In considering the asset structure of real estate enterprises by type of business operations, the mean of the asset structure of the Investment enterprises decreased constantly from 96.14 percent in the NTS period to 74.12 percent in Post-NTS2. This might be due to the lack of available core property assets as almost 70 percent of investment-grade properties in Australia is currently held by institutions, as a result of increased releasing of general insurance and superannuation funds (Newell and Tan, 2006).

Similarly, real estate Development enterprises also experience the same pattern. The asset structure of development enterprises reduced substantially from 61.83 percent in the NTS period to 37.56 percent in Post-NTS1 before bouncing back to 58.44 percent in Post-NTS2. The reduction in Post-NTS1 was due to the adjustment in demand of new real estate stock following the full-forward demand during the NTS period (ABS Cat. 8755.0).

The reduction in the asset structure of the Hybrid real estate enterprises from 53.10 percent in the NTS period down to 51.47 percent in Post-NTS1, was possibly due to the market adjustment following the one-off demand pull-forward as a result of the introduction of the Good and Services Tax (GST), a central part of the New Tax System. The increase to 67.20 percent in the Post-NTS2 period reflects the current trend of the listed investment vehicle such as Listed Property Trusts (LPTs) especially incorporating property development activities via stapled securities (Schuck and Howard, 2005).

4.3.6 Size

Table 4.10 shows a constantly increase in the average size of total assets from 12.74 in the NTS period to 13.43 in the Post-NTS2 period. A similar trend is found for each type of real estate enterprise. The average size of the Investment enterprises increased from 12.65 in the NTS period to 13.12 in Post-NTS2 period, while the size of the Development and Hybrid enterprises increased from 12.75 to 13.25, and from 13.07 to 13.84 respectively. The increase was due to the increasing trend in the consolidation in the property sector via merger and acquisition activities to build up funds under management and increase international competitiveness (Newell, 2006).

Table 4.10: Average Size of Real Estate Property Enterprises

Period	NTS	POST-NTS1	POST-NTS2
All types	**12.74**	**12.96**	**13.43**
Investment	12.65	12.80	13.12
Development	12.75	13.07	13.25
Hybrid	13.07	13.02	13.84

Note: 1 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).

2 - All figures are the average of all types of R/E enterprises over the examined period. Interest rate and Market performance Index are the weighted average of all quarterly rates and indices over the sample.

3 – The data was extracted from Table 3.6 – 3.9, Chapter 3.

4.3.7 Growth Opportunities (GROW)

Table 4.11 shows a constant decrease in the growth opportunities of the real estate enterprises in all observed periods, with the exception of the Hybrid enterprises in the Post-NTS1 period. The mean of the GROW of the sample decrease constantly from only 77.32 percent in the NTS period to 76.94 percent and 64.76 percent in the Post-NTS1 and Post-NTS2 periods respectively. The same pattern of growth can be found with Development and Hybrid real estate enterprises, except in the Post-NTS1 period in which the grow opportunities for Hybrid enterprises increased substantially to 94.08 percent. On the contrary, Investment enterprises experienced a constant increase in the NTS period and Post-NTS1, increased from 34.20 percent to 41.89 percent. The growth of the Development enterprises however, decreased substantially in the Post-NTS2, to a moderate of 96.55 percent. This was reflected in a decline in the average growth opportunity of all types of real estate property enterprises in the sample in the Post-NTS2 period, which decreased from 77.32

percent to 64.76 percent in Post-NTS2. This confirms Larsen (2004) and Newell's (2006) finding that the mature real estate market in Australia does not provide enough new development opportunities, and there has been an increasing trend to invest in overseas real estate market by the listed real estate property enterprises, especially Listed Property Trusts (LPTs).

Table 4.11: Average Growth of Real Estate Property Enterprises (%)

Period	NTS	POST-NTS1	POST-NTS2
All types	**77.32**	**76.94**	**64.76**
Investment	34.42	42.86	41.89
Development	128.56	99.48	96.55
Hybrid	80.74	94.08	63.21

Note: 1 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).
2 - All figures are the average of all types of R/E enterprises over the examined period. Interest rate and Market performance Index are the weighted average of all quarterly rates and indices over the sample.
3 – The data was extracted from Table 3.6 – 3.9, Chapter 3.

The increase in the growth opportunity of the Investment real estate property enterprises may be due to the recently increased attention to the opportunities for enhanced returns available from the emerging property sectors. This includes self storage, retirement, leisure, entertainment, healthcare, vineyards and childcare (Newell and Tan, 2006). This also has resulted in an increasing trend to invest in the overseas real estate market by listed investment vehicle such as the recent Listed Property Trusts (Larsen, 2004; Newell, 2006).

4.3.8 Profitability

As far as profitability is concerned, the average return on assets of real estate enterprises fluctuated over the examined periods. The mean of the profitability of all types of real estate enterprises increased from 35.78 percent in the NTS period to 50.29 percent in the NTS period then decreased sharply to 11.56 percent in the Post-NTS2 period. A similar pattern of movement in the profitability was found for Investment, Development and Hybrid enterprises. While Investment enterprises experienced a constant fall over the observed periods, from 19.56 percent in the NTS period down to 12.08 percent in Post-NTS2 the Development and Investment enterprises enjoyed substantial increase in the Post-NTS1, from 54.07 percent to 82.00 percent and from 39.10 percent to 52.76 percent, before falling substantially to 10.43 percent and 11.87 percent respectively.

Table 4.12 also shows that the profitability of the Development enterprises was higher than those of the Investment and Hybrid enterprises, except in the Post-NTS2 period. The higher profitability of the Development enterprises could be explained by the nature of real estate Development enterprises operating in a higher risk environment and therefore, are expected to have higher returns (Ooi, 1999a). Furthermore, the drop in profitability of all types of real estate enterprises during the Post-NTS2 period could result from the extra cost incurred in the expansion (e.g. merging and consolidation) activities which occurred during the observed periods (Newell, 2006).

Table 4.12: Average Profitability of Real Estate Property Enterprises (%)

Period	NTS	POST-NTS1	POST-NTS2
All types	**35.78**	**50.29**	**11.56**
Investment	19.56	15.64	12.08
Development	54.07	82.00	10.43
Hybrid	39.10	52.76	11.87

Note: 1 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).

2 - All figures are the average of all types of R/E enterprises over the examined period. Interest rate and Market performance Index are the weighted average of all quarterly rates and indices over the sample.

3 – The data was extracted from Table 3.6 – 3.9, Chapter 3.

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4.3.9 Business Operations Risk

While all types of real estate enterprises in the sample and Investment enterprises operate in the constant average business risk (i.e., 0.70) the betas of Development enterprises are lower, as shown in *Table 4.13*. This contradicts Barkham's (1997) and Ooi's (1999a) findings that the Development enterprises operate in a higher risk environment and should have higher betas. The decrease in the average betas of Development enterprises in the Post-NTS2 period could be explained by the lack of growth opportunities as more and more listed investment vehicles (i.e., LPTs) involve in the development activities via stapled securities. Brounen et al. (2000) study the risk-adjusted performance between the property-developing and non-property developing REITs and conclude that no synergies in empirical evidence exist between stapled REITs and pure property development enterprises.

The constant increase in the average betas of the Hybrid enterprises, from 0.60 in the NTS period to 0.72 in the Post-NTS2 period, reflects the current trend that more and more investment enterprises, especially the listed investment vehicles such as Listed Property Trusts (LPTs), are involved in development activities. Investment in the LPT sector is now more than a direct property investment. A number of stapled securities have a large exposure to property development activities which, whilst potentially being able to deliver greater returns, also carry a higher risk (Larsen, 2004).

Table 4.13: Average of Business Operations Risk of Real Estate Property Enterprises (in Decimal)

Type / Period	NTS	POST-NTS1	POST-NTS2
All types	**0.70**	**0.70**	**0.70**
Investment	0.78	0.76	0.77
Development	0.65	0.67	0.58
Hybrid	0.60	0.66	0.72

Note: 1 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).
2 - All figures are the average of all types of R/E enterprises over the examined period. Interest rate and Market performance Index are the weighted average of all quarterly rates and indices over the sample.
3 – The data was extracted from Table 3.6 – 3.9, Chapter 3.

In a recent study of the changing risk profile of Australian LPTs from 1993 to 2004, Newell and Tan (2005) find the correlation between the overall market and LPTs has declined and the risk profile for LPTs over 2003 and 2004 was higher than for 1999 - 2004 periods. They suggested this move in risk profile is a reflection of the growth in internally managed property trusts, increased levels of debt and growth

in international property portfolios, and concluded that LPTs have taken on higher risk levels in recent years.

4.3.10 Interest Rate

Interest payment represents the cost of employing debt to a firm. Therefore, firms are more likely to use debt when the cost of borrowing is low. Conversely, when interest rates are high, companies would be inclined to use equity financing. *Table 4.14* indicates that the cost of debt to the real estate property enterprises is different, depending upon the nature of business operations. In general, the Investment enterprises enjoy the lowest cost in all periods. For example, in the NTS period, the average interest rate is 5.19 percent to the Investment enterprises compared to 5.20 to the Development and 5.27 percent to the Hybrid enterprises.

The data also indicates that real estate property enterprises rely more on the long-term debt to finance new investment as the percentage of long-term debt to total assets always greater than the ratio of the short-term debt in all periods. This is also evident in the increase of the total debt-equity ratio, from 122.00 percent in the Post-NTS1 to 142.00 percent in Post-NTS2. Also of note is that the real estate enterprises in the sample use long-term debt to reduce the short-term loan in the Post-NTS2. For example, the short-term debt ratio decreased from 23.65 percent in the Post-NTS1 to 18.17 percent in the Post-NTS2 period while the long-term debt ratio increased from 30.28 percent in the Post-NTS1 to 33.10 percent in the Post-NTS2.

Table 4.14: Average Interest Rates (%)

Period	NTS	POST-NTS1	POST-NTS2
Investment	5.19	4.91	5.32
Development	5.20	4.88	5.31
Hybrid	5.27	4.94	5.38
All Types	**5.21**	**4.91**	**5.34**
Short-Term Debt/Total Assets	19.11	21.66	17.56
Long-Term Debt/Total Assets	35.07	36.39	35.78
Total Debt/Equity	69.31	72.01	72.90

Note: 1 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).
2 - All figures are the average of all types of R/E enterprises over the examined period. Interest rate and Market performance Index are the weighted average of all quarterly rates and indices over the sample.
3 – The data was extracted from Table 3.6 – 3.9, Chapter 3.

4.3.11 Market Performance

Various studies (Jalilvand and Harris, 1984; Bayless and Diltz, 1991; and Ooi, 1999a) find that firms time their equity issues to coincide with favourable market conditions because the prospect of their shares being under-valued in a buoyant stock market is low. On the other hand, debt capital is likely to be substituted with equity capital when property stocks are performing well. However, the data summarised in *Table 4.15* shows mixed results. While the result in this study is consistent with these studies in the NTS and Post-NTS1 periods, the opposite is found between Post-NTS1 and Post-NTS2 periods. Between the NTS and Post-NTS1 periods, the debt-equity ratio of the sample decreased substantially from 171.00 percent to 122.00 percent

and the average market performance increased from 576.33 points to 805.33 points in the same periods.

Conversely, the total debt-equity ratio of all types of real estate property enterprises in the sample constantly increased from 69.31 percent in NTS period to 72.01 percent in Post-NTS1 and 72.90 percent in the Post-NTS2 period, in line with the movement in the average Market Performance index which increased from 576.33 points in NTS period to 805.33 points and to 1,412.67 points in the same period. The increase in the debt-equity ratio reflects the increase in the long-term debt in the examined periods.

Table 4.15: Average Market Performance

Period	NTS	POST-NTS1	POST-NTS2
All types	**576.33**	**805.33**	**1,412.67**
Investment	573.69	805.23	1,391.60
Development	577.00	797.11	1,385.48
Hybrid	581.09	819.52	1,449.30

Note: 1 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).

2 - All figures are the average of all types of R/E enterprises over the examined period. Interest rate and Market performance Index are the weighted average of all quarterly rates and indices over the sample.

3 – The data was extracted from Table 3.6 – 3.9, Chapter 3.

4.4 Chapter Summary

The descriptive statistics of variables show that there is large variation in the size of the real estate property enterprises in the sample. This leads to a large gap between the minimum and maximum value in most of the variables such as Debt-

Equity ratio, firm size, growth opportunity in all examined periods. The data also shows the change in the corporate and capital gains taxes. The abolition of the accelerated depreciation provisions introduced by the New Tax System did not affect the real estate property enterprises in most examined periods. The changes in taxes only affect the enterprises in the sample in the NTS period. While the property market was performing well, the real estate property enterprises did not issue more equity as predicted but took advantage of the low interest rate by borrowing more, especially the long-term loan to finance new investment.

CHAPTER 5
REGRESSION STATISTICS ANALYSIS

5.1 Introduction

This Chapter presents the empirical findings by discussing the estimated coefficients of independent variable and the explanatory variables obtained from the various regression using Panel Data Multivariate Regression Model developed for this study. Data contains in the tables presented in various sections of this Chapter are extracted from a number of tables contained in Chapter 3, 4 and from the Appendices. This Chapter starts with the analysis of various tests necessary for establishing the validity of the data and the models employed. The Test of Significance discusses the significance of the R^2 and F-statistic to determine whether or not there is a linear relationship between the change in leverage and the explanatory variables. The robustness of sample data and the possibility of the presence of heteroskedasticity and multicollinearity of variables are also discussed. Finally, the consistency and significance of the hypothesized relationship between leverage and each of the explanatory variables will be discussed in details.

5.2 Regression Model Evaluation

Regression model evaluation involves Testing for Significant to establish if the relationship between the dependent variable and the explanatory variables is linear. The data evaluation involves Testing for Significance, Test for Robustness and Test for Heteroskedasticity. For each test, R^2 and F-statistic obtained from various regressions, based on the final 351 firm-year observations, between the dependent variable, DER, and the explanatory variables, include Effective Tax Rate

(ETR), King's Tax Conditions (KTC), Non-debt Tax Shield (NDTS), Assets Structure (AS), Firm Size (SIZE), Growth Opportunity (GROW), Profitability (PROF), Business Risk (BRISK) Interest Rates (INT) and Market Performance (MKTIDX). The data required for analysis in this Chapter were extracted from the regression results summarised in *Appendix 5.1 to 5.3.*

5.2.1 Test for Significance

` The Test for Significance tries to establish if each individual explanatory variable has some correlation with the dependent variable. The test examines the R-squared and F-Statistic values obtained from regression between total debt-equity ratio with the explanatory variables as defined in Equation 3.12. The regression results of the regression between total debt-equity and explanatory variables for different examined periods are presented in *Table 5.1.*

Table 5.1: R^2 and F-statistic for Test of Significance

Period	**Adjusted R2**	**F-Statistic**
NTS	0.0345	3.5682**
Post-NTS1	0.2396	3.7469**
Post-NTS2	0.4822	11.0704**
All Periods	**0.1497**	**6.1347***

Note: 1 - * significant at 5%, and ** denotes significant at 1%
2 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).
3 – Adjusted R2 and F-statistic are extracted from Appendix 5.1.

The value of R^2 for all periods is statistically significant at 5 percent level and the R^2 for NTS, Post-NTS1 and Post-NTS2 are also statistically significant at 5 percent level. This implies that all the correlations between variables of all data are

highly statistically significant. This indicates that the null hypothesis can be rejected and the alternative hypothesis that there is a linear relationship between leverage and the explanatory variables should be accepted.

5.2.2 Test for Robustness

To test formally whether the results obtained for post-NTS1 and post-NTS2 periods were significantly different from those obtained for the control period (i.e., NTS) the Chow's (1960) test was employed. The Chow test compares the regression result of the post-NTS1 and post-NTS2 with the result of the control period, defined as NTS. For each period, the data set was adjusted and re-estimated Equations 3.12. The results of these regressions are summarised in *Table 5.2.*

For each test, the Significant F comparing the residual sum of squares for the pooled regression to that obtained from the separate regressions for the individual periods (the control period and the test periods) is 0.0039 (NTS), 0.0055 (Post-NTS1), 0.0093 (Post-NTS2 and 0.0001 (pooling) respectively, which were insignificant. This indicates that the difference in the estimated regression between the various testing periods and the control period is insignificant.

Table 5.2: R^2 and F-statistic for Test for Robustness

Period	**Adjusted R2**	**F-Statistic**	**Significant F**
NTS	0.1081	2.6123	0.0039
Post-NTS1	0.1161	2.5383**	0.0055
Post-NTS2	0.1300	2.4284**	0.0093
Post-NTS1+Post-NTS2	**0.1301**	**3.6665****	**0.0001**

Note: 1 - * significant at 5%, and ** denotes significant at 1%

2 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).

3 – Adjusted R2 and F-statistic are extracted from Appendix 5.4.

5.2.3 Test for Heteroskedasticity

The Test for Heteroskedasticity tried to establish if the random variables have different variances. The White's General test (White,1980) was employed to test for heteroskedasticity of explanatory variables. Residuals from the first estimate of Equation 3.12 were regressed on all the explanatory variables for each type of real estate enterprises and on the pooled data.

Table 5.3 shows that the adjusted R^2 obtained are generally low, ranging from -0.1081 for Investment to 0.1300 for Hybrid real estate enterprises, suggesting that the assumption of a constant variance cannot be rejected.

Table 5.3: R^2 and F-statistic for Test for Heteroskedasticity

Type	**Adjusted R^2**	**F-Statistic**
Investment	0.1081	2.6123**
Development	0.1161	2.5383**
Hybrid	0.1300	2.4284**
All Types	**0.1497**	**6.1347****

Note: 1 - * significant at 5%, and ** denotes significant at 1%

2 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).

3 – Adjusted R2 and F-statistic are extracted from Appendix 5.1.

5.3 Empirical Findings

5.3.1 Explaining Power of R^2

The Adjusted R^2 and F-statistic obtained from regression between debt-equity ratio and the explanatory variables for each type of real estate property enterprises

summarised in *Table 5.4* are generally low, despite are statistically significant at 1 and 5 percent level in and insignificant in all three examined periods. The Adjusted R^2 obtained are -0.0892 in the NTS period, -0.1116 in Post-NTS2 and -0.1767 in Post-NTS2 periods for Investment enterprises; 0.1410, 0.0634 and 0.1428 for Development enterprises; and -0.1767, 0.1428 and -0.0695 for Hybrid enterprises.

Table 5.4: Explaining Power of Adjusted R^2

Period	ALL TYPES	NTS	POST-NTS1	POST-NTS2
Investment		**-0.0892**	**-0.1116**	**-0.1767**
		(0.9005)	**(0.9201)**	**(1.1397)***
Development		**0.1410**	**0.0634**	**0.1428**
		(2.4206)**	**(1.8627)****	**(2.3549)****
Hybrid		**-0.1767**	**0.1428**	**-0.0695**
		(1.1397)*	**(2.3540)****	**(1.0703)***
Debt-Equity	**0.1497**	**0.2046**	**0.0790**	**0.0904**
	(6.1347)**	**(4.3380)****	**(2.259)****	**(2.4236)****
Short-Term Debt	**0.0946**	**-0.0810**	**-0.0410**	**0.0288**
	(4.0482)**	**(0.9480)**	**(1.2371)***	**(1.6406)****
Long-Term Debt	**0.2313**	**0.3772**	**0.2171**	**0.1291**
	(9.7749)**	**(5.6107)****	**(3.1003)****	**(2.2880)****

Note: 1- * indicates significant at 5% and ** indicates significant at 1%.

2.- The figures in brackets are the values of F-statistic

3 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006. 3 – 4

4 - Adjusted R^2 and F-statistic are extracted from Appendix 5.1 - 5.3.

The explaining power of the model when regressing on pooled data for all types of real estate property enterprises in the sample does not improve. The adjusted R^2 obtained for Debt-equity Ratio is 0.1497 for all period, 0.2046 in the NTS period,

0.0790 in the Post-NTS1, and 0.0904 in the Post-NTS2 period and all are statistically significant at 5 percent level. The insignificant adjusted R^2 suggests the explanatory variables used in the model do not fully account for or explaining the variation in the dependent variable. This suggests that there might be other factors influencing debt-equity ratio's movement.

When replace the debt-equity ratio with short-term debt ratios as the regressors, the explaining power of the Adjusted R^2 obtained does not improve. The Adjusted R2 obtained is 0.0946 for all period, -0.0810 in the NTS period, -0.0410 in the Post-NTS1, and 0.09288 in the Post-NTS2 period and all are also statistically significant at 5 percent level.

When replace the debt-equity ratio with Long-term Debt Ratio, the result improves substantially. The Adjusted R2 obtained is 0.2313 for all period, 0.3772 in the NTS period, 0.2171 in the Post-NTS1, and 0.1291 in the Post-NTS2 period and all are also statistically significant at 5 percent level.

5.3.2 Effective Tax Rate

The Effective Tax Rate (the ratio of corporate tax paid to pre-tax profits) measures the impact on firms in the tax system as a whole. If the effective tax rate is a forward-looking rate used in financial decisions, it is expected that the relationship between firm's effective tax rate and leverage is positive, as the firms with a higher marginal tax rate are expected to use more debt, due to the tax deductibility of interest. On the other hand, a high effective tax rate could reflect other factors such as high profitability or past low leverage for reasons unrelated to tax. In this case the relationship to leverage could be negative as Booth et al's (2001) study has found.

Table 5.5: Coefficients of Effective Tax Rate (ETR)

Type Period	NTS	POST-NTS1	POST-NTS2
Investment	-0.1451 (-0.3552)	-0.3575 (-1.3144)*	0.6288 (1.0031)*
Development	-0.0639 (-0.6663)	0.1274 (0.6616)	0.2779 (0.8464)
Hybrid	0.2336 (0.4928)	0.3364 (1.2298)*	-0.5698 (-1.4442)**
Debt-equity (all types)	**0.0943** **(0.4972)**	**0.0010** **(0.0131)**	**0.0504** **(0.2324)**
Short-Term (all types)	**0.0744** **(0.3595)**	**-0.0588** **(-0.7970)**	**-0.1684** **(-0.9490)**
Long-Term (all types)	**0.06314** **(0.4054)**	**-0.1068** **(-1.7047)****	**0.3360** **(2.6478)****

Note: 1- * indicates significant at 5% and ** indicates significant at 1%.

2.- The figures in brackets are the values of t-statistic

3 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006.

4 - Adjusted R^2 and F-statistic are extracted from Appendix 5.1 - 5.3.

The data summarised in *Table 5.5* show that the regressions produce a mix results of the estimate coefficients of effective tax rates (ETR). The positive coefficients of Debt-equity Ratio for all types support Hypothesis 1 with coefficients value of 0.0943 in NTS, 0.0010 in Post-NTS1 and 0.0504 in Post-NTS2 periods. Similarly, positive coefficients were found for Long-term Debt in all periods, for Investment enterprises in Post-NTS2, for Development Enterprises in Post-NTS1 and Post-NTS2 and for Hybrid enterprises in NTS and Post-NTS1 periods, statistically significant at 5 percent level. The finding is in line with previous studies such as Mackie-Mason (1990), Givoly, et al. (1992), Shum (1996), Prasad et al. (2001), Graham (2002), who showed positive relationship in context of the U.S, Klapper and Tzioumis (2008), who also showed a positive relationship in the Croatian's firms

context and Twite (2003) who also found similar relationship in the context of the Australian Dividend Imputation Tax System.

On the other hand, the estimate coefficients between the debt-equity ratio and the effective tax rate (ETR) for other types of the real estate enterprises are negative in all periods. This indicates that Hypothesis 1 is rejected. However, the negative relationship supports the earlier study of Michaelas et al. (1999) who obtained the same sign in the relation, although theirs turn out to be statistically insignificant to a 5 percent confidence level. One of the possible explanations of the sign of this effect could be a reverse causation between taxes and the firm leverage variable. In this case, firms with more debt level would pay lesser taxes. Further, Jordan et al (1998) also find a negative relationship, explained by the fact that taxes influence debt only due to the effect over retained earnings. This will be explored further in the King's Tax Condition section.

In addition, most of the selected enterprises in the sample are Listed Property Trusts (LPTs). LPTs, as they are not tax paying entities, cannot benefit from tax deductions that arise in the normal course of business (e.g. depreciation allowances). Therefore, the passing on of these tax benefits to the unitholders gives rise to a 'tax advantaged' component to dividend distributions received by the investor. The tax-free component relates to building depreciation allowances. The tax-deferred element derives from plant and equipment depreciation. The tax-deferred portion is passed through to investors, meaning investors do not pay tax on this portion until the trust is sold. The tax-deferred component reduces the cost base and capital gains are calculated on the new cost base. The value of this tax-advantaged component compared with the dividend actually paid can be quite high and attractive for investors in high tax brackets (ASX, 2007).

5.3.3: King's Tax Conditions

The regression result is worth consideration. While the estimate coefficient between debt-equity ratio and the King tax conditions indicates a strong, positive relationship and is marginally and statistically significant at 5 percent level in the NTS period, the relationship only significant in the NTS period and have no impact on the change of leverage of the real estate enterprises in the sample in the Post-NTS1 and Post-NTS2 periods. The positive relationship supports Hypothesis 2 and suggests that a change in the debt and equity ratio may be complement from the changing in the personal tax perspective.

The signs obtained for the King's Tax Conditions (KTC) depend on the underlying financial policy of the company and the extent to which any tax can be precisely associated with a corresponding source of financing. The positive sign on the equity-retains condition is inconsistent with the generally high dividend payout rate required by the legislation governing the Listed Property Trusts (LPTs). LPTs are required to pay up to 100 percent dividend on net income derived from investment properties to avoid additional penalty tax.

On the other hand, the negative sign on the debt-retentions margin of the Hybrid enterprises in the same period may be associated with the difficulties involved in realizing investments of the listed real estate enterprises. If ownership is stable and includes a significant managerial component, then dividends are likely to be low, and the opportunity cost of retentions may be more closely related to loss of managerial perquisites than to capital gains tax liabilities. In this respect, the sign pattern on the King's Tax Conditions is consistent with the generally low dividend payout rates from the income portion not derived from investment portfolio of the stapled listed property trusts.

Table 5.6 shows that the preponderant total effect of the New Tax System tax reforms was to substantially reduce the amount of outstanding corporate debt. As statutory corporate tax rates were reduced considerably post-NTS periods, from 36 percent in the NTS period down to 30 percent in subsequent periods. This result is not surprising.

Different leverage measures give similar qualitative results for the impact of the NTS reforms on outstanding debt, but the quantitative effects vary considerably. Whilst the estimate coefficient of total Debt-equity Ratio is 10.8944, the estimate coefficient of short term debt is 0.1313 for short term debt and -0.6583 for long term debt. These quantitative effects suggest that more care is required when interpreting the result as different leverage measures employed in the regression would produce different magnitude of coefficients and signs.

Table 5.6: Regression Coefficients of King's Tax Conditions

	NTS	**POST-NTS1**	**POST-NTS2**
Investment	21.6094 (0.989)	0 (0)	0 (0)
Development	0.7033 (0.3868)	0 (0)	0 (0)
Hybrid	-2.9186 (-1.7737)*	0 (0)	0 (0)
Debt-Equity (all types)	**10.8944 (-1.1594)****	**0 (0)**	**0 (0)**
Short-term (all types)	**0.1313 (0.6688)**	**0 (0)**	**0 (0)**
Long-term (all types)	**-0.6583 (-1.5935)****	**0 (0)**	**0 (0)**

Note: 1- * indicates significant at 5% and ** indicates significant at 1%.

2 - The figures in brackets are the values of t-statistic

3 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).

4 - Adjusted R^2 and F-statistic are extracted from Appendix 5.1 - 5.3.

The impact effects are broadly consistent with Graham's (2002) conclusions that tax has significant but small effects on firms financing, although in many instances, the impact effect did account for a substantial proportion of the change in debt in the same year. In contrast, the total effects suggest that tax reform had a large impact on outstanding debt. The average debt-equity ratio of the sample increased constantly from 69.31 percent in the NTS period to 72.90 percent in Post-NTS2 period (*Table 4.3* in Chapter 4). The constant increase in the leverage confirms the view that the real estate property enterprises had been employed more debt to finance their expansion program or new investment during the examined period. could be explained by the decrease in demand and depletion of real estate stock built up as a consequence of a full-forward effect on the introduction of the Goods and Services Tax (GST), a major component of the New Tax System.

Although the leverage increased following the introduction of the New Tax System which implies an increase in the combined share impact of equity and retentions, it is not possible to assert whether equity financing or retentions increased as a consequence. However, these examples underline that the tax coefficients have to be looked at jointly rather than separately because of the simplification that each King's Tax Conditions gives a binary choice, treating other sources of finance as given.

Thus, portfolio shifting by individuals implies that companies will be more leveraged or "geared up" than otherwise, financing themselves in ways that ultimately owners (individual owners of corporate debt or equity) prefer. A low capital gains tax will have the effect of inducing the incentive to invest in equities.

On the other hand, financing a public corporation's investments with debt reduces a company's taxable earnings, while financing investments with retained

earnings results in the project being subjected to both the 30 percent statutory company tax and the 23.50 percent (i.e., 50 percent of 47 percent top individual tax rate) capital gains tax on individual stockholders. High interest expenses help reduce the effective tax rate. Thus, a lower capital gains tax helps to raise the ratio of equity to debt (Green and Murinde, 2008).

5.3.4 Non-debt Tax Shield

Tax deductions for depreciation and investment tax credits act as substitutes for the tax benefits of debt, which implies that a firm with a large non-debt tax shield is likely to be less leveraged (DeAngelo and Masulis 1980). This implies a negative relation between the debt-equity ratio and non-debt tax shields (NDTS).

Consistent with Hypothesis 3, this study finds that the real estate enterprises in the sample did take advantage of the NDTS benefits, as shown in *Table 5.7*. It is interesting point to note that there is virtually no relation at all between the non debt tax shields and the debt-equity ratio of the sampled enterprises in all periods (i.e., coefficient of Debt-equity Ratio obtained is 0.0019 in NTS period, -0.0035 in the Post-NTS1 and -0.0054 in the Post-NTS2 period). This could be explained by the nature of the listed property investment vehicle such as Listed Property Trusts (LPTs) include in the sample, which are non tax paying entities and can not benefit from tax deduction such as depreciation. The Australia's tax laws allow trusts only to retain income that is not come from tax free activities without penalty tax applied under the legislation. Consequently, when calculating their taxable income, trusts, as non tax paying entities, cannot profit from tax deductions such as depreciation. In other word, the abolition of the accelerated depreciation divisions brought about by the introduction of the New Tax System do not impact the corporate financing decisions of the real estate enterprises.

Table 5.7: Regression Coefficients of NDTS

	NTS	POST-NTS1	POST-NTS2
Investment	-0.0235 (-0.8868)	0.0064 (0.5987)	-0.0115 (-0.4917)
Development	-0.0138 (-1.1954)**	0.0100 (1.0425)*	0.0338 (2.8247)**
Hybrid	0.0302 (1.0009)*	-0.0098 (-0.6855)	-0.0352 (-1.6401)**
Debt-Equity (all types)	**0.0019 (0.1973)**	**-0.0035 (-0.6947)**	**-0.0054 (-0.5278)**
Short-Term (all types)	**-0.0004 (-0.0378)**	**-0.0103 (-2.2197)****	**-0.0049 (-0.5812)**
Long-Term (all types)	**0.0005 (0.0554)**	**-0.0065 (-1.6506)****	**0.0038 (0.6366)**

Note: 1- * indicates significant at 5% and ** indicates significant at 1%.

2 - The figures in brackets are the values of t-statistic

3 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006.

4 - Adjusted R^2 and F-statistic are extracted from Appendix 5.1 - 5.3.

Despite the lack of tax incentives to employ debt, the real estate enterprises in the sample are highly geared in all observed periods. For example, total Debt-equity Ratio in the NTS period is 69.31 percent compare to 72.01 percent and 72.90 percent in the Post-NTS1 and Post-NTS2 periods respectively (*Table 4.3*, Chapter 4). This finding is in line with Feng, Ghosh and Sirmans (2007) who find that the observed U.S Real Estate Investment Trusts (REITs) in their sample have average debt ratios of over 65 percent ten years after their IPO.

5.3.5 Asset Structure (AS)

The results of this study indicates that the relationship between firms' collateral value and capital structure is statistically significant and also confirm that asset structure is an important determinant of the capital structure of real estate

enterprises. However, the regressions yield a mixture of estimate coefficients as shown in *Table 5.8.*

Table 5.8: Regression Coefficients of AS

	NTS	POST-NTS1	POST-NTS2
Investment	-0.0280 (-0.8689)	0.0348 (1.0715)*	-0.4027 (-1.7387)**
Development	0.0106 (0.0880)	0.1305 (0.7783)	-0.0504 (-0.3661)
Hybrid	-0.2502 (-1.0735)*	0.1345 (0.8704)	0.0309 (0.2197)
Debt-equity/all types	**-0.0210 (-0.9299)**	**0.0077 (0.2581)**	**-0.1344 (-1.4849)***
Short-term/all types	**0.0407 (1.6547)****	**0.0534 (1.9535)****	**-0.0370 (-0.4969)**
Long-term/all types	**-0.0268 (-1.4464)****	**-0.0012 (-0.0518)**	**-0.1044 (-1.9719)****

Note: 1- * indicates significant at 5% and ** indicates significant at 1%.

2 - The figures in brackets are the values of t-statistic

3 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006.

4 - Adjusted R^2 and F-statistic are extracted from Appendix 5.1 - 5.3.

The estimate coefficients of assets structure (AS) for all types of property enterprises and for each Investment, Development and Hybrid enterprises are positive and only marginally significant in the Post-NTS1 period. The estimate coefficients obtained are mix in the NTS and Post-NTS2 periods. This positive relationship support Hypothesis 4 and is similar to those reported in previous research such as Harris and Raviv (1990a), Rajan and Zingales' (1995), Kremp *et al*., (1999) and Frank and Goyal (2002) who study the debt financing behaviour of the U.S REITs; Westgaard et. Al. (2008) in the U.K real estate companies and Chikolwa (2009) in the Australian REITs. Whilst this is consistent with the theory in that the availability of collateral increases the debt capacity of the firm, it seems that real estate enterprises in the sample with higher collateral value might not necessarily

exercise their borrowing ability. This is also consistent with the view that there are various costs (agency and bankruptcy) associated with the use of debt funds and these costs might be moderated by collateral. This result also supports the prediction of the trade-off theory that the debt-capacity increases with the proportion of tangible assets on the balance sheet Morri and Beretta (2008).

The positive relationship also indicates that firms with a greater percentage of their total assets composed of tangible assets, have a higher capacity for raising debt since, in the case of liquidation; these assets keep their value (Myers, 1977). In the firms with large tangible assets and poor cash-flows, stockholders may be better off by liquidating current operations; as managers may always want to continue the firm's current operations, debt can be considered a mechanism to increase default probability and give debt-holders the option to force liquidation (Harris and Raviv 1990). Due to asymmetric information, it is easier for the lender to establish the value of tangible assets, so firms with larger proportion of tangible assets have better access to the debt market.

The sign of the estimate coefficients of the long-term debt and the short-term debt in all three periods indicates that the short-term debt ratio and the long-term debt ratio is matched with short-term and long-term assets respectively (See *Table 4.4*, Chapter 4). It means that during the observed periods, the real estate enterprises employ long-term debt to reduce the short-term debt (i.e., short-term debt ratios have negative coefficients) and to finance new investments. This result supports the study of Brealey and Myers (1990) and Hall et al. (2000) who found similar inferation.

Further, researchers suggest that bank financing will depend upon whether the lending can be secured by tangible assets (Storey, 1994; Berger and Udell, 1998); therefore the higher the asset structure, indicating more fixed assets, the higher the

long-term debt ratio. It is also assumed that having fixed assets increases the possibility of borrowing at lower rates since it is possible to secure the debt with the assets (Titman and Wessels, 1988; Rajan and Zingales, 1995). Similarly, firms with relatively higher proportion of current assets tend to finance their assets with short-term loans, which are a rational asset-liability management strategy of the listed property trusts (Newell and MacIntosh, 2007).

On the other hand, the coefficients of asset struture (AS) are negative and significant for the remained types of real estate enterprises in all periods.The negative coefficient indicates that real estate enterprises in the sample did not attempt to match the maturity of their assets and liabilities. Some authors, such as Ferri and Jones (1979), Kirn and Sorensen (1986) and Titman and Wessels (1988), have proposed a negative relationship between capital structure and asset structure. The reasons for assuming a negative relationship is based on different arguments, one being that the need for tax shields is lower when there are higher fixed assets. This is particular true in the case of the depreciation allowance on buildings, which is currently allowed at 2.5 percent under the Australian Income Tax Law.

5.3.6 Size of Business (SIZE)

Size of Business (SIZE), as proxied by total assets, is an important determinant of the capital structure of real estate property enterprises. Larger firms tend to be more diversified, so their probability of bankruptcy is relatively smaller. Thus large firms may be able to raise new equity capital and long-term public debt with less difficulty and lower transactions costs than small firms, so that firm size would be positively related to both equity ratios and debt maturity.

Similar to Friend and Lang (1988) this study finds mix results of the estimate coefficients of SIZE and they are generally statistically insignificant. The regression coefficients of SIZE are summarised *in Tabe 5.9.*

Table 5.9: Regression Coefficients of SIZE

	NTS	**POST-NTS1**	**POST-NTS2**
Investment	0.0230 (0.6513)	-0.0084 (-0.3355)	0.0443 (1.1587)**
Development	0.0055 (0.1936)	-0.0019 (-0.0604)	-0.0485 (-1.6047)**
Hybrid	-0.0517 (-1.1410)*	-0.0142 (-0.3991)	0.0371 (1.2127)*
Debt-equity/all types	**-0.0116 (-0.6675)**	**-0.0179 (-1.0695)***	**0.0071 (0.3801)**
Short-term/all types	**-0.0174 (-0.9139)**	**-0.0114 (-0.7592)**	**-0.0260 (-1.7019)****
Long-term/all types	**-0.0173 (-1.2117)***	**-0.0093 (-0.7281)**	**0.0027 (0.2507)**

Note: 1 - * indicates significant at 5% and ** indicates significant at 1%.

2 - The figures in brackets are the values of t-statistic

3 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006.

4 - Adjusted R^2 and F-statistic are extracted from Appendix 5.1 - 5.3.

As hypothetised, SIZE is positively related to debt-equity ratio for all type of property enterprises in the Post-NTS2 and for Investment and Development enterprises in the NTS period and for Hybrid enterprises in the Post-NTS2; indicating that SIZE is a proxy for a low probability of default. The finding confirms Hypothesis 5 and is similar to the results in the studies of Rajan and Zingales (1995), Booth et. Al (2001), Bouallegui (2006), and Ramalho and Vidigal da Silva (2007) which argue that the leverage might be positively affected by firm size as larger firms tend to be more diversified, so their probability of bankruptcy is relatively

smaller. Moreover, large firms are more likely to have a credit rating and, thus, be able to access to non-bank debt financing. Also, as informational asymmetries are less severe for larger firms, they find it easier to raise debt (Myers, 1984) and Ghosh et al, 2007).

On the other hand, an inverse relationship between firm size and change in leverage is found for all type of the sample and for the investment enterprises in the NTS and the post-NTS1 and Post-NTS2 periods. While this result rejects Hypothesis 5 that advocates a positive relationship, the negative relationship is nevertheless, consistent with Marsh (1982), Titman and Wessels (1988), Ooi (2007) and Morri and Beretta's (2008) contention that accessibility to the equity market and economies of scale with respect to issue costs, influence the firm's debt-equity choice. The result indicates that smaller real estate enterprises may have to rely on bank loans out of necessity.

5.3.7 Growth Opportunities (GROW)

Growth opportunities, proxied by growth in total assets, are inversely related to both equity ratios and debt maturities. This is consistent with the view that high growth potential firms with large information asymmetries, shorten the maturity of their debt so as to reduce the under-investment problem. However, this study produces a mix results. Overall, the estimate coefficients of the whole sample are positive and statistically insignificant at 5 percent level while the coefficients of the Short-term Debt, Investment, Development and Hybrid enterprises are negative in the Post-NTS1 and Post-NTS2 periods. The regression estimate coefficients of the GROW are summarised in *Table 5.10.*

The positive relationship between the firm growth opportunities (GROW) and change in debt-equity ratio of all types of real estate enterprises in the sample is

inconsistent with Hypothesis 6, which proposes a negative relationship. This could reflect the view that firms with more investment opportunities tend to have higher leverage ratios. In other words, it is probably the case that firms with good investment (growth) opportunities are not really worried about their leverage (higher) ratios because they feel they can get the debt finance whenever they need it. In addition, firms with more investment opportunities borrow more since their probability of outrunning internally generated funds is larger (Shyam-Sunder and Myers, 1999; Ramalho and Vidigal da Silva, 2007; Morri and Beretta, 2008).

Table 5.10: Regression Coefficients of GROW

	NTS	**POST-NTS1**	**POST-NTS2**
Investment	0.1192 (1.0070)*	0.3315 (2.5623)**	-0.0560 (-0.3890)
Development	0.0309 (1.1277)*	-0.0562 (-1.2077)*	-0.0037 (-0.0740)
Hybrid	0.0766 (0.7157)	-0.0116 (-0.1989)	0.0654 (1.0827)*
Debt-Equity (all types)	**0.0565** **(2.2502)****	**0.0251** **(0.8493)**	**0.0721** **(1.9964)****
Short-Term (all types)	**-0.0450** **(-1.6432)****	**-0.0611** **(-2.2433)****	**-0.0532** **(-1.7918)****
Long-Term (all types)	**0.0555** **(2.6901)****	**0.0425** **(1.8389)****	**0.0992** **(4.6958)****

Note: 1- * indicates significant at 5% and ** indicates significant at 1%.

2 - The figures in brackets are the values of t-statistic

3 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006.

4 - Adjusted R^2 and F-statistic are extracted from Appendix 5.1 - 5.3.

The positive relationship between Debt-Equity Ratio and GROW can also be explained by the fact that firms with low growth opportunities typically belong to either one of the following two categories: (1) firms with sufficient cash flow or (2)

firms in financial distress. For the first type of firms, current trading activities generate sufficient cash to renew assets, and even to support a marginal increase of asset. For the second type of firms, the more debt employed the greater risk of bankruptcy.

Similar relationships are found for investment and all types of real estate enterprises when using Long-term Debt as the regressors. The estimate coefficients imply that the Investment enterprises are characterized by high growth opportunities (homogeneity) during the market favourable conditions, and the increase in the debt-equity results from new investment financing. When consider the maturity of debt, the positive coefficients and statistically significant of long-term debt ratios indicate that real estate property enterprises in the sample tend to employ long-term debt to finance new investment and to reduce the short-term debt. This is most apparent in long-term debt as the average long-term debt ratio increased from 35.07 percent in the NTS period to 35.78 percent in the Post-NTS2 period and the short-term debt ratio decreased from 19.11 percent in the NTS period to 17.56 percent in the Post-NTS2 period, as shown *in Table 4.3* in Chapter 4.

On the other hand, the coefficients of GROW are negative and marginally significant in all period for the whole sample. The result supports Chikolwa's (2009) notion of the Trade-Off Theory that as financial distress is more costly for firms with large expected growth prospects, firms may be reluctant to take on large amounts of debt in order not to increase their bankruptcy probability. If a firm were to encounter distress or be forced to liquidate, growth options would be worth relatively little (Myers, 1984).

In addition, the Pecking Order Theory suggests that a firm's growth is negatively related to its capital structure. According to Myers and Majluf (1984),

information asymmetry demands an extra premium for firms to raise external funds, irrespective of the true quality of their investment project. In the case of issuing debt, the extra premium is reflected in the higher required yield. High-growth firms may find it too costly to rely on debt to finance growth.

Further, the agency problem also suggests a negative relationship between leverage and a firm's growth. Myer (1977) argued that high-growth firms might have more options for future investment than low-growth firms. Thus, highly leveraged firms are more likely to pass up profitable investment opportunities, because such an investment will effectively transfer wealth from the firm's owners to its debt holders. As a result, firms with high growth opportunities may not issue debt in the first place, and leverage is expected to be negatively related to growth opportunities.

5.3.8 Profitability (PROF)

As shown in *Table 5.11*, the regressions between debt-equity ratio and the explanatory variables produce a mix results. The significant negative relationship between profitability and debt to equity ratios in the NTS and Post-NTS2 periods, confirms that the more profitable the firm is, the greater the availability of internal capital, and the less the need for external funds (Myers 1984). This finding supports Hypothesis 7 and is consistent with the findings of previous studies of the real estate property enterprises such as Ghosh, Nag and Sirmans (1999), Fama and French (2002), Frank and Goyal (2003), in the U.S real estate investment trusts, Westgaard et. Al. (2003), Morri and Beretta (2008) in the U.K context and Chikolw (2009) in the Australian REITs. The negative relationship between leverage and profitability also provides support for the Pecking Order Theory which identifies a financial preference hierarchy in which firms prefer using internal sources of financing first,

then debt and finally external equity obtained by stock issues (Booth et al., 2001; Frank and Goyal, 2002; Morri and Beretta, 2008).

On the other hand, the Trade-Off Theory (Miller, 1976) which emphasises the tax benefits of debt, predicts a positive relationship as firms with more profits have more to shield by the use of debt proposes a positive relationship between profitability and debt-equity ratio. This means that the higher the profitability of the firm, the higher the tax advantages of using debt and the lesser the probability of the firm failing its interest payments. Under the Agency Cost Model, the higher the free cash flows of the firm and the agency costs of equity, the higher level of debt should be used to discipline the behaviour of management (Jensen and Meckling, 1976)

Table 5.11: Regression Coefficients of PROF

	NTS	**POST-NTS1**	**POST-NTS2**
Investment	-0.0377 (-0.4064)	-0.6227 (-3.2426)**	0.2007 (0.2726)
Development	0.1071 (1.8054)**	0.0110 (0.2380)	-0.7026 (-1.4515)**
Hybrid	-0.1123 (-0.7677)	0.0616 (0.7817)	0.4793 (1.2055)*
Debt-Equity (all types)	**-0.0001** **(-0.0301)**	**-0.2192** **(-0.8540)**	**0.0070** **(0.2997)**

Note: 1- * indicates significant at 5% and ** indicates significant at 1%.

2 - The figures in brackets are the values of t-statistic

3 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).

4 - Adjusted R^2 and F-statistic are extracted from Appendix 5.1 - 5.3.

The positive relationship between debt-equity ratio all types of real estate enterprises in the sample and of the Investment and Hybrid enterprises and the profitability in the Post-NTS2 supports the finding of Westgaad et. al. (2008) and shows that profitable real estate enterprises have lower propensity to engage in fund

raising activities, which is consistent with the Pecking Order Theory that profitable firms avoid costly external capital. Corporate profitability, however, have opposite on equity repurchases and net debt reduction activities of the real estate enterprises. The combined results suggest that highly profitable firms not only engage in fewer fundraising activities but they are also more likely to engage in capital reduction activities, and in particular, prefer equity repurchase over debt retirement. This has the effect of increasing the leverage ratio of the firm, which is consistent with the Trade-off Model of capital structure (Ooi et al., 2007). The positive and significant relationship between the short-term and long-term debt ratios and the PROF support this view with the average short-term debt ratio decreased from 23.65 percent in the Post-NTS1 period to 18.17 percent in the Post-NTS2 period.

5.3.9 Business Operating Risk (BRISK)

According to the theory of Financial Distress, higher business risk increases the probability of financial distress, so firms have to trade off between tax benefits and bankruptcy costs. Thus, it predicts a negative relationship between business risk and leverage. However the regressions between the debt-equity ratio and the business operating risk (BRISK) produce mix results. While most of the estimate coefficients have negative sign in all periods, the coefficient of the Hybrid enterprises is positive and significant in the NTS period. The results obtained are summarised in *Table 5.12.*

As hypothesised, the relationships between debt-equity ratio of all type of property enterprises and of the Investment and Development enterprises and BRISK are negative and significant at 5 percent statistically significant level in all periods. The finding supports Hypothesis 8 and is in line with recent studies, such as

Westgaard et. al. (2008) and Chikolwa (2009) in the U.K property companies and the Australian REITs context and implies that leverage increases the volatility of the net profit. Firms that have high operating risk can lower the volatility of the net profit by reducing the level of debt. By so doing, bankruptcy risk will decrease, and the probability of fully benefits from the tax shield will increase. A negative relation between operating risk and leverage is also expected from the Pecking Order Theory perspective: firms with high volatility of results try to accumulate cash during good years to avoid under investment issues in the future (Westgaard et. al, 2008).

Table 5.12: Regression Coefficients of BRISK

Type/Ratio **Period**	**NTS**	**POST-NTS1**	**POST-NTS2**
Investment	-0.1605 (-1.5755)**	-0.1706 (-1.7286)**	-0.0034 (-0.0210)
Development	-0.0746 (-0.4808)	-0.4730 (-3.2619)**	-0.1923 (-1.0672)*
Hybrid	0.1235 (0.3558)	-0.4120 (-1.7805)**	-0.2905 (-1.6258)**
Debt-Equity (all types)	**-0.1912 (-2.5796)****	**-0.2958 (-3.8146)****	**-0.1854 (-2.3410)****

Note: 1- * indicates significant at 5% and ** indicates significant at 1%.

2 - The figures in brackets are the values of t-statistic

3 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006.

4 - Adjusted R^2 and F-statistic are extracted from Appendix 5.1 - 5.3.

On the other hand, the relationship between Business Operating Risk and leverage for the Hybrid enterprises in the NTS is positive and marginally significant. Although this finding does not support Hypothesis 8, it does however, support the results of Givoly et. al (1992) who found similar result in their study of the firm's responses to the Tax Reform Act of 1986. The positive relationship could be explained as firms with high operating risk may try to control total risk by limiting

financial risk. As financial leverage would accelerate firm's profitability and vice versa, it was expected that there would be a positive relationship between capital structure and business risk, especially when business risk is measured by the variance of the firm's profitability.

When coefficient of business risk of firm is considered separately, the Investment and Development enterprises are characterized by relatively low business risk (homogeneity) with negative and significant relationship with leverage. The Hybrid enterprises, on the other hand, have a positive and marginally significant relationship with leverage. This reflects the inherent high risk associated with the nature of operation of these enterprises, which is considered high risk operations (Ooi, 1999a, 1999b). To compensate for this, the profitability of the development enterprises in the NTS and Post-NTS1 is 54.07 percent and 82.00 percent compare to 29.56 percent and 15.64 percent for Investment enterprises and 39.09 percent and 52.76 percent for Hybrid enterprises in the same periods. (See *Table 4.11*, Chapter 4)

5.3.10 Interest Rate (IRATE)

Intuitively, firms are more likely to use debt when the cost of borrowing is low. Conversely, when interest rates are high, companies would be inclined to use equity financing since higher interest rates increases the probability of financial distress. This implies a positive relationship between firm’s change in leverage and interest rates. However, the regression between debt-equity ratio and the explanatory variables produce mixed results. The coefficients of the regression are summarised and presented in *Table 5.13.*

The data show that there is no impact of interest rate on the firm leverage in the NTS period. This was the period the New Tax System (NTS) was introduced.

Considering the real estate property enterprises in the sample, it is possible that the adjustment to the changes brought about by the introduction of the NTS, especially the introduction of the Goods and Services Tax (GST), is more important than the low interest rate.

Table 5.13: Regression Coefficient of IRATE

Types/Ratio **Period**	**NTS**	**POST-NTS1**	**POST-NTS2**
Investment	0 (0)	-33.4352 (-2.0144)**	-28.9188 (-1.0536)*
Development	0 (0)	11.6654 (0.7036)	-0.8992 (-0.0482)
Hybrid	0 (0)	10.4903 (0.4295)	-19.3070 (-0.7064)
Debt-Equity (all types)	**0 (0)**	**-9.8665 (-0.9695)**	**-6.3889 (-0.4578)**
Short-Term Debt (all types)	**0 (0)**	**-15.3491 (-1.6366)****	**1.2801 (0.1115)**
Long-Term Debt (all types)	**0 (0)**	**17.2482 (2.1657)****	**-8.4144 (-1.0308)**

Note: 1- * indicates significant at 5% and ** indicates significant at 1%.
2 - The figures in brackets are the values of t-statistic.
3 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).
4 - Adjusted R^2 and F-statistic are extracted from Appendix 5.1 - 5.3.

The coefficient of interest rate in the Post-NTS1 for all types of enterprises is positives and marginally significant. Although this finding supports the results obtained in Gau and Wang (1990), Ooi (2000) and Howton et al. (2003) who study the impact of interest rates as a determinant of capital structure of real estate property enterprises and find a positive relationship between leverage and the cost of issuing and employing debt it does not however, support the Hypothesis 9 which postulates a negative relationship. An explanation is that increases in interest rate risk are generally associated with an immediate reduction in the equity market value, given

the tradeoff between the tax shield associated with increasing leverage and the costs of financial distress associated with increasing leverage. This reduction in the equity market value is hypothesised to be related to the inability of equityholders to fully hedge interest rate risk, and to the lower likelihood that they will be able to fully capture the franchise value of the higher risk firm (Babbel, 1995).

On the other hand, the relationships between the debt-equity ratio of the real estate enterprises and of the Investment enterprises and the interest rate in the Post-NTS1 and the Post-NTS2 periods are negative and marginally significant. This relationship supports the Hypothesis 9. There are two factors can be used to explain this negative relationship. Firstly, an increase in interest rates may result in higher costs of financing and hence effects demand, because investing in real estate is reliant on borrowed funds. Secondly, Finance Theory suggests investors determine their required rate of return from a risk-free return plus a risk premium. An increase in interest rates may lead to a higher required rate of return translating into lower valuations (Allen et al., 2000).

In addition, the significant negative coefficient for Debt-equity Ratio and for the Long-term Debt of all types of real estate enterprises in the Post-NTS2 indicates that real estate enterprises are more likely to retire some of their existing debts in the rising interest rates period. The descriptive statistics (See *Table 4.3*, Chapter 4) show that the short-term debt decreased from 22.66 percent in Post-NTS1 period to 17.56 percent in the Post-NTS2 period while the long-term debt increased to 35.78 percent from 30.39 percent in the same period. The result indicates that the real estate enterprises in the sample retire short term debt using the long term one. Consistent with the Market Timing Theory, the real estate property enterprises have increased

reliance on debt capital in both Post-NTS1 and Post-NTS2 periods. This also corresponded with a low interest rate regime (Ooi et al., 2007).

However, the negative relationship between interest rates and the firm leverage is debatable *"because of the underlying forces that cause interest rate movements"* (Allen et al., 2000 p. 143). Declining interest rates are a result of weaker economic conditions and low inflationary expectations. Weakening economic conditions may cause downward pressure on real estate prices and an increase in the number of vacancies. This results in lower income streams for real estate enterprises, especially the Investment enterprises, and vice versa.

5.5.11 Market Performance (MKTIND)

Firms tend to substitute debt capital with equity when the market indicators is performing well (Ooi, 1999a; Frank and Goyal, 2004). For this a negative relationship between debt-equity ratio and market performance is hypothesised.

Consistent with the expectation, *Table 5.14* shows that the estimated coefficients of market performance and total debt-equity ratio of all sample and of Investment and Hybrid enterprises are negative and insignificant in most periods. This result supports Hypothesis 10 and previous study of Baker and Wurgler (2000) who observe that the proportion of new equity issues is higher when market performance is more highly valued.

Employing the discrete choice models to study the debt-equity choices of real estate enterprises, Ooi (2000) and Brown and Riddiough (2003) observe that REITs with higher pre-offer levels of secured debt tend to issue equity, while those with higher pre-offer levels of unsecured debt tend to issue public debt. Their study finds that equity offerings are more likely to be used for investment and debt offerings are

normally used for adjusting leverage. In contrast with Ooi (2000) and Brown and Riddiough (2003), this study shows that the real estate property enterprises did not substitute debt finance with equity despite the Market Performance improved substantially, from 576.33 points in the NTS to 1412.67 points in the Post-NTS2

Table 5.14: Regression Coefficients of MKTIND

Type/Ratio Period	**NTS**	**POST-NTS1**	**POST-NTS2**
Investment	-0.0006 (-0.2119)	-0.0004 (-0.7532)	0.0004 (1.0761)*
Development	0.0010 (0.4098)	0.0008 (1.3338)**	0.0006 (-0.2128)
Hybrid	-0.0062 (-1.1170)*	-0.0007 (-0.7356)	0.0005 (0.9764)
Debt-Equity (all types)	**-0.0012 (-0.7214)**	**-0.0003 (0.1020)**	**0.0002 (0.8047)**
Short-Term Debt (all types)	**0.0002 (0.1376)**	**-0.0001 (-0.0425)**	**-0.0004 (0.2732)**
Long-Term Debt (all types)	**0.0003 (0.2366)**	**0.0003 (1.0719)***	**0.0002 (1.5786)****

Note: 1- * indicates significant at 5% and ** indicates significant at 1%.
2 - The figures in brackets are the values of t-statistic
3 - Period NTS (1998-2000), Post-NTS1 (2001-2003), Post-NTS2 (2004-2006).
4 - Adjusted R^2 and F-statistic are extracted from Appendix 5.1 - 5.3.

period. In terms of debt finance, the real estate property enterprises issues more long-term debt to finance the new investment and to retire the short-term debt. The long-term debt increased from 35.07 percent in the NTS period to 36.39 percent in the Post-NTS1 and slightly decreased to 35.78 percent in the Post-NTS2 period. This was matched by the decrease of the Short-term Debt employed during the same

period. The average short-term debt decreased from 19.11 percent in the NTS period to 17.56 percent in the Post-NTS2 period (See *Table 4.3*, Chapter 4).

While the relationship between debt-equity ratios of the sample are negative, the positive and significant coefficients of Development enterprises and of the Long-term Debt in all periods indicate that real estate property enterprises in the sample did not substitute debt with equity as hypothesised, despite the Market Performance showing a big increase, from an average of 576.33 points in NTS period to 1,412.67 points in Post-NTS2. Instead, they issued more long-term debt to retire the short-term debt and to finance new investments.

5.6 Chapter Summary

This Chapter discusses the various tests required for the evaluation of the model developed for regression estimation of the impact of explanatory variables on the variation in the dependent variable. Test for Significance results in rejecting of the null hypothesis and accepting the alternative hypothesis recognise that the relationship between dependent variable and the explanatory variables exist. The Test for Robustness concludes that the difference in the estimated regression between the various testing periods and the control period is insignificant. The Test for Heteroskedasticity of the sampled data indicates that the variance of the data in the estimation is constant. The insignificant coefficients between pair-wise dependent and explanatory variables and among explanatory variables indicates that multicollinearity does not cause alarming problem in the regression.

Low value of Adjusted R^2 of the regression between debt-equity ratio suggests that there are other factors, in addition to the ones proxied by the explanatory variables, that cause the movement of the debt-equity ratio. When

replace the debt-equity ratio with either the short-term debt ratio or the long-term debt ratio and re-estimating the model, the explaning power of the model improved significantly.

The estimated regression coefficients and signs of the variables obtained from regression are different when regressed using different data set. The estimated signs of the explanatory variables were used to test the ten hypotheses developed in this study. Despite the mixed results obtained in separate regression of each type of real estate property enterprises in the sample, the findings support most of the hypotheses and also back up the Trade-off, Pecking Order and Agency Costs theories of capital structure. The relationship between leverage and interest rate and market performance also support the Market Timing Theory of capital structure.

CHAPTER 6

SUMMARY AND CONCLUSION

6.1 Conclusion Remarks

In this thesis changes in real estate property enterprises' leverage ratios in response to the taxation law changes were examined, giving particular attention to the New Tax System, a major business tax reform package that came into effect from July 1st, 2000. The tax law changes made in the New Tax System provide an opportunity for a re-test of the factors considered important in previous studies and explain the corporate financing behaviour of firms.

A pre/post research design is used to investigate the impact of the New Tax System on firms' effective tax rates, non-debt tax shields, asset structure, firm's size, growth opportunities, profitability and business operation risk. In addition, three general variables are added to the model. The King's tax conditions to test the total impact of the combined effects of corporate tax, capital gains tax and dividend taxes on firms' leverage decisions; the interest rate and property market performance test the impact that general market factors may have on the corporate financing behaviour of firms. Both the statistical procedures such as descriptive statistical analysis and regression were employed.

Based on a descriptive statistical analysis and a panal data study, the following conclusions were drawn. Firstly, it was found the real estate property enterprises employed more equity in the Post-NTS1 period and relied more on debt in the Post-NTS2.

Secondly, the effective tax rates decreased substantially in the Post-NTS2 after a moderate increase in the Post-NTS1 period as the corporate tax rates reduced

to 30 percent from 36 and 34 percent in the NTS period. Hence these findings support Hypothesis 1 which implies that in response to the tax law changes, firms subject to lower (higher) marginal effective tax rates have employed less (more) debt in their capital structures.

Thirdly, the combined impact of the changes in corporate, capital gains and dividend tax on individual investors did affect the change in capital structure of the real estate property enterprises in the NTS period. These findings with positive signs of the regression coefficient support Hypothesis 2.

Fourthly, the real estate property enterprises were not affect the abolition of the accelerated depreciation provision brought about by the introduction of The New Tax System, nor did they take advantage of the non-debt tax shields in all examine periods. These findings do not support Hypothesis 3.

The fifth conclusion is that the asset structure of real estate property enterprises reduced substantially following the introduction of the New Tax System. The increase in the asset structure in the Post-NTS2 period reflects the new trend of merging and consolidation among the listed property trusts rather than the impact of the NTS. While the positive sign of the regression coefficients support the Hypothesis 4 and the Trade-off Theory, the negative signs reflect the fact that real estate property enterprises employed more debt in the examined periods.

The sixth conclusion drawn is that the average size of the real estate property enterprises increased constantly in all examined periods and the signs of the regression coefficients were mixed. While the positive sign of the coefficient supports Hypothesis 5, the negative sign supports the view that smaller firms may rely on bank loans because the cost of issuing new equity is usually higher than the cost incurred by large firms.

The seventh conclusion raised is that there has been a decrease in the new investment opportunities available to the real estate property enterprises, however this might not be the impact of the NTS. The regression produced mixed results. The finding of a negative sign of the regression coefficients supports Hypothesis 6 and the Trade-off, Pecking Order and Agency theories of capital structure. However, the negative signs of growth opportunities provide a better explanation of the financing behaviour of the real estate property enterprises in the post-NTS periods, in which the debt-equity ratio increased substantially as the sampled enterprises employed more long-term debts to finance new investments.

The eighth finding was that whilst a negative relationship supports Hypothesis 7 and the Pecking Order Theory, a positive signs of profitability supports the Trade-Off and Agency Cost theories of capital structure and provides better explanation of financing behaviour of the real estate property enterprises in the sample in the Post-NTS1 and Post-NTS2 periods. The finding also confirms that the highly profitable real estate property enterprises not only engage in fewer fundraising activities but they are more likely to engage in capital reduction activities, and in particular, prefer equity repurchase over debt retirement during the Post-NTS1 and Post-NTS2 periods.

The ninth finding was that the business operations risk associates with the nature of operation and that the real estate property enterprise in the sample tried to control the volatility of the earning by controlling the level of leverage. This was confirmed by the negative relationships between debt-equity ratio of all type of property enterprises and of the Investment and Development enterprises and BRISK are negative and statistically significant at 5 percent in all periods. The finding supports Hypothesis 8 and the Pecking Order Theory of capital structure.

The tenth point raised is that the interest rate did impact the way the real estate property enterprises decided the corporate financing policy. The sampled enterprises took advantage of the low interest rate by employing more debt in the post-NTS periods. This advocates for a positive relationship with leverage. However, the negative relationship found in the Post-NTS2 period supports Hypothesis 9 despite the fact that the sampled enterprises were still relying on long-term debt to finance new investment and the interest rate was higher.

On the eleventh note, it was found that the property market performances have very little impact on the leverage decision of the sampled enterprises. The positive relationship found did not support Hypothesis 10 which states that firm would substitute debt with equity when the market is performing well. Instead, the real estate property enterprises employed more debt although the interest rate went up.

To finally conclude, the evidence obtained from the model developed and used in this study was weak and insignificant. However the findings still demonstrate that the real estate property enterprises in the sample do make strategic changes in their capital structure in response to the implementation of the New Tax System and to the general market conditions. In addition, the use of various theories of capital structure explored in the literature review (e.g., Trade-off, Pecking Order and Agency Costs theories) to explain the corporate financing decisions were proven to be still valid.

6.2 Contribution of the Research

It is expected that this study has significant implications for the literature on corporate capital structure decisions in response to the regulatory and environmental

changes that might have an impact on the firms' operations. This study combines two important bodies of knowledge, namely real estate and corporate finance. Unlike previous studies in main stream finance literature, this study extends the range of theoretical determinants to cover characteristics that are unique to the real estate property sector.

While most of the existing studies employ the ordinary least squares (OLS) regressions technique, this study utilises recent developments in the econometrics of panel data to estimate the parameters in the capital structure model. A distinct advantage of panel data is that it facilitates testing of economic relationships over time and across companies. Therefore, the effects of macro-economic factors, such as the property market cycle and interest rates, on the firm's leverage decisions can be examined.

6.3 Limitations of the Study

One major limitation of this study is the quantity and quality of data. There is a large number of missing cases especially in the housing industry due to the fact that there were frequent listing and de-listing of property enterprises on the Australian Stock Exchange. This makes it impossible to obtain the full range of testing data and the selected data set is biased towards surviving enterprises and the resulting data set only account for approximately 30 percent of the of the total market capitalisation of the real estate property enterprises listed on the Australian Stock Exchange at the time, Thus it may not represent the total population.

In addition, the data set used in the study contains both direct and indirect real estate property enterprises. While direct and listed property enterprises have the same underlying asset base, they have different characteristics and can perform quite

differently. For example, the Listed Property Trusts (LPTs) are enjoying a virtually tax free benefit under current corporate income tax legislation, on investment income derived from investment properties, and on the dividend payout limitation. Furthermore, as the listed real estate property enterprises represent only a portion of the real estate sector, the exclusion of the unlisted enterprises (e.g., unlisted real estate property trusts, private real estate property developers or investors) in the testing data might be the cause of the weak and insignificant evidence found in this study.

6.4 Recommendation for Future Research

As highlighted in Section 6.3, the factors considered to be a major problem for the weak and insignificant evidence found in this study are the availability of the testing data and the exclusion of the other participants in the real estate property sector, such as unlisted real estate property trusts, private developers and investors. When more data becomes available in the future, further research could be undertaken to explore the full impact of tax reforms on the firms' corporate financing decisions.

In addition, it can be suggested that this study can be extended in the future to take into account other factors not influencing leverage for a more comprehensive study, given the special tax status of the Listed Property Trusts as discussed. Furthermore, studies may be extended in the future to examine on two or more industries simultaneously for a comprehensive comparision of the impact of tax reforms.

Finally, there has been a need for further research on the magnitude of the impact of tax policy on levarege, particularly in developing economies where little is

known about the effects of taxes on firm' capital structure. This represents a need in the future as the mature real estate in Australia does not provide sufficient opportunities for real estate property enterprises to growth as identified in the various studies discussed in this thesis.

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APPENDIX 1

LIST OF REAL ESTATE ENTERPRISES IN THE SAMPLE

1	(CFS) Gandel Retail Trust (GAN)
2	Abigroup/Abacus prop group
3	Ariadne Australia Ltd
4	Australand Holding (ALZ)/Australian Hotel (AAZ)
5	Australian Growth Property (AGH)/Aspen Group (APZ)
6	AV Jennings Home (AVJ)
7	Bunning Warehouses (BWP)/BT Prop
8	Carringdale Property Ltd (CDP)/Capital Prop Trust (CPL)
9	Cedar Woods Prop Ltd (CWP)
10	Central Equity Ltd (CEO)
11	Centro Property Group (CEP)/Centro Retail (CER)
12	CFS Retail Prop Trust (CFX)
13	Commonwealth Property (CPA)
14	Devine Ltd (DVN)
15	Diversified United Investment Ltd (DUI)
16	Equity Trustees Ltd (EQT)
17	Flexi property Trust (FPF)/ Internat Equity Corp (IEQ)
18	Forest Place Group Ltd (FPG)
19	General Prop Trust (GPT)
20	Grand Hotel Group (GHG)
21	Henry Walker Eltin Grp Ltd (HWE)
22	Hudson Investment Group Ltd (HGL)
23	Ipoh Ltd (IPH)IPG/Desane Group Holding (DGH)
24	Land Lease Corp Ltd (LLC)
25	Leighton Holdings Ltd (LEI)
26	Macmahon Holding Ltd (MAH)
27	Macquarie Countrywide (MCW)
28	Macquarie Leisure (MLE)

29	Mirvac Group Ltd (MRG)
30	Phileo Australia (PHI/PHT)
31	Primelife Corporation (PLF)
32	Stockland Trust Group (SGP)
33	Sunland Group Ltd (SDG)
34	Thakral Holdings Grp (THG)
35	Timbercorp Primary Infrastructure(TPF)/Timbercorp Ltd (TIM)
36	Tyndal Meridian Trust (TMT)/JF Meridian Trust (JFM)
37	Villa World Ltd (VWD)/MFS Diversified Group (MFT)
38	Westfield Holdings Ltd (WSF)
39	Westpac Office Trust (WOT).Westpac First Trust (WBK)

APPENDIX 2

Cash Rate Target

Source ARB

Released	Change in cash rate (Per cent)	New cash rate target (Per cent)	Weighted average (Per cent)
8-Aug-07	0.25	6.5	
8-Nov-06	**0.25**	**6.25**	**5.88**
2-Aug-06	0.25	6	
3-May-06	0.25	5.75	
2-Mar-05	**0.25**	**5.5**	**5.50**
3-Dec-03	**0.25**	**5.25**	**5.13**
5-Nov-03	0.25	5	
5-Jun-02	**0.25**	**4.75**	**4.63**
8-May-02	0.25	4.5	
5-Dec-01	**-0.25**	**4.25**	**4.96**
3-Oct-01	-0.25	4.5	
5-Sep-01	-0.25	4.75	
4-Apr-01	-0.5	5	
7-Mar-01	-0.25	5.5	
7-Feb-01	-0.5	5.75	
2-Aug-00	**0.25**	**6.25**	**5.88**
3-May-00	0.25	6	
5-Apr-00	0.25	5.75	
2-Feb-00	0.5	5.5	
3-Nov-99	**0.25**	**5**	**5.00**
2-Dec-98	**-0.25**	**4.75**	**4.75**

APPENDIX 3: PROPERTY INVESTMENT INDEX

Property Council of Australia Investment Performance Index: December 2006

Visit the Investment Performance Index website

	Annual Total Return %							Total Return Index						
Date	Australian Composite	Australian Retail	Australian Office	Australian Industrial	ASX/LPT 300	All Ordinaries	All Series, All Maturities Bonds	Australian Composite	Australian Retail	Australian Office	Australian Industrial	ASX/LPT 300	All Ordinaries
Dec 84								100	100	100	100	100	100
Jun 85								108	108	107	108	102	121
Dec 85	16.8	17.0	17.0	13.5	5.2	44.1	8.1	117	117	117	114	105	144
Jun 86	15.8	14.2	16.6	14.6	23.8	42.5	17.3	125	124	125	124	126	173
Dec 86	17.2	14.8	18.2	16.6	35.4	52.2	18.9	137	134	138	132	143	219
Jun 87	19.8	18.7	20.5	15.9	41.3	54.0	12.9	149	147	150	143	178	266
Dec 87	25.7	24.6	26.5	18.8	5.7	-7.8	18.6	172	167	175	157	151	202
Jun 88	32.4	25.5	35.2	23.4	-2.8	-8.6	17.2	198	185	203	177	173	243
Dec 88	32.5	28.4	34.2	23.8	16.1	17.9	9.4	228	215	234	195	175	238
Jun 89	25.0	24.7	25.3	21.3	-1.1	3.5	5.3	247	230	255	214	171	252
Dec 89	15.9	15.3	16.0	18.4	2.3	17.4	14.2	264	248	272	231	179	280
Jun 90	11.3	14.1	10.5	10.5	15.2	4.1	15.3	275	263	281	237	197	262
Dec 90	3.2	12.8	0.2	-0.7	8.7	-17.5	18.4	273	280	272	229	195	231
Jun 91	-5.7	9.2	-10.6	-6.4	7.7	5.9	22.6	259	287	252	222	213	277
Dec 91	-8.6	6.9	-13.9	-10.0	20.1	34.2	24.4	249	299	234	206	234	310
Jun 92	-7.3	9.0	-13.5	-6.1	14.7	13.0	22.5	240	313	218	208	244	313
Dec 92	-5.2	11.0	-12.4	2.9	7.0	-2.8	10.2	236	332	206	212	250	301
Jun 93	-3.9	11.9	-11.3	0.5	17.1	8.7	13.6	231	350	193	209	286	341
Dec 93	-0.3	12.4	-6.6	2.8	30.1	40.5	16.6	235	373	192	218	325	423
Jun 94	8.6	14.2	5.5	12.3	9.8	15.5	-3.2	251	400	204	235	314	393
Dec 94	12.5	13.8	11.6	16.4	-5.6	-8.8	-6.8	265	424	214	254	307	385
Jun 95	10.3	10.7	9.6	15.4	7.9	6.4	13.5	277	442	223	271	338	419
Sep 95								283	454	228	283	338	446
Dec 95	8.3	9.3	7.0	14.6	12.7	20.7	18.3	287	464	229	291	346	465
Mar 96								293	473	234	299	341	471
Jun 96	7.8	8.7	6.7	14.2	3.6	14.3	7.3	298	481	238	310	351	479
Sep 96	7.3	7.9	6.4	12.4	12.3	10.3	12.6	304	490	242	318	380	492
Dec 96	7.9	8.1	7.2	13.1	14.5	14.3	11.8	310	502	246	329	397	532
Mar 97	8.0	8.5	7.0	14.3	19.9	13.4	12.4	317	513	251	342	409	535
Jun 97	8.8	8.4	8.4	15.1	28.5	26.8	16.7	325	521	258	357	451	607
Sep 97	9.2	8.2	9.1	16.2	24.2	25.8	14.4	332	530	264	370	472	619
Dec 97	10.3	8.7	10.8	16.0	20.3	11.4	12.1	341	545	272	382	477	593
Mar 98	**10.3**	**8.6**	**11.1**	**14.9**	**26.7**	**16.5**	**15.6**	**349**	**557**	**279**	**393**	**518**	**623**
Jun 98	10.5	9.7	10.5	15.0	10.0	1.0	10.6	359	572	286	410	495	613
Sep 98	10.6	10.3	10.2	15.0	14.6	-4.7	9.4	367	585	291	425	541	590
Dec 98	10.3	9.9	9.9	14.9	18.0	8.5	9.5	376	599	299	439	563	643
Mar 99	10.4	10.3	9.9	14.7	4.6	9.7	6.5	386	615	306	451	542	684
Jun 99	10.2	11.1	8.9	14.7	4.3	14.1	3.1	395	636	311	470	517	700
Sep 99	10.1	10.8	9.0	13.8	0.0	16.3	0.9	404	649	317	484	540	686
Dec 99	9.7	10.6	8.5	13.5	-5.0	19.3	-1.8	413	663	325	498	535	767
Mar 00	9.8	10.8	8.6	13.3	1.0	14.1	1.8	424	682	333	511	547	780
Jun 00	10.7	11.5	10.0	12.2	12.1	16.8	6.3	438	708	342	528	579	817
Sep 00	11.0	11.9	10.3	12.0	9.4	19.8	5.8	448	726	350	542	591	822
Dec 00	11.6	12.3	11.0	12.7	18.0	5.0	12.4	461	744	360	561	631	806
Mar 01	11.8	12.1	11.4	13.0	13.1	2.3	11.8	473	764	370	577	619	798
Jun 01	11.1	10.9	11.1	13.0	13.9	8.8	6.2	486	786	380	596	660	889
Sep 01	10.7	10.4	10.7	12.9	16.2	-4.7	9.4	496	802	388	611	687	783
Dec 01	10.3	10.2	10.1	12.5	14.8	10.1	3.8	508	820	397	631	725	887
Mar 02	9.6	9.7	9.2	12.2	17.2	12.3	0.1	519	838	405	648	725	896
Jun 02	9.5	10.4	8.4	12.2	15.1	-4.5	5.3	533	868	412	669	759	849
Sep 02	9.6	10.7	8.3	11.9	11.8	1.6	5.3	544	887	420	684	768	795
Dec 02	9.5	11.0	7.8	12.5	11.8	-8.1	7.7	556	910	428	710	810	815
Mar 03	9.4	11.2	7.6	11.9	13.8	-11.8	9.5	568	932	435	726	826	791
Jun 03	10.9	14.8	7.0	13.7	12.2	-1.1	8.5	591	996	441	760	852	840
Sep 03	11.5	16.1	6.9	14.1	6.2	13.1	3.6	607	1031	449	781	816	900
Dec 03	12.0	16.9	6.9	15.1	8.8	15.9	2.2	623	1064	457	817	881	945
Mar 04	12.1	17.3	6.8	15.2	13.9	24.8	3.3	637	1093	465	836	941	987
Jun 04	11.1	14.4	7.3	12.9	17.2	22.4	1.9	657	1139	473	858	998	1028
Sep 04	11.3	14.3	7.4	12.8	29.1	20.5	6.9	675	1178	482	881	1053	1084
Dec 04	13.1	16.7	8.4	12.5	32.2	27.6	10.3	705	1242	495	919	1165	1205
Mar 05	13.4	16.9	8.8	12.5	20.0	25.0	8.2	722	1277	506	940	1129	1234
Jun 05	14.0	17.4	9.3	13.2	18.4	24.7	11.4	749	1337	517	972	1182	1283
Sep 05	13.7	16.4	10.1	13.0	16.8	30.1	7.3	768	1371	531	995	1230	1411
Dec 05	13.1	14.8	10.7	12.9	12.7	21.1	5.6	797	1426	548	1037	1313	1459
Mar 06	13.3	14.6	11.7	13.1	18.5	29.4	6.3	819	1464	565	1062	1337	1596
Jun 06	15.3	16.3	14.3	14.4	18.1	24.2	2.8	863	1555	592	1112	1396	1593
Sep 06	16.0	16.6	15.7	14.5	25.6	16.2	4.4	890	1597	614	1139	1544	1639
Dec 07	17.3	17.7	17.8	13.4	34.1	25.0	2.5	935	1678	646	1176	1760	1824

Index Information

The Property Council's *Investment Performance Index* has been established for over 20 years and is Australia's leading and most credible direct property index.

The Index is an appraisal based, capital value weighted index which measures the income, capital and total returns from institutionally owned property in Australia.

The Index has been developed to provide property owners, fund managers and analysts with a benchmark of institutional property performance in Australia. The Index is compiled with data collected from more than 35 of Australia's largest property investors and managing agents.

The aggregate data supplied is a subset of the more intensive data provided to index subscribers. For more information or a copy of the methodology please visit our website. Investment Performance Index website

All Series,
All Maturities
Bonds

100
106
108
124
129
140
152
164
167
173
190
200
226
245
281
300
309
341
360
330
336
375
382
398
393
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430
445
442
469
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686
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APPENDIX 4: DESCRIPTIVE STATISTICS OF VARIABLES

The calculation of descriptive statistics of variables is based on the final 351 firm-year observations of data and calculate separately for each examining period.

The variables includes Total Debt/Equity Ratio (DER), type of Business Operations (TYPE), Effective Tax Rate (ETR), King's Tax Conditions (KTC), Non-debt Tax Shield (NDTS), Assets Structure (AS), Firm Size (SIZE), Growth Opportunity (GROW), Profitability (PROF), Business Risk (BRISK) Interest Rates (INT), and Market Performance Index (MKTIDX).

APPENDIX 4: DESCRIPTIVE STATISTICS OF VARIABLES - POOLED DATA

	STD/TLASS	*LTD/TLASS*	*TDEBT/EQTY*	*NTS*	*TYPE*	*EFT*	*KTC*	*NDTS*	*AS*	*SIZE*	*GROW*	*PROF*	*IRATE*	*MKTIND*
Mean	0.1944	0.3575	0.7141	1.0000	1.8860	0.1781	1.2202	8.3877	0.6806	13.0541	0.7300	0.3254	0.0515	931.4444
Standard Error	0.0096	0.0108	0.0119	0.0436	0.0430	0.0133	0.0137	0.2439	0.0360	0.0787	0.0401	0.0297	0.0002	20.5460
Median	0.1217	0.3073	0.7841	1.0000	2.0000	0.1006	1.0759	10.1378	0.6908	12.9536	0.5151	0.1186	0.0500	810.0000
Mode	0.0328	0.3219	0.5495	0.0000	1.0000	0.0000	1.0759	0.0000	0.9988	12.5707	0.1268	0.0598	0.0500	563.0000
Standard Deviation	0.1793	0.2014	0.2235	0.8177	0.8061	0.2497	0.2568	4.5703	0.6746	1.4749	0.7511	0.5561	0.0042	384.9294
Sample Variance	0.0321	0.0406	0.0499	0.6686	0.6498	0.0624	0.0659	20.8881	0.4551	2.1754	0.5642	0.3093	0.0000	148171
Kurtosis	-0.3462	0.2185	-0.7986	-1.5043	-1.4313	8.1999	-0.2169	-0.3873	118.1897	0.1482	6.3437	9.6493	-0.5825	-0.1924
Skewness	0.9371	0.9262	-0.6612	0.0000	0.2100	0.4208	1.3281	-1.0606	9.6933	0.2458	2.1053	3.0606	0.8428	0.9568
Range	0.6949	0.9169	0.8360	2.0000	2.0000	2.9389	0.6231	15.3516	9.5910	8.4381	5.2150	3.4028	0.0125	1225.0000
Minimum	0.0002	0.0137	0.1612	0.0000	1.0000	-1.5443	1.0759	0.0000	0.0025	9.2668	0.0434	-0.1656	0.0463	535.0000
Maximum	0.6951	0.9305	0.9971	2.0000	3.0000	1.3945	1.6990	15.3516	9.5934	17.7049	5.2583	3.2372	0.0588	1760.0000
Sum	68.2441	125.4795	250.6366	351.0000	662.0000	62.5200	428.2941	2944.0962	238.8846	4582.0001	256.2461	114.2276	18.0804	########
Count	351	351	351	351	351	351	351	351	351	351	351	351	351	351

APPENDIX 4.1: DESCRIPTIVE STATISTICS OF VARIABLES – NTS PERIOD

DESCRIPTIVE STATISTICS - NTS ALL TYPES

	STD/TLASS	*LTD/TLASS*	*TDEBT/EQTY*	*NTS*	*TYPE*	*EFT*	*KTC*	*NDTS*	*AS*	*SIZE*	*GROW*	*PROF*	*BRISK*	*IRATE*	*MKTIND*
Mean	0.19106	0.35072	0.69310	0.00000	1.75214	0.19168	1.50883	8.55992	0.75362	12.76944	0.77321	0.35784	0.69921	0.05210	576.33333
Standard Error	0.01663	0.02006	0.02072	0.00000	0.07069	0.02067	0.02497	0.39773	0.08101	0.11887	0.07813	0.05288	0.02435	0.00045	3.74268
Median	0.09434	0.28415	0.76179	0.00000	2.00000	0.12457	1.69900	10.14717	0.80795	12.78785	0.56721	0.12428	0.68062	0.05000	563.00000
Mode	#N/A	#N/A	#N/A	0.00000	1.00000	0.00000	1.69900	0.00000	#N/A	#N/A	#N/A	#N/A	0.78480	0.04750	563.00000
Standard Deviation	0.17986	0.21702	0.22409	0.00000	0.76458	0.22359	0.27009	4.30212	0.87624	1.28576	0.84512	0.57193	0.26344	0.00487	40.48329
Sample Variance	0.03235	0.04710	0.05022	0.00000	0.58459	0.04999	0.07295	18.50823	0.76779	1.65317	0.71422	0.32711	0.06940	0.00002	1638.89655
Kurtosis	-0.18068	0.22372	-0.89911	#DIV/0!	-1.15137	1.67393	-1.51304	0.12395	90.99569	0.32863	8.71011	10.20680	0.54423	-1.51304	-1.51304
Skewness	0.96291	1.01284	-0.56308	#DIV/0!	0.45536	1.44075	-0.71632	-1.24746	8.95059	0.02538	2.45539	3.09527	0.86932	0.57603	0.46596
Range	0.67959	0.89331	0.81614	0.00000	2.00000	0.95260	0.57050	14.05167	9.49843	6.85723	5.19568	3.19707	1.18185	0.01130	96.00000
Minimum	0.01553	0.01366	0.18100	0.00000	1.00000	-0.02213	1.12850	0.00000	0.09500	9.35088	0.06264	0.04018	0.30308	0.04750	535.00000
Maximum	0.69513	0.90697	0.99714	0.00000	3.00000	0.93047	1.69900	14.05167	9.59343	16.20811	5.25832	3.23724	1.48492	0.05880	631.00000
Sum	22.35411	41.03461	81.09265	0.00000	205.00000	22.42653	176.53350	1001.51096	88.17397	1494.02493	90.46603	41.86765	81.80799	6.09570	#######
Count	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117

DESCRIPTIVE STATISTICS TYPE 1 NTS

	STD/TLASS	*LTD/TLASS*	*TDEBT/EQTY*	*NTS*	*TYPE*	*EFT*	*KTC*	*NDTS*	*AS*	*SIZE*	*GROW*	*PROF*	*BRISK*	*IRATE*	*MKTIND*
Mean	0.11737	0.37311	0.57993	0.00000	1.00000	0.11060	1.52346	9.27012	0.96141	12.65050	0.34420	0.19561	0.77844	0.05189	573.69231
Standard Error	0.02042	0.03374	0.03091	0.00000	0.00000	0.02408	0.03687	0.44392	0.17395	0.19304	0.05439	0.06331	0.04449	0.00066	5.59220
Median	0.05098	0.26885	0.54035	0.00000	1.00000	0.00000	1.69900	10.31363	0.94977	12.77493	0.14000	0.09153	0.69336	0.05000	563.00000
Mode	#N/A	#N/A	#N/A	0.00000	1.00000	0.00000	1.69900	0.00000	#N/A	#N/A	#N/A	#N/A	0.78480	0.05000	535.00000
Standard Deviation	0.14723	0.24332	0.22289	0.00000	0.00000	0.17365	0.26588	3.20116	1.25440	1.39201	0.39222	0.45653	0.32083	0.00477	40.32590
Sample Variance	0.02168	0.05920	0.04968	0.00000	0.00000	0.03016	0.07069	10.24742	1.57351	1.93770	0.15383	0.20842	0.10293	0.00002	1626.17798
Kurtosis	4.19467	-0.20516	-1.19124	#DIV/0!	#DIV/0!	6.01171	-1.31548	3.44458	46.30438	0.26917	1.74275	40.41588	-0.54750	-1.34867	-1.38847
Skewness	2.16492	1.03904	0.19518	#DIV/0!	#DIV/0!	2.12586	-0.85829	-1.92012	6.60131	-0.13425	1.68949	6.11605	0.46037	0.69813	0.58771
Range	0.58832	0.89331	0.80701	0.00000	0.00000	0.87073	0.57050	13.23694	9.49843	6.45129	1.45480	3.19707	1.18185	0.01130	96.00000
Minimum	0.01553	0.01366	0.18100	0.00000	1.00000	0.00000	1.12850	0.00000	0.09500	9.35088	0.06264	0.04018	0.30308	0.04750	535.00000
Maximum	0.60385	0.90697	0.98801	0.00000	1.00000	0.87073	1.69900	13.23694	9.59343	15.80218	1.51744	3.23724	1.48492	0.05880	631.00000
Sum	6.10335	19.40180	30.15641	0.00000	52.00000	5.75139	79.22000	482.04636	49.99310	657.82584	17.89855	10.17165	40.47882	2.69830	#######
Count	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52

DESCRIPTIVE STATISTICS TYPE 2 NTS

	STD/TLASS	*LTD/TLASS*	*TDEBT/EQTY*	*NTS*	*TYPE*	*EFT*	*KTC*	*NDTS*	*AS*	*SIZE*	*GROW*	*PROF*	*BRISK*	*IRATE*	*MKTIND*
Mean	0.29672	0.31234	0.78332	0.00000	2.00000	0.24130	1.50883	8.20315	0.61828	12.75078	1.28562	0.54071	0.65313	0.05204	577.00000
Standard Error	0.02927	0.02661	0.02368	0.00000	0.00000	0.03374	0.04200	0.74393	0.04076	0.15587	0.15839	0.10505	0.02961	0.00076	6.22348
Median	0.34593	0.28007	0.79653	0.00000	2.00000	0.18043	1.69900	10.10707	0.64634	12.79504	0.98985	0.25170	0.68540	0.05000	563.00000
Mode	#N/A	#N/A	#N/A	0.00000	2.00000	0.00000	1.69900	0.00000	#N/A	#N/A	#N/A	#N/A	0.41885	0.04750	563.00000
Standard Deviation	0.18971	0.17245	0.15344	0.00000	0.00000	0.21868	0.27220	4.82121	0.26414	1.01017	1.02650	0.68083	0.19190	0.00495	40.33276
Sample Variance	0.03599	0.02974	0.02354	0.00000	0.00000	0.04782	0.07409	23.24408	0.06977	1.02045	1.05371	0.46353	0.03683	0.00002	1626.73171
Kurtosis	-0.93198	-0.29357	0.68762	#DIV/0!	#DIV/0!	1.55460	-1.53750	-0.63550	-1.19458	-0.39290	6.02048	3.89008	0.33174	-1.54239	-1.52468
Skewness	0.13501	0.64016	-0.96423	#DIV/0!	#DIV/0!	1.32005	-0.73357	-1.01748	-0.33146	-0.23319	2.22599	2.10835	0.50942	0.59458	0.46847
Range	0.66496	0.70096	0.60899	0.00000	0.00000	0.95260	0.57050	13.50304	0.84630	4.12791	5.12790	2.73736	0.85490	0.01130	96.00000
Minimum	0.03017	0.04882	0.38815	0.00000	2.00000	-0.02213	1.12850	0.00000	0.13630	10.49380	0.13043	0.05420	0.35568	0.04750	535.00000
Maximum	0.69513	0.74978	0.99714	0.00000	2.00000	0.93047	1.69900	13.50304	0.98260	14.62171	5.25832	2.79156	1.21058	0.05880	631.00000
Sum	12.46226	13.11826	32.89935	0.00000	84.00000	10.13461	63.37100	344.53245	25.96784	535.53279	53.99616	22.70992	27.43164	2.18570	#######
Count	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42

DESCRIPTIVE STATISTICS TYPE 3 NTS

	STD/TLASS	*LTD/TLASS*	*TDEBT/EQTY*	*NTS*	*TYPE*	*EFT*	*KTC*	*NDTS*	*AS*	*SIZE*	*GROW*	*PROF*	*BRISK*	*IRATE*	*MKTIND*
Mean	0.16472	0.37020	0.78421	0.00000	3.00000	0.28437	1.47576	7.60575	0.53100	13.07245	0.80745	0.39070	0.60424	0.05268	581.08696
Standard Error	0.02827	0.04721	0.04720	0.00000	0.00000	0.05724	0.05936	1.10587	0.05964	0.30878	0.14862	0.10438	0.03633	0.00107	8.84426
Median	0.09434	0.37164	0.84637	0.00000	3.00000	0.20236	1.69900	9.60820	0.39723	12.84832	0.66965	0.15278	0.58160	0.05000	563.00000
Mode	#N/A	#N/A	#N/A	0.00000	3.00000	0.00000	1.69900	0.00000	#N/A	#N/A	#N/A	#N/A	0.40023	0.05880	631.00000
Standard Deviation	0.13557	0.22643	0.22638	0.00000	0.00000	0.27451	0.28469	5.30357	0.28604	1.48085	0.71276	0.50058	0.17425	0.00511	42.41560
Sample Variance	0.01838	0.05127	0.05125	0.00000	0.00000	0.07535	0.08105	28.12791	0.08182	2.19293	0.50803	0.25058	0.03036	0.00003	1799.08300
Kurtosis	-0.38124	0.13234	1.73364	#DIV/0!	#DIV/0!	-0.37698	-1.95057	-1.32196	-1.50743	-0.26857	2.61213	5.75916	-0.51796	-1.88260	-1.82943
Skewness	0.88517	0.82108	-1.60723	#DIV/0!	#DIV/0!	0.90675	-0.47713	-0.70178	0.18845	0.40615	1.50675	2.25253	0.70893	0.35407	0.25606
Range	0.44237	0.78057	0.76972	0.00000	0.00000	0.85141	0.57050	14.05167	0.86685	5.47430	2.89786	2.06299	0.53859	0.01130	96.00000
Minimum	0.03559	0.09896	0.22175	0.00000	3.00000	0.00000	1.12850	0.00000	0.11584	10.73381	0.09967	0.06868	0.40023	0.04750	535.00000
Maximum	0.47796	0.87953	0.99148	0.00000	3.00000	0.85141	1.69900	14.05167	0.98269	16.20811	2.99753	2.13167	0.93882	0.05880	631.00000
Sum	3.78850	8.51455	18.03689	0.00000	69.00000	6.54053	33.94250	174.93215	12.21303	300.66631	18.57131	8.98607	13.89753	1.21170	#######
Count	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23

APPENDIX 4.2: DESCRIPTIVE STATISTICS OF VARIABLES – POST-NTS1 PERIOD

DESCRIPTIVE STATISTICS - POST-NTS1 ALL TYPES

	STD/TLASS	*LTD/TLASS*	*TDEBT/EQTY*	*NTS*	*TYPE*	*EFT*	*KTC*	*NDTS*	*AS*	*SIZE*	*GROW*	*PROF*	*BRISK*	*IRATE*	*MKTIND*
Mean	0.21662	0.36394	0.72008	1.00000	1.85470	0.23442	1.07590	6.69880	0.61567	12.95841	0.76937	0.50286	0.69921	0.04907	805.33333
Standard Error	0.01784	0.01916	0.02038	0.00000	0.07106	0.03098	0.00000	0.48850	0.06681	0.13096	0.06748	0.06674	0.02435	0.00019	5.92110
Median	0.13469	0.31656	0.78602	1.00000	2.00000	0.18344	1.07590	9.40747	0.51584	12.93279	0.54936	0.13862	0.68062	0.04960	810.00000
Mode	#N/A	#N/A	#N/A	1.00000	2.00000	0.00000	1.07590	0.00000	#N/A	#N/A	1.00000	#N/A	0.78480	0.04960	725.00000
Standard Deviation	0.19297	0.20721	0.22040	0.00000	0.76862	0.33512	0.00000	5.28392	0.72269	1.41653	0.72993	0.72186	0.26344	0.00208	64.04645
Sample Variance	0.03724	0.04294	0.04858	0.00000	0.59078	0.11230	0.00000	27.91985	0.52229	2.00654	0.53280	0.52108	0.06940	0.00000	4101.94828
Kurtosis	-0.74599	0.20583	-0.79941	#DIV/0!	-1.25950	6.76179	-2.03509	-1.66883	77.13080	-0.01388	3.89576	2.98585	0.54423	-1.51304	-1.51304
Skewness	0.77691	0.88144	-0.69030	#DIV/0!	0.25556	-0.42687	-1.01303	-0.38248	7.95448	-0.01395	1.79330	1.91645	0.86932	-0.37324	-0.11080
Range	0.66278	0.90227	0.79402	0.00000	2.00000	2.93885	0.00000	13.81203	7.61821	6.75991	4.01515	3.08835	1.18185	0.00500	156.00000
Minimum	0.00327	0.02827	0.19992	1.00000	1.00000	-1.54431	1.07590	0.00000	0.00247	9.26682	0.08528	-0.10877	0.30308	0.04630	725.00000
Maximum	0.66606	0.93054	0.99394	1.00000	3.00000	1.39454	1.07590	13.81203	7.62069	16.02673	4.10043	2.97958	1.48492	0.05130	881.00000
Sum	25.34487	42.58153	84.24976	117.00000	217.00000	27.42752	125.88030	783.75909	72.03339	1516.13380	90.01613	58.83438	81.80799	5.74080	########
Count	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117

DESCRIPTIVE STATISTICS - POST-NTS1 TYPE 1

	STD/TLASS	*LTD/TLASS*	*TDEBT/EQTY*	*NTS*	*TYPE*	*EFT*	*KTC*	*NDTS*	*AS*	*SIZE*	*GROW*	*PROF*	*BRISK*	*IRATE*	*MKTIND*
Mean	0.14186	0.41027	0.67642	1.00000	1.00000	0.09075	1.07590	7.80718	0.92862	12.80138	0.42854	0.15636	0.75818	0.04913	805.22727
Standard Error	0.02424	0.03162	0.03461	0.00000	0.00000	0.05679	0.00000	0.71430	0.15919	0.23382	0.07053	0.03478	0.04914	0.00031	9.83446
Median	0.08702	0.34429	0.74373	1.00000	1.00000	0.00000	1.07590	9.72545	0.85907	12.90097	0.18261	0.08694	0.69336	0.04960	810.00000
Mode	#N/A	#N/A	#N/A	1.00000	1.00000	0.00000	1.07590	0.00000	#N/A	#N/A	#N/A	#N/A	0.78480	0.04960	725.00000
Standard Deviation	0.16076	0.20977	0.22957	0.00000	0.00000	0.37673	0.00000	4.73810	1.05594	1.55096	0.46787	0.23069	0.32597	0.00208	65.23441
Sample Variance	0.02584	0.04400	0.05270	0.00000	0.00000	0.14192	0.00000	22.44959	1.11502	2.40548	0.21890	0.05322	0.10626	0.00000	4255.52854
Kurtosis	3.44697	-0.28784	-1.48472	#DIV/0!	#DIV/0!	10.76559	-2.09756	-0.81789	39.93513	-0.04779	3.99018	8.68141	-0.31126	-1.46328	-1.57355
Skewness	2.03662	0.81567	-0.19737	#DIV/0!	#DIV/0!	-0.65883	1.03565	-0.94918	6.16774	-0.22256	1.98815	2.82780	0.63974	-0.43908	-0.10693
Range	0.64750	0.76208	0.69494	0.00000	0.00000	2.93885	0.00000	13.12316	7.43080	6.58928	2.03542	1.25740	1.18185	0.00500	156.00000
Minimum	0.01454	0.12682	0.29454	1.00000	1.00000	-1.54431	1.07590	0.00000	0.18988	9.26682	0.08528	-0.10877	0.30308	0.04630	725.00000
Maximum	0.66204	0.88889	0.98948	1.00000	1.00000	1.39454	1.07590	13.12316	7.62069	15.85609	2.12070	1.14863	1.48492	0.05130	881.00000
Sum	6.24181	18.05187	29.76264	44.00000	44.00000	3.99302	47.33960	343.51582	40.85906	563.26092	18.85578	6.87988	33.36006	2.16170	########
Count	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44

DESCRIPTIVE STATISTICS - POST-NTS1 TYPE 2

	STD/TLASS	*LTD/TLASS*	*TDEBT/EQTY*	*NTS*	*TYPE*	*EFT*	*KTC*	*NDTS*	*AS*	*SIZE*	*GROW*	*PROF*	*BRISK*	*IRATE*	*MKTIND*
Mean	0.28560	0.31697	0.76110	1.00000	2.00000	0.36471	1.07590	5.89383	0.37561	13.07001	0.99478	0.81978	0.66805	0.04882	797.10870
Standard Error	0.03057	0.02785	0.03074	0.00000	0.00000	0.04213	0.00000	0.82849	0.03368	0.17485	0.11329	0.12978	0.03266	0.00030	9.21227
Median	0.28854	0.28851	0.81972	1.00000	2.00000	0.31460	1.07590	8.75687	0.32387	12.91175	0.81377	0.31401	0.68173	0.04960	810.00000
Mode	#N/A	#N/A	#N/A	1.00000	2.00000	0.00000	1.07590	0.00000	#N/A	#N/A	1.00000	#N/A	1.21058	0.04960	725.00000
Standard Deviation	0.20734	0.18892	0.20847	0.00000	0.00000	0.28573	0.00000	5.61912	0.22840	1.18590	0.76837	0.88024	0.22150	0.00207	62.48066
Sample Variance	0.04299	0.03569	0.04346	0.00000	0.00000	0.08164	0.00000	31.57448	0.05217	1.40635	0.59040	0.77483	0.04906	0.00000	3903.83237
Kurtosis	-1.37295	1.45916	0.64644	#DIV/0!	#DIV/0!	-0.80726	-2.09302	-1.88365	0.87251	-0.29365	5.47414	0.20187	0.44257	-1.61255	-1.45391
Skewness	0.08923	1.06930	-1.20629	#DIV/0!	#DIV/0!	0.55055	1.03403	-0.01651	1.14480	0.22826	2.12045	1.13203	0.80126	-0.21915	0.07118
Range	0.66278	0.85775	0.79402	0.00000	0.00000	0.90330	0.00000	13.81203	0.94299	5.11475	3.97314	2.94906	0.85490	0.00500	156.00000
Minimum	0.00327	0.02827	0.19992	1.00000	2.00000	0.00000	1.07590	0.00000	0.04819	10.70345	0.12730	0.03053	0.35568	0.04630	725.00000
Maximum	0.66606	0.88602	0.99394	1.00000	2.00000	0.90330	1.07590	13.81203	0.99118	15.81819	4.10043	2.97958	1.21058	0.05130	881.00000
Sum	13.13779	14.58061	35.01071	46.00000	92.00000	16.77667	49.49140	271.11618	17.27809	601.22042	45.75992	37.70966	30.73042	2.24590	########
Count	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46

DESCRIPTIVE STATISTICS - POST-NTS1 TYPE 3

	STD/TLASS	*LTD/TLASS*	*TDEBT/EQTY*	*NTS*	*TYPE*	*EFT*	*KTC*	*NDTS*	*AS*	*SIZE*	*GROW*	*PROF*	*BRISK*	*IRATE*	*MKTIND*
Mean	0.22094	0.36848	0.72135	1.00000	3.00000	0.24659	1.07590	6.26397	0.51468	13.02417	0.94076	0.52759	0.65620	0.04938	819.51852
Standard Error	0.03393	0.04280	0.04223	0.00000	0.00000	0.04710	0.00000	1.04292	0.06598	0.30256	0.15826	0.13801	0.03823	0.00041	12.43907
Median	0.15059	0.32187	0.78875	1.00000	3.00000	0.23983	1.07590	8.86757	0.50720	12.93279	0.66988	0.15523	0.63991	0.04960	810.00000
Mode	#N/A	#N/A	#N/A	1.00000	3.00000	0.00000	1.07590	0.00000	#N/A	#N/A	#N/A	#N/A	0.40023	0.05130	881.00000
Standard Deviation	0.17632	0.22238	0.21941	0.00000	0.00000	0.24474	0.00000	5.41917	0.34287	1.57215	0.82234	0.71711	0.19863	0.00215	64.63529
Sample Variance	0.03109	0.04945	0.04814	0.00000	0.00000	0.05990	0.00000	29.36739	0.11756	2.47164	0.67624	0.51425	0.03945	0.00000	4177.72080
Kurtosis	-0.68361	0.01231	-0.44175	#DIV/0!	#DIV/0!	-0.52843	-2.16667	-1.89851	0.43939	-0.30475	0.04351	2.83143	-1.25446	-1.38963	-1.35248
Skewness	0.73275	0.83465	-0.87428	#DIV/0!	#DIV/0!	0.64495	-1.05981	-0.25571	0.61240	0.30073	1.00486	1.81749	0.27955	-0.61613	-0.48133
Range	0.58050	0.82206	0.71037	0.00000	0.00000	0.80714	0.00000	13.17363	1.43852	6.16213	2.88688	2.72163	0.56965	0.00500	156.00000
Minimum	0.01436	0.10848	0.26194	1.00000	3.00000	0.00000	1.07590	0.00000	0.00247	9.86459	0.11107	0.04319	0.40023	0.04630	725.00000
Maximum	0.59486	0.93054	0.97231	1.00000	3.00000	0.80714	1.07590	13.17363	1.44099	16.02673	2.99795	2.76483	0.96988	0.05130	881.00000
Sum	5.96527	9.94906	19.47642	27.00000	81.00000	6.65783	29.04930	169.12709	13.89623	351.65246	25.40043	14.24485	17.71751	1.33320	22127.00000
Count	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27

APPENDIX 4.3: DESCRIPTIVE STATISTICS OF VARIABLES – POST-NTS2 PERIOD

DESCRIPTIVE STATISTICS - POST-NTS2 ALL TYPES

	STD/TLASS	*LTD/TLASS*	*TDEBT/EQTY*	*NTS*	*TYPE*	*EFT*	*KTC*	*NDTS*	*AS*	*SIZE*	*GROW*	*PROF*	*BRISK*	*IRATE*	*MKTIND*
Mean	0.17560	0.35781	0.72901	2.00000	2.05128	0.10826	1.07590	9.90450	0.67246	13.43454	0.64756	0.11560	0.69921	0.05337	1412.66667
Standard Error	0.01506	0.01662	0.02091	0.00000	0.07946	0.01225	0.00000	0.31172	0.02502	0.15098	0.06167	0.00812	0.02435	0.00036	23.48347
Median	0.11152	0.30729	0.80580	2.00000	2.00000	0.02776	1.07590	10.70207	0.71904	13.23416	0.37591	0.10783	0.68062	0.05130	1313.00000
Mode	0.11152	0.21544	0.48579	2.00000	3.00000	0.00000	1.07590	0.00000	0.97643	15.48784	0.23657	#N/A	0.78480	0.05130	1165.00000
Standard Deviation	0.16294	0.17974	0.22618	0.00000	0.85949	0.13250	0.00000	3.37178	0.27065	1.63307	0.66703	0.08785	0.26344	0.00390	254.01252
Sample Variance	0.02655	0.03231	0.05116	0.00000	0.73873	0.01756	0.00000	11.36893	0.07325	2.66692	0.44493	0.00772	0.06940	0.00002	########
Kurtosis	-0.05665	0.13152	-0.62494	#DIV/0!	-1.64645	0.29668	-2.03509	3.35062	-1.15495	-0.28823	2.37573	5.73300	0.54423	-1.51304	-1.51304
Skewness	1.07115	0.86263	-0.76036	#DIV/0!	-0.09945	1.07506	-1.01303	-1.83535	-0.39945	0.29552	1.67793	1.19960	0.86932	0.65644	0.53680
Range	0.61660	0.79930	0.82921	0.00000	2.00000	0.54782	0.00000	15.35161	0.88852	7.70267	3.05147	0.69339	1.18185	0.00880	595.00000
Minimum	0.00018	0.05688	0.16116	2.00000	1.00000	-0.00309	1.07590	0.00000	0.10233	10.00225	0.04336	-0.16557	0.30308	0.05000	1165.00000
Maximum	0.61679	0.85618	0.99037	2.00000	3.00000	0.54473	1.07590	15.35161	0.99085	17.70491	3.09483	0.52782	1.48492	0.05880	1760.00000
Sum	20.54515	41.86334	85.29418	234.00000	240.00000	12.66595	125.88030	1158.82617	78.67724	1571.84132	75.76397	13.52561	81.80799	6.24390	########
Count	117	117	117	117	117	117	117	117	117	117	117	117	117	117	117

DESCRIPTIVE STATISTICS - POST-NTS2, TYPE1

	STD/TLASS	*LTD/TLASS*	*TDEBT/EQTY*	*NTS*	*TYPE*	*EFT*	*KTC*	*NDTS*	*AS*	*SIZE*	*GROW*	*PROF*	*BRISK*	*IRATE*	*MKTIND*
Mean	0.14605	0.37458	0.67659	2.00000	1.00000	0.08866	1.07590	9.64834	0.74123	13.11692	0.41891	0.12081	0.76709	0.05313	1391.60000
Standard Error	0.02263	0.02989	0.03676	0.00000	0.00000	0.02033	0.00000	0.54137	0.04123	0.25916	0.08493	0.01433	0.05288	0.00060	39.86475
Median	0.10956	0.30967	0.74897	2.00000	1.00000	0.01163	1.07590	10.54007	0.85904	13.00881	0.23097	0.10969	0.72094	0.05130	1313.00000
Mode	#N/A	#N/A	#N/A	2.00000	1.00000	0.00000	1.07590	0.00000	#N/A	#N/A	#N/A	#N/A	0.78480	0.05130	1165.00000
Standard Deviation	0.14313	0.18902	0.23252	0.00000	0.00000	0.12857	0.00000	3.42395	0.26077	1.63907	0.53716	0.09064	0.33444	0.00380	252.12683
Sample Variance	0.02048	0.03573	0.05407	0.00000	0.00000	0.01653	0.00000	11.72344	0.06800	2.68655	0.28854	0.00822	0.11185	0.00001	########
Kurtosis	2.27337	0.35424	-1.01931	#DIV/0!	#DIV/0!	0.79563	-2.10811	2.86676	-0.74267	0.00098	15.94494	3.82497	-0.43688	-1.26240	-1.31301
Skewness	1.71842	0.97571	-0.44110	#DIV/0!	#DIV/0!	1.32307	1.03939	-1.72176	-0.79752	0.26487	3.58465	1.57401	0.61558	0.83624	0.70585
Range	0.55766	0.76821	0.77836	0.00000	0.00000	0.48725	0.00000	13.59283	0.88743	7.34786	3.05147	0.48028	1.18185	0.00880	595.00000
Minimum	0.00018	0.05688	0.21201	2.00000	1.00000	0.00000	1.07590	0.00000	0.10233	10.00225	0.04336	-0.07456	0.30308	0.05000	1165.00000
Maximum	0.55784	0.82510	0.99037	2.00000	1.00000	0.48725	1.07590	13.59283	0.98976	17.35010	3.09483	0.40572	1.48492	0.05880	1760.00000
Sum	5.8420365	14.983115	27.063777	80	40	3.5465262	43.036	385.9336	29.649193	524.67682	16.756307	4.8325346	30.683699	2.1251	55664
Count	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40

DESCRIPTIVE STATISTICS - POST-NTS2 TYPE2

	STD/TLASS	*LTD/TLASS*	*TDEBT/EQTY*	*NTS*	*TYPE*	*EFT*	*KTC*	*NDTS*	*AS*	*SIZE*	*GROW*	*PROF*	*BRISK*	*IRATE*	*MKTIND*
Mean	0.28342	0.35072	0.86866	2.00000	2.00000	0.16909	1.07590	8.86127	0.58443	13.24545	0.96548	0.10426	0.58396	0.05306	1385.48387
Standard Error	0.02868	0.03194	0.02614	0.00000	0.00000	0.02387	0.00000	0.67448	0.04432	0.23160	0.12958	0.01226	0.02794	0.00068	45.17895
Median	0.28365	0.28165	0.92603	2.00000	2.00000	0.16626	1.07590	9.70936	0.57761	13.29352	0.81246	0.11081	0.58275	0.05130	1313.00000
Mode	#N/A	#N/A	#N/A	2.00000	2.00000	0.00000	1.07590	0.00000	#N/A	#N/A	#N/A	#N/A	0.45866	0.05130	1165.00000
Standard Deviation	0.15971	0.17784	0.14557	0.00000	0.00000	0.13291	0.00000	3.75536	0.24678	1.28950	0.72150	0.06828	0.15557	0.00377	251.54574
Sample Variance	0.02551	0.03163	0.02119	0.00000	0.00000	0.01767	0.00000	14.10270	0.06090	1.66282	0.52056	0.00466	0.02420	0.00001	63275.2580 6
Kurtosis	-1.14678	0.29085	8.02104	#DIV/0!	#DIV/0!	-1.15536	-2.14286	1.95393	-0.86087	-0.42314	0.63754	1.90947	-0.13893	-1.16317	-1.23297
Skewness	-0.00214	0.90718	-2.46276	#DIV/0!	#DIV/0!	0.15701	-1.05158	-1.65258	0.22007	-0.03011	1.07576	-0.73322	0.52652	0.89648	0.76192
Range	0.54977	0.70158	0.70528	0.00000	0.00000	0.43531	0.00000	12.75854	0.83070	4.92526	2.82900	0.33437	0.57942	0.00880	595.00000
Minimum	0.01596	0.11972	0.28042	2.00000	2.00000	0.00000	1.07590	0.00000	0.14154	10.85466	0.09126	-0.11011	0.35568	0.05000	1165.00000
Maximum	0.56573	0.82130	0.98570	2.00000	2.00000	0.43531	1.07590	12.75854	0.97224	15.77992	2.92027	0.22427	0.93510	0.05880	1760.00000
Sum	8.78592	10.87224	26.92858	62.00000	62.00000	5.24194	33.35290	274.69925	18.11737	410.60907	29.92996	3.23206	18.10272	1.64480	########
Count	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31

DESCRIPTIVE STATISTICS - POST-NTS2 TYPE3

	STD/TLASS	*LTD/TLASS*	*TDEBT/EQTY*	*NTS*	*TYPE*	*EFT*	*KTC*	*NDTS*	*AS*	*SIZE*	*GROW*	*PROF*	*BRISK*	*IRATE*	*MKTIND*
Mean	0.12863	0.34800	0.68047	2.00000	3.00000	0.08429	1.07590	10.83029	0.67197	13.83816	0.63212	0.11872	0.71786	0.05378	1449.30435
Standard Error	0.02218	0.02590	0.03382	0.00000	0.00000	0.01846	0.00000	0.41860	0.04164	0.26197	0.09707	0.01440	0.03369	0.00060	38.09968
Median	0.07688	0.26293	0.74879	2.00000	3.00000	0.01542	1.07590	11.07760	0.75263	13.48122	0.30669	0.10519	0.70389	0.05130	1313.00000
Mode	#N/A	#N/A	#N/A	2.00000	3.00000	0.00000	1.07590	0.00000	#N/A	#N/A	#N/A	#N/A	0.94754	0.05880	1760.00000
Standard Deviation	0.15046	0.17564	0.22936	0.00000	0.00000	0.12519	0.00000	2.83906	0.28240	1.77679	0.65839	0.09769	0.22853	0.00410	258.40458
Sample Variance	0.02264	0.03085	0.05261	0.00000	0.00000	0.01567	0.00000	8.06026	0.07975	3.15700	0.43348	0.00954	0.05222	0.00002	66772.9275 4
Kurtosis	2.77935	-0.06807	-1.02907	#DIV/0!	#DIV/0!	3.56726	-2.09302	7.95909	-1.05965	-0.79489	1.00932	7.11563	-0.47904	-1.84893	-1.77763
Skewness	1.88017	0.74862	-0.47753	#DIV/0!	#DIV/0!	1.85196	1.03403	-2.37303	-0.53970	0.24819	1.47044	1.28684	0.32948	0.41294	0.30104
Range	0.60974	0.77059	0.80803	0.00000	0.00000	0.54782	0.00000	15.35161	0.87948	6.79506	2.39180	0.69339	0.90750	0.00880	595.00000
Minimum	0.00705	0.08559	0.16116	2.00000	3.00000	-0.00309	1.07590	0.00000	0.11137	10.90986	0.11159	-0.16557	0.30308	0.05000	1165.00000
Maximum	0.61679	0.85618	0.96919	2.00000	3.00000	0.54473	1.07590	15.35161	0.99085	17.70491	2.50339	0.52782	1.21058	0.05880	1760.00000
Sum	5.91720	16.00799	31.30182	92.00000	138.00000	3.87748	49.49140	498.19332	30.91068	636.55543	29.07771	5.46101	33.02157	2.47400	########
Count	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46

APPENDIX 5: REGRESSION SUMMARY

APPENDIX 5.1: REGRESSION ON DEBT-EQUITY RATIO

The regressions between Debt-equity Ratio and the explanatory variables are based on the final 351 firm-year observations and regressed first on the pooled data and then regressed separately for each examining period.

The regressors are defined as follows: Total Debt/Equity Ratio (DER), type of Business Operations (TYPE), Effective Tax Rate (ETR), King's Tax Conditions (KTC), Non-debt Tax Shield (NDTS), Assets Structure (AS), Firm Size (SIZE), Growth Opportunity (GROW), Profitability (PROF), Business Risk (BRISK) Interest Rates (INT), and Market Performance Index (MKTIDX).

SUMMARY OUTPUT - REGRESS ON DEBT/EQTY ALL TYPES POOLED DATA

Regression Statistics	
Multiple R	0.4229
R Square	0.1788
Adjusted R Square	0.1497
Standard Error	0.2061
Observations	351

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	3.1256	0.2605	6.1347	0.0000
Residual	338	14.3507	0.0425		
Total	350	17.4763			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.9801	0.3315	2.9560	0.0033	0.3279	1.6322
NTS	-0.0175	0.0594	-0.2948	0.7683	-0.1343	0.0993
TYPE	0.0133	0.0149	0.8910	0.3736	-0.0161	0.0426
EFT	0.0217	0.0658	0.3304	0.7413	-0.1077	0.1512
KTC	-0.0589	0.0865	-0.6801	0.4969	-0.2291	0.1114
NDTS	-0.0028	0.0038	-0.7503	0.4536	-0.0103	0.0046
AS	-0.0171	0.0172	-0.9920	0.3219	-0.0510	0.0168
SIZE	-0.0080	0.0092	-0.8693	0.3853	-0.0260	0.0101
GROW	0.0577	0.0160	3.5986	0.0004	0.0262	0.0892
PROF	0.0070	0.0235	0.2997	0.7646	-0.0391	0.0532
BRISK	-0.2353	0.0433	-5.4296	0.0000	-0.3205	-0.1500
IRATE	-0.2564	5.0460	-0.0508	0.9595	-10.1820	9.6692
MKTIND	0.0001	0.0001	0.6311	0.5284	-0.0002	0.0003

SUMMARY OUTPUT - REGRESS ON DEBT/EQTY ALL TYPES POOLED DATA AFTER DROPPING MKTIND

Regression Statistics	
Multiple R	0.4218
R Square	0.1779
Adjusted R Square	0.1512
Standard Error	0.2059
Observations	351

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	11	3.1087	0.2826	6.6681	4.03E-10
Residual	339	14.3676	0.0424		
Total	350	17.4763			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.8360	0.2402	3.4804	0.0006	0.3635	1.3084
NTS	0.0175	0.0213	0.8196	0.4130	-0.0245	0.0594
TYPE	0.0138	0.0149	0.9259	0.3552	-0.0155	0.0431
EFT	0.0220	0.0657	0.3340	0.7386	-0.1073	0.1513
KTC	-0.0282	0.0715	-0.3940	0.6938	-0.1689	0.1125
NDTS	-0.0027	0.0038	-0.7220	0.4708	-0.0101	0.0047
AS	-0.0172	0.0172	-1.0017	0.3172	-0.0511	0.0166
SIZE	-0.0078	0.0092	-0.8534	0.3940	-0.0258	0.0102
GROW	0.0573	0.0160	3.5792	0.0004	0.0258	0.0888
PROF	0.0077	0.0234	0.3265	0.7442	-0.0384	0.0538
BRISK	-0.2351	0.0433	-5.4317	0.0000	-0.3203	-0.1500
IRATE	2.3644	2.8635	0.8257	0.4096	-3.2682	7.9969

SUMMARY OUTPUT - REGRESS ON DEBT/EQTY FOR NTS PERIOD (ALL TYPES)

Regression Statistics	
Multiple R	0.5389
R Square	0.2904
Adjusted R Square	0.2046
Standard Error	0.1975
Observations	117

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	1.6917	0.1410	4.3381	0.0000
Residual	106	4.1336	0.0390		
Total	118	5.8253			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	1.8337	1.3468	1.3616	0.1762	-0.8364	4.5039
NTS	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
TYPE	0.0694	0.0281	2.4710	0.0151	0.0137	0.1250
EFT	0.0943	0.1896	0.4972	0.6201	-0.2817	0.4703
KTC	-0.2430	0.2512	-0.9673	0.3356	-0.7411	0.2551
NDTS	0.0019	0.0098	0.1974	0.8439	-0.0174	0.0213
AS	-0.0210	0.0226	-0.9298	0.3546	-0.0657	0.0238
SIZE	-0.0116	0.0174	-0.6674	0.5059	-0.0462	0.0229
GROW	0.0565	0.0251	2.2503	0.0265	0.0067	0.1063
PROF	0.0023	0.0411	0.0567	0.9549	-0.0792	0.0838
BRISK	-0.1911	0.0741	-2.5796	0.0113	-0.3381	-0.0442
IRATE	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
MKTIND	-0.0012	0.0016	-0.7214	0.4723	-0.0044	0.0021

SUMMARY OUTPUT - REGRESS ON DEBT/EQTY FOR POST-NTS1 PERIOD (ALL TYPES)

Regression Statistics	
Multiple R	0.4191
R Square	0.1757
Adjusted R Square	0.0790
Standard Error	0.2093
Observations	117

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	0.9898	0.0825	2.2588	0.0139
Residual	106	4.6450	0.0438		
Total	118	5.6349			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	1.6019	0.5892	2.7185	0.0077	0.4336	2.7701
NTS	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
TYPE	0.0069	0.0286	0.2417	0.8095	-0.0497	0.0635
EFT	0.0010	0.0801	0.0131	0.9896	-0.1577	0.1598
KTC	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
NDTS	-0.0035	0.0050	-0.6947	0.4887	-0.0135	0.0065
AS	0.0077	0.0297	0.2581	0.7969	-0.0512	0.0665
SIZE	-0.0179	0.0163	-1.0965	0.2754	-0.0503	0.0145
GROW	0.0251	0.0295	0.8493	0.3977	-0.0335	0.0837
PROF	-0.0010	0.0330	-0.0301	0.9761	-0.0663	0.0644
BRISK	-0.2958	0.0775	-3.8146	0.0002	-0.4495	-0.1421
IRATE	-9.8666	10.1766	-0.9695	0.3345	-30.0427	10.3095
MKTIND	0.0000	0.0003	0.1021	0.9189	-0.0006	0.0007

SUMMARY OUTPUT - REGRESS ON DEBT/EQTY FOR POST- NTS2 PERIOD (ALL TYPES)

Regression Statistics	
Multiple R	0.4314
R Square	0.1861
Adjusted R Square	0.0904
Standard Error	0.2135
Observations	117

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	1.1043	0.0920	2.4236	0.0082
Residual	106	4.8300	0.0456		
Total	118	5.9344			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	1.0155	0.5292	1.9188	0.0577	-0.0338	2.0647
NTS	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
TYPE	-0.0193	0.0241	-0.7994	0.4259	-0.0671	0.0285
EFT	0.0504	0.2170	0.2324	0.8167	-0.3797	0.4805
KTC	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
NDTS	-0.0054	0.0103	-0.5277	0.5988	-0.0258	0.0150
AS	-0.1344	0.0905	-1.4849	0.1405	-0.3139	0.0451
SIZE	0.0071	0.0186	0.3801	0.7046	-0.0298	0.0439
GROW	0.0721	0.0361	1.9964	0.0485	0.0005	0.1438
PROF	-0.2192	0.2567	-0.8540	0.3951	-0.7280	0.2897
BRISK	-0.1854	0.0792	-2.3405	0.0211	-0.3424	-0.0284
IRATE	-6.3890	13.9565	-0.4578	0.6480	-34.0591	21.2811
MKTIND	0.0002	0.0002	0.8047	0.4228	-0.0003	0.0006

APPENDIX 5.2: REGRESSION ON SHORT-TERM-DEBT RATIO

The regressions between Short-term Debt Ratio and the explanatory variables are based on the final 351 firm-year observations and regressed first on the pooled data and then regressed separately for each testing period.

The regressors are defined as follows: Total Short-term Debt Ratio (STDER), type of Business Operations (TYPE), Effective Tax Rate (ETR), King's Tax Conditions (KTC), Non-debt Tax Shield (NDTS), Assets Structure (AS), Firm Size (SIZE), Growth Opportunity (GROW), Profitability (PROF), Business Risk (BRISK) Interest Rates (INT), and Market Performance Index (MKTIDX).

SUMMARY OUTPUT - REGRESS ON SHORT-TERM-DEBT RATIO ALL TYPES POOLED DATA

Regression Statistics	
Multiple R	0.3545
R Square	0.1257
Adjusted R Square	0.0946
Standard Error	0.1917
Observations	351

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	1.7846	0.1487	4.0482	0.0000
Residual	338	12.4171	0.0367		
Total	350	14.2017			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	1.0214	0.3084	3.3118	0.0010	0.4147	1.6280
NTS	-0.0735	0.0552	-1.3300	0.1844	-0.1821	0.0352
TYPE	0.0084	0.0139	0.6066	0.5445	-0.0189	0.0357
EFT	-0.0323	0.0612	-0.5280	0.5978	-0.1527	0.0881
KTC	-0.1423	0.0805	-1.7674	0.0781	-0.3006	0.0161
NDTS	-0.0064	0.0035	-1.8121	0.0709	-0.0133	0.0005
AS	0.0387	0.0160	2.4115	0.0164	0.0071	0.0702
SIZE	-0.0194	0.0085	-2.2807	0.0232	-0.0362	-0.0027
GROW	-0.0446	0.0149	-2.9926	0.0030	-0.0740	-0.0153
PROF	-0.0621	0.0218	-2.8422	0.0048	-0.1050	-0.0191
BRISK	-0.0206	0.0403	-0.5120	0.6090	-0.0999	0.0586
IRATE	-3.5988	4.6938	-0.7667	0.4438	-12.8316	5.6339
MKTIND	0.0001	0.0001	1.0776	0.2820	-0.0001	0.0003

SUMMARY OUTPUT - REGRESS ON SHORT-TERM-DEBT RATIO FOR NTS PERIOD (ALL TYPES)

Regression Statistics	
Multiple R	0.3131
R Square	0.0980
Adjusted R Square	-0.0059
Standard Error	0.2156
Observations	117

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	0.5356	0.0446	1.1520	0.3276
Residual	106	4.9278	0.0465		
Total	118	5.4633			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.5241	1.4705	0.3564	0.7222	-2.3913	3.4395
NTS	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
TYPE	0.0132	0.0306	0.4315	0.6670	-0.0475	0.0740
EFT	0.0744	0.2071	0.3595	0.7199	-0.3361	0.4850
KTC	-0.0576	0.2743	-0.2099	0.8341	-0.6014	0.4863
NDTS	-0.0004	0.0107	-0.0378	0.9699	-0.0215	0.0207
AS	0.0408	0.0246	1.6547	0.1009	-0.0081	0.0896
SIZE	-0.0174	0.0190	-0.9139	0.3629	-0.0551	0.0203
GROW	-0.0450	0.0274	-1.6432	0.1033	-0.0994	0.0093
PROF	-0.0530	0.0449	-1.1806	0.2404	-0.1419	0.0360
BRISK	-0.0235	0.0809	-0.2899	0.7725	-0.1839	0.1370
IRATE	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
MKTIND	0.0002	0.0018	0.1376	0.8908	-0.0033	0.0038

SUMMARY OUTPUT - REGRESS ON SHORT-TERM-DEBT RATIO FOR POST-NTS1 PERIOD (ALL TYPES)

Regression Statistics	
Multiple R	0.4559
R Square	0.2079
Adjusted R Square	0.1143
Standard Error	0.1929
Observations	117

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	1.0353	0.0863	2.7815	0.0025
Residual	106	3.9453	0.0372		
Total	118	4.9805			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	1.3816	0.5430	2.5441	0.0124	0.3049	2.4582
NTS	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
TYPE	0.0214	0.0263	0.8146	0.4171	-0.0307	0.0736
EFT	-0.0588	0.0738	-0.7968	0.4274	-0.2051	0.0875
KTC	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
NDTS	-0.0103	0.0046	-2.2197	0.0286	-0.0195	-0.0011
AS	0.0534	0.0273	1.9535	0.0534	-0.0008	0.1076
SIZE	-0.0114	0.0151	-0.7592	0.4494	-0.0413	0.0184
GROW	-0.0611	0.0272	-2.2433	0.0270	-0.1151	-0.0071
PROF	-0.0863	0.0304	-2.8407	0.0054	-0.1465	-0.0261
BRISK	-0.0072	0.0715	-0.1014	0.9194	-0.1489	0.1344
IRATE	-15.3491	9.3788	-1.6366	0.1047	-33.9434	3.2453
MKTIND	0.0000	0.0003	-0.0425	0.9662	-0.0006	0.0006

SUMMARY OUTPUT - REGRESS ON SHORT-TERM DEBT RATIO FOR POST- NTS2 PERIOD (ALL TYPES)

Regression Statistics	
Multiple R	0.3581
R Square	0.1282
Adjusted R Square	0.0271
Standard Error	0.1756
Observations	117

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	0.4806	0.0401	1.5594	0.1153
Residual	106	3.2670	0.0308		
Total	118	3.7476			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.6953	0.4353	1.5975	0.1131	-0.1676	1.5582
NTS	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
TYPE	0.0007	0.0198	0.0333	0.9735	-0.0386	0.0400
EFT	-0.1684	0.1784	-0.9439	0.3474	-0.5222	0.1853
KTC	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
NDTS	-0.0049	0.0085	-0.5812	0.5623	-0.0217	0.0118
AS	-0.0370	0.0745	-0.4969	0.6203	-0.1846	0.1106
SIZE	-0.0260	0.0153	-1.7019	0.0917	-0.0563	0.0043
GROW	-0.0532	0.0297	-1.7918	0.0760	-0.1122	0.0057
PROF	0.1107	0.2111	0.5243	0.6012	-0.3078	0.5292
BRISK	-0.0187	0.0651	-0.2867	0.7749	-0.1478	0.1105
IRATE	1.2801	11.4783	0.1115	0.9114	-21.4767	24.0369
MKTIND	0.0000	0.0002	0.2732	0.7852	-0.0003	0.0004

APPENDIX 5.3: REGRESSION ON LONG-TERM-DEBT RATIO

The regressions between Long-term Debt Ratio and the explanatory variables are based on the final 351 firm-year observations and regressed first on the pooled data and then regressed separately for each testing period.

The regressors are defined as follows: Total Long-term Debt Ratio (LTDER), type of Business Operations (TYPE), Effective Tax Rate (ETR), King's Tax Conditions (KTC), Non-debt Tax Shield (NDTS), Assets Structure (AS), Firm Size (SIZE), Growth Opportunity (GROW), Profitability (PROF), Business Risk (BRISK) Interest Rates (INT), and Market Performance Index (MKTIDX).

SUMMARY OUTPUT - REGRESS ON LONG-TERM-DEBT RATIO ALL TYPES POOLED DATA

Regression Statistics	
Multiple R	0.5076
R Square	0.2576
Adjusted R Square	0.2313
Standard Error	0.1572
Observations	351

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	2.8990	0.2416	9.7750	0.0000
Residual	338	8.3534	0.0247		
Total	350	11.2523			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.2642	0.2529	1.0445	0.2970	-0.2333	0.7618
NTS	-0.0071	0.0453	-0.1564	0.8758	-0.0962	0.0820
TYPE	-0.0093	0.0114	-0.8189	0.4134	-0.0317	0.0131
EFT	-0.0643	0.0502	-1.2803	0.2013	-0.1630	0.0345
KTC	0.0316	0.0660	0.4788	0.6324	-0.0983	0.1615
NDTS	-0.0052	0.0029	-1.7909	0.0742	-0.0108	0.0005
AS	-0.0228	0.0131	-1.7368	0.0833	-0.0487	0.0030
SIZE	-0.0044	0.0070	-0.6357	0.5254	-0.0182	0.0093
GROW	0.0679	0.0122	5.5521	0.0000	0.0438	0.0920
PROF	0.0899	0.0179	5.0208	0.0000	0.0547	0.1252
BRISK	-0.1432	0.0331	-4.3315	0.0000	-0.2082	-0.0782
IRATE	0.2445	3.8499	0.0635	0.9494	-7.3282	7.8172
MKTIND	0.0001	0.0001	0.6569	0.5117	-0.0001	0.0002

SUMMARY OUTPUT - REGRESS ON LOMG-TERM-DEBT RATIO FOR NTS PERIOD (ALL TYPES)

Regression Statistics	
Multiple R	0.5070
R Square	0.2571
Adjusted R Square	0.1681
Standard Error	0.1622
Observations	117

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	0.9647	0.0804	3.6678	0.0001
Residual	106	2.7880	0.0263		
Total	118	3.7527			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.0886	1.1061	0.0801	0.9363	-2.1042	2.2815
NTS	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
TYPE	0.0018	0.0230	0.0785	0.9375	-0.0439	0.0475
EFT	0.0631	0.1557	0.4054	0.6860	-0.2456	0.3719
KTC	0.0927	0.2063	0.4494	0.6541	-0.3164	0.5018
NDTS	0.0004	0.0080	0.0554	0.9559	-0.0155	0.0163
AS	-0.0268	0.0185	-1.4464	0.1510	-0.0635	0.0099
SIZE	-0.0173	0.0143	-1.2117	0.2283	-0.0457	0.0110
GROW	0.0555	0.0206	2.6901	0.0083	0.0146	0.0963
PROF	0.0765	0.0338	2.2669	0.0254	0.0096	0.1434
BRISK	-0.0965	0.0609	-1.5860	0.1157	-0.2172	0.0241
IRATE	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
MKTIND	0.0003	0.0013	0.2366	0.8135	-0.0023	0.0030

SUMMARY OUTPUT - REGRESS ON LONG-TERM-DEBT RATIO FOR POST-NTS1 PERIOD (ALL TYPES)

Regression Statistics	
Multiple R	0.5843
R Square	0.3414
Adjusted R Square	0.2604
Standard Error	0.1638
Observations	117

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	1.4748	0.1229	5.4952	0.0000
Residual	106	2.8448	0.0268		
Total	118	4.3196			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-0.6412	0.4611	-1.3905	0.1673	-1.5555	0.2730
NTS	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
TYPE	0.0024	0.0224	0.1058	0.9159	-0.0419	0.0467
EFT	-0.1068	0.0627	-1.7047	0.0912	-0.2311	0.0174
KTC	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
NDTS	-0.0065	0.0039	-1.6506	0.1018	-0.0143	0.0013
AS	-0.0012	0.0232	-0.0518	0.9588	-0.0472	0.0448
SIZE	-0.0093	0.0128	-0.7281	0.4681	-0.0347	0.0160
GROW	0.0425	0.0231	1.8389	0.0687	-0.0033	0.0884
PROF	0.1192	0.0258	4.6196	0.0000	0.0680	0.1703
BRISK	-0.1817	0.0607	-2.9947	0.0034	-0.3020	-0.0614
IRATE	17.2482	7.9640	2.1658	0.0326	1.4588	33.0377
MKTIND	0.0003	0.0003	1.0719	0.2862	-0.0002	0.0008

SUMMARY OUTPUT - REGRESS ON LONG-TERM DEBT RATIO FOR POST- NTS2 PERIOD (ALL TYPES)

Regression Statistics	
Multiple R	0.6808
R Square	0.4634
Adjusted R Square	0.3939
Standard Error	0.1249
Observations	117

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	1.4272	0.1189	9.1548	0.0000
Residual	106	1.6525	0.0156		
Total	118	3.0796			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.4472	0.3096	1.4446	0.1515	-0.1665	1.0609
NTS	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
TYPE	-0.0327	0.0141	-2.3221	0.0221	-0.0607	-0.0048
EFT	0.3360	0.1269	2.6477	0.0093	0.0844	0.5876
KTC	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
NDTS	0.0038	0.0060	0.6366	0.5258	-0.0081	0.0157
AS	-0.1044	0.0530	-1.9719	0.0512	-0.2094	0.0006
SIZE	0.0027	0.0109	0.2507	0.8025	-0.0188	0.0243
GROW	0.0992	0.0211	4.6958	0.0000	0.0573	0.1411
PROF	-0.5066	0.1501	-3.3744	0.0010	-0.8042	-0.2089
BRISK	-0.1202	0.0463	-2.5946	0.0108	-0.2121	-0.0284
IRATE	-8.4144	8.1633	-1.0308	0.3050	-24.5989	7.7701
MKTIND	0.0002	0.0001	1.5786	0.1174	-0.0001	0.0005

APPENDIX 5.4: REGRESSION FOR TESTING OF DATA'S ROBUSTNESS

The regressions for testing of the data's robustness involve regression on the controlling period (NTS), individual comparing periods (i.e., Post-NTS1, Post-NTS2 and combined Post-NTS1 and Post-NTS2). The regression between Long-term Debt Ratio and the explanatory variables are based on the final 351 firm-year observations

The regressors are defined as follows: Total Long-term Debt Ratio (LTDER), type of Business Operations (TYPE), Effective Tax Rate (ETR), King's Tax Conditions (KTC), Non-debt Tax Shield (NDTS), Assets Structure (AS), Firm Size (SIZE), Growth Opportunity (GROW), Profitability (PROF), Business Risk (BRISK) Interest Rates (INT), and Market Performance Index (MKTIDX).

SUMMARY OUTPUT - REGRESS ON THE CONTROLLING PERIOD – NTS (ALL TYPES)

Regression Statistics	
Multiple R	0.4338
R Square	0.1881
Adjusted R Square	0.1081
Standard Error	0.2172
Observations	136

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	1.3561	0.1130	2.6123	0.0039
Residual	124	5.8519	0.0472		
Total	136	7.2081			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	1.3867	0.5342	2.5958	0.0106	0.3294	2.4440
NTS	-0.0731	0.1022	-0.7153	0.4758	-0.2753	0.1291
TYPE	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
EFT	-0.0024	0.0876	-0.0275	0.9781	-0.1758	0.1710
KTC	-0.2231	0.1379	-1.6183	0.1081	-0.4960	0.0498
NDTS	-0.0054	0.0068	-0.7915	0.4302	-0.0188	0.0081
AS	-0.0035	0.0196	-0.1765	0.8602	-0.0423	0.0354
SIZE	0.0004	0.0151	0.0245	0.9805	-0.0296	0.0303
GROW	0.1238	0.0512	2.4184	0.0170	0.0225	0.2252
PROF	-0.1201	0.0693	-1.7327	0.0856	-0.2574	0.0171
BRISK	-0.1670	0.0586	-2.8515	0.0051	-0.2829	-0.0511
IRATE	-7.7981	8.6305	-0.9036	0.3680	-24.8803	9.2841
MKTIND	0.0002	0.0002	0.8105	0.4192	-0.0002	0.0006

SUMMARY OUTPUT - REGRESS ON THE FIRST COMPARING PERIOD – POST-NTS1 (ALL TYPES)

Regression Statistics	
Multiple R	0.4549
R Square	0.2069
Adjusted R Square	0.1161
Standard Error	0.1674
Observations	119

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	0.7829	0.0652	2.5383	0.0055
Residual	107	3.0001	0.0280		
Total	119	3.7830			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.8576	0.5178	1.6560	0.1007	-0.1690	1.8841
NTS	0.0513	0.0864	0.5944	0.5535	-0.1199	0.2226
TYPE	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
EFT	0.0177	0.1207	0.1463	0.8839	-0.2216	0.2570
KTC	0.0160	0.1364	0.1171	0.9070	-0.2544	0.2863
NDTS	0.0094	0.0059	1.5925	0.1142	-0.0023	0.0210
AS	0.0054	0.0766	0.0705	0.9439	-0.1464	0.1572
SIZE	-0.0175	0.0167	-1.0422	0.2997	-0.0507	0.0157
GROW	-0.0021	0.0207	-0.1040	0.9173	-0.0431	0.0388
PROF	-0.0062	0.0284	-0.2184	0.8275	-0.0625	0.0501
BRISK	-0.2997	0.0850	-3.5251	0.0006	-0.4683	-0.1312
IRATE	5.0945	6.8196	0.7470	0.4567	-8.4246	18.6136
MKTIND	0.0000	0.0002	-0.2663	0.7905	-0.0004	0.0003

SUMMARY OUTPUT - REGRESS ON THE SECOND COMPARING PERIOD – POST-NTS2 (ALL TYPES)

Regression Statistics	
Multiple R	0.4912
R Square	0.2413
Adjusted R Square	0.1300
Standard Error	0.2106
Observations	96

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	1.1852	0.0988	2.4284	0.0093
Residual	84	3.7270	0.0444		
Total	96	4.9122			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-0.0730	0.7295	-0.1001	0.9205	-1.5238	1.3777
NTS	0.0616	0.1206	0.5113	0.6105	-0.1781	0.3014
TYPE	0.0000	0.0000	65535	#NUM!	0.0000	0.0000
EFT	0.0457	0.2027	0.2255	0.8221	-0.3574	0.4488
KTC	0.1508	0.1898	0.7944	0.4292	-0.2266	0.5282
NDTS	-0.0084	0.0095	-0.8765	0.3833	-0.0273	0.0106
AS	0.0135	0.0917	0.1467	0.8837	-0.1689	0.1959
SIZE	0.0037	0.0176	0.2115	0.8330	-0.0314	0.0388
GROW	0.0473	0.0356	1.3299	0.1871	-0.0234	0.1180
PROF	0.0865	0.0572	1.5118	0.1343	-0.0273	0.2003
BRISK	-0.2372	0.1243	-1.9080	0.0598	-0.4844	0.0100
IRATE	14.4156	10.8865	1.3242	0.1890	-7.2333	36.0645
MKTIND	-0.0001	0.0002	-0.4678	0.6412	-0.0006	0.0003

SUMMARY OUTPUT - REGRESS ON THE COMBINED COMPARING PERIOD – POST-NTS1 + POST-NTS2 (ALL TYPES)

Regression Statistics	
Multiple R	0.4229
R Square	0.1789
Adjusted R Square	0.1301
Standard Error	0.1917
Observations	215

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	12	1.6162	0.1347	3.6665	0.0001
Residual	202	7.4202	0.0367		
Total	214	9.0364			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0.8500	0.4200	2.0237	0.0443	0.0218	1.6781
NTS	0.0252	0.0716	0.3516	0.7255	-0.1160	0.1663
TYPE	-0.0609	0.0280	-2.1751	0.0308	-0.1161	-0.0057
EFT	0.0397	0.1077	0.3687	0.7127	-0.1726	0.2520
KTC	0.0522	0.1124	0.4648	0.6426	-0.1693	0.2738
NDTS	0.0021	0.0052	0.3976	0.6913	-0.0082	0.0124
AS	-0.0173	0.0585	-0.2961	0.7675	-0.1328	0.0981
SIZE	-0.0118	0.0117	-1.0074	0.3149	-0.0349	0.0113
GROW	0.0220	0.0180	1.2232	0.2227	-0.0135	0.0575
PROF	0.0151	0.0263	0.5736	0.5669	-0.0368	0.0670
BRISK	-0.3249	0.0691	-4.6982	0.0000	-0.4612	-0.1885
IRATE	6.0527	6.0311	1.0036	0.3168	-5.8393	17.9447
MKTIND	0.0000	0.0001	-0.1272	0.8989	-0.0003	0.0003

APPENDIX 6: RAW DATA

TEST DATA - 1998-2006

NO	C-NAME	YEAR	TYPE	NTS	C-ASSETS	NC-ASSETS	T-ASSETS	C-LIAB	LT-LIAB	T- DEBT	EQUITY	T-P-ASSETS	T-INCOME	P-INCOME	RENTAL Y	DEPRECATN	INT-PAYMNT	ITAX-PAYMNT	DIV-PAYMNT	N-PROF
1	(CFS) Gandel Retail Trust (GAN)	1998	1	0	125699	1070819	1196518	53992	219983	273975	922543	1174613	94329	0	92997	3824	15791	9057	62282	78079
2	Abigroup/Abacus prop group	1998	2	0	152279	59078	211357	146920	23896	170816	405418	39108	551696	547388	3630	1379	3630	15202	7029	24015
3	Ariadne Australia Ltd	1998	3	0	34601	11280	45881	17403	9587	26990	31889	11130	52668	25887	22893	2710	752	4959	0	34098
4	Australand Holding (ALZ)/Australian Hotel (AAZ)	1998	2	0	280996	233057	514053	97165	104969	202134	311919	405555	466620	463187	605	551	7224	30663	33106	96430
5	Australian Growth Property (AGH)/Aspen Group (APZ)	1998	1	0	14998	432096	447094	17883	119920	137803	309291	429699	34922	4850	28023	354	2454	8590	22357	24214
6	AV Jennings Home (AVJ)	1998	2	0	252325	84332	336657	145357	66676	212033	214624	262559	459050	456601	0	757	5710	-683	6909	25841
7	Bunning Warehouses (BWP)/BT Prop	1998	1	0	27412	626841	654253	13999	86270	100269	553984	626500	62068	998	61070	0	4837	0	37570	39684
8	Carringdale Property Ltd (CDP)/Capital Prop Trust (CPL)	1998	1	0	4946	384343	389289	86896	297447	384343	494643	379397	33837	120	33717	530	3084	0	27308	27351
9	Cedar Woods Prop Ltd (CWP)	1998	2	0	18964	28050	47014	21538	2295	23833	28322	27746	15242	14949	0	46	914	2203	3320	5882
10	Central Equity Ltd (CEO)	1998	2	0	174798	12634	187432	76738	105896	182634	203798	100006	197127	188766	183	418	5855	4660	9522	38294
11	Centro Property Group (CEP)/Centro Retail (CER)	1998	1	0	5432	542194	547626	32771	134874	167645	379981	533960	61348	0	45494	1961	12661	0	23981	42868
12	CFS Retail Prop Trust (CFX)	1998	1	0	47872	229680	277552	16898	45000	61898	215654	228680	23352	0	22299	601	2616	0	15092	15967
13	Commonwealth Property (CPA)	1998	1	0	8541	491974	500515	11756	121500	133256	367259	491939	64250	227	63992	44	7759	0	33143	34342
14	Devine Ltd (DVN)	1998	2	0	88095	50693	138788	64813	24047	88860	99284	125461	232861	231899	0	1207	3857	5305	6201	21770
15	Diversified United Investment Ltd (DUI)	1998	3	0	17022	71659	88681	6391	44238	50629	58052	76257	42371	16846	24480	3569	189	222	3998	10577
16	Equity Trustees Ltd (EQT)	1998	1	0	3529	11727	15256	3077	11048	14125	18131	14164	12284	1304	10680	275	0	1537	2054	5357
17	Flexi property Trust (FPF)/ Internat Equity Corp (IEQ)	1998	1	0	4158	7351	11509	2960	6468	9428	12081	10312	10402	1808	6168	0	43	0	6061	8798
18	Forest Place Group Ltd (FPG)	1998	3	0	7351	72266	79617	5267	16370	21637	57980	59914	18885	10751	4882	314	750	0	4330	6339
19	General Prop Trust (GPT)	1998	1	0	69400	3992000	4061400	197000	3552300	3749300	5943005	3747000	413400	22000	362100	22100	22100	85800	258	314900
20	Grand Hotel Group (GHG)	1998	1	0	14094	277783	291877	11144	92620	103764	188113	265330	78159	984	75015	2721	4123	1148	15521	25659
21	Henry Walker Eltin Grp Ltd (HWE)	1998	2	0	201075	203716	404791	167506	94002	261508	343282	327052	749098	706914	0	37902	8170	12617	10749	80830
22	Hudson Investment Group Ltd (HGL)	1998	2	0	85640	47352	132992	70325	51001	121326	138166	34798	183198	177626	0	2176	3209	1356	940	8207
23	Ipoh Ltd (IPH)IPG/Desane Group Holding (DGH)	1998	1	0	3899	447679	451578	20837	158098	178935	272643	441938	45626	5756	37866	812	8948	9052	14023	24906
24	Land Lease Corp Ltd (LLC)	1998	3	0	1408400	5074500	6482900	1463700	1781800	3245500	3273400	2245800	3441900	2134000	2811300	12400	52200	49300	258300	477800
25	Leighton Holdings Ltd (LEI)	1998	2	0	862009	786799	1648808	663530	394684	1058214	1095594	741944	3034546	3010205	0	123554	7603	69932	94695	287182
26	Macmahon Holding Ltd (MAH)	1998	2	0	135628	282104	417732	146915	127183	274098	314636	258967	485571	471828	133	44344	13923	6515	9881	82956
27	Macquarie Countrywide (MCW)	1998	3	0	215216	137661	352877	14121	40000	54121	98756	127805	15596	7155	8441	0	2734	0	16822	147739
28	Macquarie Leisure (MLE)	1998	1	0	21616	363785	385401	10318	210770	221088	354066	363785	42486	853	41645	0	4504	135	22391	29038
29	Mirvac Group Ltd (MRG)	1998	2	0	8824	593023	601847	106196	74000	180196	421651	591376	54994	50102	4131	870	2431	8405	22381	37160
30	Phileo Australia (PHI/PHT)	1998	1	0	2699	87716	90415	1831	40500	42331	48084	87716	7462	79	7383	0	2008	0	3421	3922
31	Primelife Corporation (PLF)	1998	1	0	19198	641626	660824	35372	133024	168396	492428	636739	48938	1067	47276	0	4739	0	33158	47694
32	Stockland Trust Group (SGP)	1998	3	0	213304	911584	1124888	71734	132439	204173	920715	896459	214694	93733	98849	965	6558	36215	25234	33524
33	Sunland Group Ltd (SDG)	1998	2	0	126962	21892	148854	98784	14056	112840	136014	129460	89382	88079	1177	1820	5269	4878	4212	20765
34	Thakral Holdings Grp (THG)	1998	2	0	47032	537469	584501	35210	224542	259752	324749	496203	207106	204684	0	6461	16934	0	23662	49248
35	Timbercorp Primary Infrastructure(TPF)/Timbercorp Ltd (TIM)	1998	2	0	46350	97941	144291	7649	54675	62324	81967	83901	78244	74162	3	1	138	0	2399	7681
36	Tyndal Meridian Trust (TMT)/JF Meridian Trust (JFM)	1998	3	0	5542	48431	53973	2754	39885	42639	51334	48350	153875	38913	56633	4465	814	11802	6363	24512
37	Villa World Ltd (VWD)/MFS Diversified Group (MFT)	1998	1	0	85711	15320	101031	4636	91632	96268	114763	14979	142486	68	137898	0	1838	6561	9240	14967
38	Westfield Holdings Ltd (WSF)	1998	2	0	159279	1024942	1184221	230992	592962	823954	860267	988011	653982	554523	653982	8763	33972	35389	52179	369066
39	Westpac Office Trust (WOT).Westpac First Trust (WBK)	1998	1	0	460	53880	54340	2535	10765	13300	41040	5388	4838	0	4471	0	577	0	1283	3225
40	(CFS) Gandel Retail Trust (GAN)	1999	1	0	38517	1661983	1700500	127048	290885	417933	1282567	1661842	160960	0	157483	4481	21614	0	65338	105633
41	Abigroup/Abacus prop group	1999	1	0	145528	745653	891181	157153	12174	169327	508540	172937	704679	695427	0	2653	5858	6046	6107	32060
42	Ariadne Australia Ltd	1999	1	0	36889	32596	69485	31544	10006	41550	52929	46161	36626	2527	31182	1703	442	86	0	2105
43	Australand Holding (ALZ)/Australian Hotel (AAZ)	1999	2	0	433681	230186	663867	156321	112378	268699	345168	596552	487331	482102	28874	649	9996	37640	40657	115610
44	Australian Growth Property (AGH)/Aspen Group (APZ)	1999	1	0	17229	509754	526983	8953	215206	224159	302824	507860	33735	3082	27768	482	3023	7644	24248	24739
45	AV Jennings Home (AVJ)	1999	2	0	281328	49107	330435	130789	62002	192791	237644	318562	544789	541874	0	1349	5705	159	8684	30415

46	Bunning Warehouses (BWP)/BT Prop	1999	1	0	1187	286797	287984	9440	92689	102129	185855	287984	23073	687	22386	0	4509	0	10831	24368
47	Carringdale Property Ltd (CDP)/Capital Prop Trust (CPL)	1999	1	0	4145	353697	357842	7258	301139	308397	394457	224620	32633	85	32548	0	3289	0	26482	29754
48	Cedar Woods Prop Ltd (CWP)	1999	2	0	19601	27956	47557	20428	21727	42155	65348	43825	23370	23324	0	32	1160	1951	687	8857
49	Central Equity Ltd (CEO)	1999	2	0	219681	14613	234294	105524	115932	221456	238381	162224	135213	130263	0	440	3193	29327	11260	48220
50	Centro Property Group (CEP)/Centro Retail (CER)	1999	2	0	6738	789652	796390	35562	307794	343356	453034	778362	80950	73007	0	624	17243	15189	24445	49345
51	CFS Retail Prop Trust (CFX)	1999	1	0	2697	1289551	1292248	31526	243000	274526	1017722	1289551	152888	19741	132133	0	11446	0	78520	105776
52	Commonwealth Property (CPA)	1999	1	0	15612	754794	770406	178360	231218	409578	460828	178360	78956	2607	75878	0	645	0	45952	80262
53	Devine Ltd (DVN)	1999	2	0	70372	42203	112575	37108	23320	60428	62147	96412	275572	274466	0	1389	2712	4676	5755	13961
54	Diversified United Investment Ltd (DUI)	1999	3	0	19680	98935	118615	4221	104326	108547	136943	91830	24574	13203	9811	0	0	804	4274	10662
55	Equity Trustees Ltd (EQT)	1999	1	0	2184	11920	14104	2625	3615	6240	14586	13224	12322	0	9848	285	23	1377	2054	4098
56	Flexi property Trust (FPF)/ Internat Equity Corp (IEQ)	1999	1	0	1312	76528	77840	2444	30557	33001	75396	76300	8190	0	6140	0	25	0	6925	7613
57	Forest Place Group Ltd (FPG)	1999	1	0	11051	76725	87776	6902	19450	26352	61365	74936	18765	0	15243	497	150	1591	2945	6267
58	General Prop Trust (GPT)	1999	3	0	168200	4611500	4779700	450900	473000	923900	3855800	4347100	628400	175500	424100	0	35100	0	282700	310300
59	Grand Hotel Group (GHG)	1999	1	0	14934	439383	454317	14209	163962	178171	276146	434159	111672	0	108910	5343	11352	6263	22703	38513
60	Henry Walker Eltin Grp Ltd (HWE)	1999	2	0	275705	440986	716691	270532	189538	460070	525621	547305	847834	717156	0	46295	11895	9290	11051	90532
61	Hudson Investment Group Ltd (HGL)	1999	2	0	113409	86177	199586	90620	28324	118944	180642	161636	261781	240556	26500	3758	3311	2763	1385	21395
62	Ipoh Ltd (IPH)IPG/Desane Group Holding (DGH)	1999	3	0	27832	499730	527562	22938	234875	257813	269751	518431	64768	16125	46064	918	13019	7902	16418	38482
63	Land Lease Corp Ltd (LLC)	1999	1	0	2241200	5050000	7291200	2451900	1370500	3822400	3868800	3613200	4120400	263600	3282600	36900	71200	90900	281800	614200
64	Leighton Holdings Ltd (LEI)	1999	2	0	860125	715869	1575994	212132	230984	443116	632878	993211	3327878	3219545	0	203152	6976	67622	90246	391946
65	Macmahon Holding Ltd (MAH)	1999	2	0	111284	276011	387295	11685	149916	161601	221054	256572	519588	487369	29056	40373	12485	0	0	65440
66	Macquarie Countrywide (MCW)	1999	1	0	20056	643303	663359	80740	157595	238335	425024	643303	58629	6304	58629	0	7468	0	39084	46392
67	Macquarie Leisure (MLE)	1999	1	0	4161	138141	142302	7798	37271	45069	97233	136953	17269	3040	14229	0	929	0	4803	10636
68	Mirvac Group Ltd (MRG)	1999	1	0	243370	1794582	2037952	108926	555191	664117	1373835	1730130	792551	0	784619	7113	44395	3217	89845	195538
69	Phileo Australia (PHI/PHT)	1999	1	0	7127	168167	175294	3173	127021	130194	245100	1681670	15354	269	15085	0	2174	15510	9225	18837
70	Primelife Corporation (PLF)	1999	3	0	95326	149369	244695	72935	92286	165221	195401	97201	80386	56660	23726	1603	2562	22743	13469	2420
71	Stockland Trust Group (SGP)	1999	3	0	252597	1025808	1278405	74204	740520	814724	1130149	1178920	227150	92300	110303	1495	7129	8832	99508	118210
72	Sunland Group Ltd (SDG)	1999	2	0	70035	40283	110318	37659	29231	66890	84328	38439	119514	118642	672	864	1765	5919	2268	19149
73	Thakral Holdings Grp (THG)	1999	2	0	41652	561634	603286	41591	214123	255714	347572	560529	215605	207851	18500	1643	13396	0	25993	46079
74	Timbercorp Primary Infrastructure(TPF)/Timbercorp Ltd (TIM)	1999	3	0	53372	326777	380149	68544	175889	244433	253716	117988	169902	57616	112286	2278	9885	11174	15978	25356
75	Tyndal Meridian Trust (TMT)/JF Meridian Trust (JFM)	1999	3	0	25132	317349	342481	13929	284516	298445	328552	223317	32746	3274	17342	0	1820	16018	18496	20035
76	Villa World Ltd (VWD)/MFS Diversified Group (MFT)	1999	1	0	101340	19135	120475	65470	17339	82809	93371	101530	141685	0	137411	264	1872	6505	9240	9728
77	Westfield Holdings Ltd (WSF)	1999	2	0	185342	1129898	1315240	250961	572457	823418	914822	1054848	872696	782892	872696	11098	34706	42002	64320	350598
78	Westpac Office Trust (WOT).Westpac First Trust (WBK)	1999	1	0	893	72670	73563	5187	19823	25010	48553	7267	5970	0	5565	0	1026	0	3104	4598
79	(CFS) Gandel Retail Trust (GAN)	2000	1	0	27614	1776240	1803854	80489	434738	515227	1369116	1774685	183091	0	181463	118	19621	0	56679	149648
80	Abigroup/Abacus prop group	2000	1	0	181010	133215	314225	189745	66315	256060	581652	126315	722221	58165	664056	10045	9757	266821	705654	730600
81	Ariadne Australia Ltd	2000	3	0	67688	42436	110124	39855	12757	52612	57512	12757	94769	57512	37257	1234	382	82804	68176	29759
82	Australand Holding (ALZ)/Australian Hotel (AAZ)	2000	2	0	839239	49755	888994	397314	455842	853156	855602	455842	661371	655602	5769	13738	52877	128668	925700	914790
83	Australian Growth Property (AGH)/Aspen Group (APZ)	2000	2	0	5367	534544	539911	20523	215736	236259	303652	215736	334479	303652	30827	269	3925	533943	33967	35974
84	AV Jennings Home (AVJ)	2000	2	0	308329	33776	342105	128626	65820	194446	247659	65820	147659	147659	0	3349	6299	257750	650880	645893
85	Bunning Warehouses (BWP)/BT Prop	2000	1	0	426	348291	348717	12884	80702	93586	255131	348291	28893	1931	26962	0	4961	0	4961	33129
86	Carringdale Property Ltd (CDP)/Capital Prop Trust (CPL)	2000	1	0	8381	223714	232095	10513	31400	41913	190182	223714	19914	62	19852	0	2583	0	8381	10808
87	Cedar Woods Prop Ltd (CWP)	2000	2	0	11232	24859	36091	10304	21540	31844	45246	21540	25504	25246	258	44	699	30670	29850	21527
88	Central Equity Ltd (CEO)	2000	2	0	267348	14246	281594	125618	27020	152638	189562	270200	134074	128956	5118	608	4725	226543	218474	209415
89	Centro Property Group (CEP)/Centro Retail (CER)	2000	2	0	22108	981054	1003162	44803	316241	361044	642118	316241	725256	642118	83138	810	18341	96893	94948	98735
90	CFS Retail Prop Trust (CFX)	2000	1	0	3228	1383896	1387124	220085	1250008	1470093	1829693	1383896	139089	0	138552	0	11277	0	82100	51263
91	Commonwealth Property (CPA)	2000	1	0	16260	892732	908992	238064	532128	770192	881306	770192	91275	4419	86344	0	873	0	53777	74789
92	Devine Ltd (DVN)	2000	2	0	66301	48053	114354	48458	15587	64045	65309	15587	50620	50309	311	2301	3041	87062	227444	226822
93	Diversified United Investment Ltd (DUI)	2000	2	0	37005	93550	130555	19321	87843	107164	210356	87835	125360	110356	15004	0	12373	101732	42039	27035
94	Equity Trustees Ltd (EQT)	2000	1	0	3620	132079	135699	2108	117680	119788	135952	110182	11341	0	10742	296	288	1257	2111	3611
95	Flexi property Trust (FPF)/ Internat Equity Corp (IEQ)	2000	1	0	1983	106696	108679	2875	27700	30575	78100	106388	10802	0	8330	0	1241	0	6199	87742
96	Forest Place Group Ltd (FPG)	2000	1	0	12187	85962	98149	9102	20875	29977	68171	84364	27054	0	26792	533	1474	2188	2288	2285
97	General Prop Trust (GPT)	2000	1	0	106600	5361000	5467600	529000	4152000	4681000	5523600	5076400	525100	0	481000	0	54200	0	150900	317500
98	Grand Hotel Group (GHG)	2000	1	0	23177	488520	511697	18706	237627	256333	274402	48610	133647	0	131111	4043	6911	0	22197	20494
99	Henry Walker Eltin Grp Ltd (HWE)	2000	3	0	348639	444393	793032	295008	242603	537611	554212	242603	423767	255421	168346	75818	15248	593155	11069	88271

100	Hudson Investment Group Ltd (HGL)	2000	2	0	86309	182850	269159	94338	79450	173788	195371	79450	95371	95371	0	6809	6140	215720	316391	316014
101	Ipoh Ltd (IPH)IPG/Desane Group Holding (DGH)	2000	3	0	35089	572421	607510	34888	225773	260661	346849	225773	407665	346849	60816	1111	13427	5456	7082	78811
102	Land Lease Corp Ltd (LLC)	2000	3	0	6266000	4675900	10941900	2799600	1835700	4635300	5306600	1835700	8892200	5306600	3585600	756200	127800	255030	129968	877440
103	Leighton Holdings Ltd (LEI)	2000	3	0	1079074	650247	1729321	826547	217884	1044431	1064890	217884	922933	684890	238043	248847	10741	718470	357364	310578
104	Macmahon Holding Ltd (MAH)	2000	3	0	99459	226766	326225	15890	125531	141421	175200	125531	98647	75200	23447	41299	12471	207352	461151	434282
105	Macquarie Countrywide (MCW)	2000	1	0	30656	758370	789026	122574	158008	280582	508444	758370	72043	4738	67305	0	13355	0	50117	54246
106	Macquarie Leisure (MLE)	2000	1	0	4131	144578	148709	7203	42255	49458	99251	143289	16500	925	17058	0	1504	0	5114	12542
107	Mirvac Group Ltd (MRG)	2000	2	0	247289	1992082	2239371	161884	464279	626163	1613208	464279	1635497	1613208	22289	4164	31825	210336	87804	855758
108	Phileo Australia (PHI/PHT)	2000	1	0	3731	180099	183830	3578	136300	139878	143952	180099	16436	215	16221	0	2007	9836	10211	11740
109	Primelife Corporation (PLF)	2000	3	0	125619	210951	336570	72242	159401	231643	304927	137692	137803	86303	51500	2861	7529	24751	16474	16280
110	Stockland Trust Group (SGP)	2000	2	0	452189	1230898	1683087	148653	980982	1129635	1523908	292209	1251193	1250854	339	780	6071	126272	308739	125256
111	Sunland Group Ltd (SDG)	2000	2	0	126128	104724	230852	148653	29809	178462	235907	101498	147742	147310	339	780	6071	5581	3240	24627
112	Thakral Holdings Grp (THG)	2000	2	0	74850	611687	686537	48779	268841	317620	368917	268841	373502	368917	4585	7527	14456	646399	262274	240265
113	Timbercorp Primary Infrastructure(TPF)/Timbercorp Ltd (TIM)	2000	3	0	65177	357186	422363	67587	152137	219724	226390	316969	159440	52897	106543	3997	9483	11021	1904	22800
114	Tyndal Meridian Trust (TMT)/JF Meridian Trust (JFM)	2000	2	0	6068	373658	379726	18526	284710	303236	332729	144578	359336	332729	26607	0	58	35694	26607	32588
115	Villa World Ltd (VWD)/MFS Diversified Group (MFT)	2000	1	0	138899	38965	177864	105131	31739	136870	171359	57346	75071	3712	71359	316	2332	13642	16157	15354
116	Westfield Holdings Ltd (WSF)	2000	3	0	179698	1302477	1482175	283627	558667	842294	936881	558667	1508726	53558	1455168	0	47291	44053	68797	201885
117	Westpac Office Trust (WOT).Westpac First Trust (WBK)	2000	1	0	999	80496	81495	4423	23398	27821	53674	23398	60778	7104	53674	0	1570	8049	7587	-375
118	(CFS) Gandel Retail Trust (GAN)	2001	1	1	32999	1892157	1925156	193879	244139	438018	1487138	1244139	196470	0	194485	0	22920	0	48491	169879
119	Abigroup/Abacus prop group	2001	3	1	156312	187897	344209	167520	70006	237526	306683	70006	143229	106683	36546	7418	7734	226464	749242	710062
120	Ariadne Australia Ltd	2001	3	1	134954	28099	163053	92528	19254	111782	151271	19254	101334	51271	50063	1561	1478	64232	127573	68953
121	Australand Holding (ALZ)/Australian Hotel (AAZ)	2001	2	1	762509	783533	1546042	402933	457463	860396	865646	457463	698900	685646	13254	10002	26258	131815	1252785	1234981
122	Australian Growth Property (AGH)/Aspen Group (APZ)	2001	2	1	5264	471216	476480	26196	150809	177005	299475	150809	303091	299475	3616	183	13976	466560	137747	92130
123	AV Jennings Home (AVJ)	2001	2	1	217253	98390	315643	76978	75594	152572	163071	75594	163071	163071	0	7036	5725	286451	546892	544403
124	Bunning Warehouses (BWP)/BT Prop	2001	1	1	1187	286797	287984	9440	92689	102129	185855	247656	25589	0	25589	0	4509	0	10831	7826
125	Carringdale Property Ltd (CDP)/Capital Prop Trust (CPL)	2001	1	1	2512	224620	227132	10001	133900	143901	183231	224262	20929	0	20929	0	2507	0	10619	11046
126	Cedar Woods Prop Ltd (CWP)	2001	2	1	23582	20927	44509	14233	22986	37219	47978	12298	27978	27978	0	41	358	28477	20441	20341
127	Central Equity Ltd (CEO)	2001	2	1	318166	16109	334275	187048	9450	196498	237777	16109	138577	137777	800	726	413	270307	211408	200092
128	Centro Property Group (CEP)/Centro Retail (CER)	2001	3	1	34622	460858	495480	7115	397132	404247	491233	397132	177289	91233	86056	1549	33710	338427	96808	93219
129	CFS Retail Prop Trust (CFX)	2001	1	1	15560	530243	545803	23139	339346	362485	383318	528844	68445	9859	58586	0	9167	0	29024	28588
130	Commonwealth Property (CPA)	2001	1	1	15612	754974	770586	32360	146000	178360	592466	702271	78956	0	81843	0	8284	0	43754	45952
131	Devine Ltd (DVN)	2001	2	1	100357	26326	126683	69042	15376	84418	422265	15376	422265	422265	0	3181	7802	106157	227318	199228
132	Diversified United Investment Ltd (DUI)	2001	2	1	18672	128156	146828	25923	26697	52620	120131	26697	144000	120131	23869	0	1111	128034	36464	12595
133	Equity Trustees Ltd (EQT)	2001	1	1	6426	9887	16313	2788	6793	9581	9865	6795	11349	0	10754	298	298	1287	2312	3671
134	Flexi property Trust (FPF)/ Internat Equity Corp (IEQ)	2001	1	1	1885	108332	110217	2703	26800	29503	80709	26800	10802	0	8330	0	1241	0	6199	87742
135	Forest Place Group Ltd (FPG)	2001	1	1	8212	89691	97903	6797	18590	25387	72303	18590	27054	0	26792	533	1474	2188	2288	2285
136	General Prop Trust (GPT)	2001	1	1	133700	6210100	6343800	1050100	4515000	5565100	5838700	4550000	696000	123200	515200	0	54400	0	179600	362800
137	Grand Hotel Group (GHG)	2001	1	1	27963	566898	594861	92561	267142	359703	413158	267142	154918	1315	147965	4191	7917	0	25797	-13447
138	Henry Walker Eltin Grp Ltd (HWE)	2001	2	1	382994	464268	847262	236392	351372	587764	594982	351372	306501	259498	47003	0	25054	665284	11428	109581
139	Hudson Investment Group Ltd (HGL)	2001	2	1	107798	204582	312380	112443	103538	215981	269399	103538	97978	96399	1579	4175	9350	258661	277627	246459
140	Ipoh Ltd (IPH)IPG/Desane Group Holding (DGH)	2001	2	1	14920	567014	581934	6391	267656	274047	307887	267656	358783	307887	50896	615	16957	5604	7317	89101
141	Land Lease Corp Ltd (LLC)	2001	3	1	4278100	4848700	9126800	3634700	1824700	5459400	5667400	1824700	13664200	3667400	9996800	128200	162900	405160	114538	568900
142	Leighton Holdings Ltd (LEI)	2001	2	1	1324178	725982	2050160	1024938	284933	1309871	1740289	284933	4718386	3938137	780249	101183	11560	136485	439325	249001
143	Macmahon Holding Ltd (MAH)	2001	2	1	72683	158316	230999	111784	76850	188634	242365	76850	42502	42365	137	32401	13732	125373	411170	375648
144	Macquarie Countrywide (MCW)	2001	1	1	20056	643303	663359	80740	157595	238335	425024	615452	54363	0	53717	0	12417	0	17424	38161
145	Macquarie Leisure (MLE)	2001	1	1	4161	138141	142302	7798	37271	45069	97233	109465	13143	0	16776	26332	2307	0	9639	-17204
146	Mirvac Group Ltd (MRG)	2001	2	1	317632	2042515	2360147	139075	561322	700397	1659750	561322	2006993	1659750	347243	3964	32758	222990	83934	491753
147	Phileo Australia (PHI/PHT)	2001	1	1	1497	19425	20922	8942	10354	19296	24286	159440	19477	0	19477	0	7138	0	9738	6783
148	Primelife Corporation (PLF)	2001	2	1	95326	149369	244695	72935	92286	165221	179474	88710	88132	82420	5712	1593	2562	23458	0	2420
149	Stockland Trust Group (SGP)	2001	2	1	609843	2776390	3386233	73858	1801332	1875190	2597653	1488393	2430197	2409184	21013	4430	8259	248983	631454	287097
150	Sunland Group Ltd (SDG)	2001	3	1	75278	139358	214636	88656	98393	187049	209184	81013	315213	59765	255448	2685	44171	110010	127857	105816
151	Thakral Holdings Grp (THG)	2001	3	1	123120	660993	784113	68906	326930	395836	488277	326930	607592	388277	219315	10297	24837	102569	292106	71704
152	Timbercorp Primary Infrastructure(TPF)/Timbercorp Ltd (TIM)	2001	1	1	53372	326777	380149	68544	175889	244433	313571	189361	169902	0	112286	2278	1589	11171	15978	26060
153	Tyndal Meridian Trust (TMT)/JF Meridian Trust (JFM)	2001	2	1	34026	383040	417066	20716	57566	78282	338793	57566	391845	338793	53052	0	4566	338397	60787	65213

154	Villa World Ltd (VWD)/MFS Diversified Group (MFT)	2001	2	1	153072	32026	185098	123286	18848	142134	159928	31884	61535	59928	1607	13416	6779	15594	17167	16759
155	Westfield Holdings Ltd (WSF)	2001	3	1	297779	1952114	2249893	268124	1235961	1504085	1745809	1235961	1279848	13000	1266848	15722	67146	52570	79057	182107
156	Westpac Office Trust (WOT).Westpac First Trust (WBK)	2001	1	1	9010	89308	98318	4289	86580	90869	98763	65800	67155	7815	59340	0	1827	8285	9656	1808
157	(CFS) Gandel Retail Trust (GAN)	2002	1	1	40334	2124014	2164348	269921	1264042	1533963	1630385	2124014	202209	0	199133	564	21875	0	54843	168625
158	Abigroup/Abacus prop group	2002	2	1	139426	179217	318643	139279	64900	204179	214464	64900	137355	114464	22891	12813	6864	129805	584595	556465
159	Ariadne Australia Ltd	2002	3	1	82120	26505	108625	42680	11784	54464	56141	11784	113001	54161	58840	1676	1807	65981	85811	92687
160	Australand Holding (ALZ)/Australian Hotel (AAZ)	2002	2	1	756357	806520	1562877	374313	409971	784284	859377	409971	778598	778598	0	10509	39188	131277	1185883	1138486
161	Australian Growth Property (AGH)/Aspen Group (APZ)	2002	2	1	22863	457600	480463	8634	157691	166325	314138	157691	347388	314138	33250	6081	12766	439622	84760	49366
162	AV Jennings Home (AVJ)	2002	2	1	261775	131589	393364	133851	42550	176401	216963	42550	171963	171963	0	5911	3513	338904	465963	460395
163	Bunning Warehouses (BWP)/BT Prop	2002	1	1	426	348291	348717	12884	280702	293586	325131	348291	31939	0	31939	0	4961	0	13034	32045
164	Carringdale Property Ltd (CDP)/Capital Prop Trust (CPL)	2002	1	1	1498	225054	226552	9436	201380	210816	256684	225054	21891	0	21891	0	2172	0	11455	11445
165	Cedar Woods Prop Ltd (CWP)	2002	2	1	24913	25350	50263	18751	21257	40008	41255	21257	29048	29006	42	42	280	49793	26232	26113
166	Central Equity Ltd (CEO)	2002	2	1	377586	15412	392998	212749	21403	234152	258846	214030	159076	158846	230	698	6884	356817	221223	209292
167	Centro Property Group (CEP)/Centro Retail (CER)	2002	2	1	49154	1531715	1580869	76991	444416	521407	1059462	444416	1174461	1059462	114999	1374	29841	152738	133007	134695
168	CFS Retail Prop Trust (CFX)	2002	1	1	16040	681375	697415	29266	218898	248164	449251	676221	73876	8557	65319	0	8612	0	39425	34989
169	Commonwealth Property (CPA)	2002	2	1	16260	892732	908992	38064	202000	240064	668928	833306	928462	833306	95156	0	10818	0	49758	53955
170	Devine Ltd (DVN)	2002	2	1	122657	54654	177311	86205	34832	121037	156274	34832	59608	56274	3334	2108	7583	144223	379491	374399
171	Diversified United Investment Ltd (DUI)	2002	2	1	6798	214808	221606	29655	189535	219190	241683	187350	198726	191116	7610	0	1424	214669	46628	35247
172	Equity Trustees Ltd (EQT)	2002	3	1	7618	11619	19237	4170	10575	14745	15943	9757	38242	13992	24250	721	190	12943	24240	26784
173	Flexi property Trust (FPF)/ Internat Equity Corp (IEQ)	2002	1	1	3727	132913	136640	1987	44870	46857	89783	132913	21089	0	15220	5720	2259	3920	3887	20791
174	Forest Place Group Ltd (FPG)	2002	1	1	15188	83240	98428	11284	20956	32240	66188	73278	12752	0	11402	2835	1553	0	0	4358
175	General Prop Trust (GPT)	2002	3	1	98500	6598100	6696600	618000	1005000	1623000	5073600	6528100	827700	187300	568500	0	70100	0	0	456200
176	Grand Hotel Group (GHG)	2002	1	1	26459	542478	568937	24815	332475	357290	411647	540118	157151	0	114393	11632	21926	0	6364	33558
177	Henry Walker Eltin Grp Ltd (HWE)	2002	1	1	374287	393571	767858	210517	323919	534436	633422	323919	1343298	233422	1109876	83925	23062	303552	11555	34630
178	Hudson Investment Group Ltd (HGL)	2002	3	1	134597	160787	295384	131492	95076	226568	268816	95076	99615	68816	30799	3628	13722	136965	366618	281457
179	Ipoh Ltd (IPH)IPG/Desane Group Holding (DGH)	2002	2	1	33949	493513	527462	27292	234924	262216	285246	234924	316141	265245	50896	1254	18784	5112	9860	34752
180	Land Lease Corp Ltd (LLC)	2002	3	1	4014800	4572100	8586900	3244900	1589900	4834800	5752100	1589900	4876190	3754100	1122090	151400	83800	441140	124780	818800
181	Leighton Holdings Ltd (LEI)	2002	3	1	1446227	871547	2317774	157496	753223	910719	1794546	5732	5379959	794546	4585413	6037	7130	147213	503484	408541
182	Macmahon Holding Ltd (MAH)	2002	2	1	71512	136609	208121	110974	47709	158683	249438	47709	49478	49438	40	27442	9917	146748	446872	432016
183	Macquarie Countrywide (MCW)	2002	1	1	30656	758370	789026	122574	458008	580582	608444	708178	61303	0	61303	0	13355	0	25974	46989
184	Macquarie Leisure (MLE)	2002	1	1	4131	144578	148709	7203	42255	49458	99251	129049	18527	0	18527	0	3405	0	9857	10022
185	Mirvac Group Ltd (MRG)	2002	2	1	309690	2467515	2777205	179347	868367	1047714	1729491	868367	1740976	1729491	11485	5940	34022	23165	102745	1010612
186	Phileo Australia (PHI/PHT)	2002	1	1	4392	221338	225730	6724	105544	112268	113462	183807	19039	0	19039	0	7856	0	7755	11468
187	Primelife Corporation (PLF)	2002	2	1	152619	201951	354570	74244	195410	269654	304927	187432	143072	141238	1834	2861	7529	0	8280	16280
188	Stockland Trust Group (SGP)	2002	2	1	385798	2941349	3327147	106564	2947927	3054491	3272656	466795	2684112	2642682	41430	3932	7320	280674	837315	388402
189	Sunland Group Ltd (SDG)	2002	1	1	119116	153315	272431	21767	46679	68446	203985	94727	362092	71140	290952	4474	38376	107797	205666	162276
190	Thakral Holdings Grp (THG)	2002	3	1	153611	603920	757531	56162	317285	373447	384084	317285	601355	384084	217271	3340	26164	571685	329123	110433
191	Timbercorp Primary Infrastructure(TPF)/Timbercorp Ltd (TIM)	2002	1	1	65177	357186	422363	67587	152137	219724	223639	208969	126373	0	126373	3997	112286	11023	1904	26843
192	Tyndal Meridian Trust (TMT)/JF Meridian Trust (JFM)	2002	2	1	33438	418055	451493	14266	102566	116832	334661	102566	416215	375310	40905	4295	6557	302530	79532	30718
193	Villa World Ltd (VWD)/MFS Diversified Group (MFT)	2002	3	1	108509	53319	161828	96265	51093	147358	174740	1593	273259	63970	209289	409	6329	13648	21568	4735
194	Westfield Holdings Ltd (WSF)	2002	2	1	269800	2943511	3213311	271178	1482702	1753880	2459431	2678550	1084660	117949	966711	23934	66751	54342	91605	77472
195	Westpac Office Trust (WOT).Westpac First Trust (WBK)	2002	1	1	937	9644	10581	4959	2823	7782	12799	8238	9542	642	8900	0	169	955	892	897
196	(CFS) Gandel Retail Trust (GAN)	2003	1	1	26668	3153622	3180290	145269	658331	803600	2376690	3130275	281874	0	277576	3405	31208	0	173138	154803
197	Abigroup/Abacus prop group	2003	3	1	116161	298034	414195	55786	67828	123614	290581	224881	140745	98863	30038	1660	10737	3277	25900	33808
198	Ariadne Australia Ltd	2003	3	1	40486	52921	93407	25105	11821	36926	56481	44156	101501	29355	66408	1238	1721	0	1819	4139
199	Australand Holding (ALZ)/Australian Hotel (AAZ)	2003	1	1	874178	1133879	2008057	605278	407971	1013249	1094808	1040096	1405369	23032	1385583	7915	55295	71819	56698	96447
200	Australian Growth Property (AGH)/Aspen Group (APZ)	2003	2	1	4239	66632	70871	232	29009	29241	37389	62370	20540	15950	4222	556	2189	0	801	2200
201	AV Jennings Home (AVJ)	2003	2	1	294657	147378	442035	114438	105338	219776	222259	141241	527275	525821	321	0	4979	13968	23675	56753
202	Bunning Warehouses (BWP)/BT Prop	2003	1	1	5026	466539	471565	19645	149278	168923	302642	466539	35935	2112	33693	0	6679	0	26334	29822
203	Carringdale Property Ltd (CDP)/Capital Prop Trust (CPL)	2003	2	1	2002	225054	227056	9140	134600	143740	183316	225054	23336	23273	63	0	2288	0	11908	12301
204	Cedar Woods Prop Ltd (CWP)	2003	2	1	23856	42962	66818	27637	38355	65992	96826	41563	40852	36864	3988	232	261	3757	2471	7135
205	Central Equity Ltd (CEO)	2003	2	1	496210	17441	513651	292953	36901	329854	383797	55676	272259	272259	0	1153	513	1909	14108	32777
206	Centro Property Group (CEP)/Centro Retail (CER)	2003	3	1	376914	1934512	2311426	116361	489594	605955	1705471	1907009	499252	307900	191352	1517	34948	0	47607	126262
207	CFS Retail Prop Trust (CFX)	2003	1	1	45656	3767384	3813040	165562	1017621	1183183	2629857	3746793	333403	164954	325901	4540	42812	0	187538	180613

208	Commonwealth Property (CPA)	2003	3	1	52834	2151413	2204247	108642	440655	549297	1654950	1739367	702212	503968	184833	0	27350	0	141062	171280
209	Devine Ltd (DVN)	2003	2	1	114314	93889	208203	123707	37057	160764	174439	73503	100577	97643	0	0	1798	7012	7970	13069
210	Diversified United Investment Ltd (DUI)	2003	3	1	10138	193257	203395	25072	189267	214339	271746	293091	39369	26140	13229	0	1344	69	0	7372
211	Equity Trustees Ltd (EQT)	2003	1	1	4893	13568	18461	2385	13069	15454	17007	12218	16348	0	16348	386	665	0	1425	-3059
212	Flexi property Trust (FPF)/ Internat Equity Corp (IEQ)	2003	3	1	34299	78420	112719	3397	20000	23397	89322	78420	71082	54600	12784	919	3997	0	6243	4818
213	Forest Place Group Ltd (FPG)	2003	3	1	13128	73416	86544	13481	18681	32162	54382	44643	13797	6291	0	1234	1583	0	1380	3381
214	General Prop Trust (GPT)	2003	1	1	104600	7590500	7695100	1027600	1352000	2379600	5315500	7478900	721600	41200	605900	0	80200	0	413300	420200
215	Grand Hotel Group (GHG)	2003	1	1	31002	505010	536012	297427	446384	743811	992201	500014	171315	17282	135174	131	24235	135	806	-26305
216	Henry Walker Eltin Grp Ltd (HWE)	2003	2	1	303493	367856	671349	223835	243812	467647	503702	295102	1081500	1071573	54158	0	19947	13836	0	24516
217	Hudson Investment Group Ltd (HGL)	2003	1	1	33399	95421	128820	85284	82897	168181	190639	90997	133069	20961	112108	0	9369	3938	0	-15857
218	Ipoh Ltd (IPH)IPG/Desane Group Holding (DGH)	2003	3	1	22386	235790	258176	66707	155641	222348	358286	181757	413830	245788	51631	3939	37883	7213	13189	18227
219	Land Lease Corp Ltd (LLC)	2003	2	1	3702500	3706400	7408900	2993000	1408300	4401300	5007600	2766700	10113900	9576500	307800	0	66400	140900	80900	707900
220	Leighton Holdings Ltd (LEI)	2003	2	1	1260828	901698	2162526	1002406	289476	1291882	1370644	574736	5620236	4578317	174369	359854	9284	71565	116443	150975
221	Macmahon Holding Ltd (MAH)	2003	2	1	48625	122028	170653	78190	34525	112715	157938	100557	426322	413778	12759	22058	22058	243	0	8479
222	Macquarie Countrywide (MCW)	2003	1	1	35505	982386	1017891	41653	254915	296568	721323	837688	82462	13157	78512	1884	14577	558	62170	85076
223	Macquarie Leisure (MLE)	2003	1	1	3779	159441	163220	8141	44435	52576	110694	142256	21517	720	20797	0	3332	0	10808	20036
224	Mirvac Group Ltd (MRG)	2003	1	1	14320	2015759	2030079	205345	362000	567345	1448414	1996800	205479	17329	205479	6903	25674	40184	107154	112894
225	Phileo Australia (PHI/PHT)	2003	3	1	2477	43536	46013	6322	29116	35438	36896	43132	4098	2905	1058	96	1224	120	0	1214
226	Primelife Corporation (PLF)	2003	3	1	149963	263695	413658	98592	234043	332635	381023	91197	114170	68401	16562	4069	10719	40765	19711	29050
227	Stockland Trust Group (SGP)	2003	2	1	439207	597062	1036269	649322	525339	1174661	1334414	463755	595955	409503	58898	0	9877	25191	39033	58668
228	Sunland Group Ltd (SDG)	2003	2	1	148763	191932	340695	141759	104847	246606	294089	188816	160780	155015	5765	2882	4256	510	15838	2752
229	Thakral Holdings Grp (THG)	2003	3	1	1243	501928	503171	9801	299662	309463	393708	460326	57994	34737	10984	7618	3728	0	34769	30222
230	Timbercorp Primary Infrastructure(TPF)/Timbercorp Ltd (TIM)	2003	1	1	73864	446918	520782	55271	223045	278316	342466	446918	126373	0	126373	5761	13486	13161	7877	30988
231	Tyndal Meridian Trust (TMT)/JF Meridian Trust (JFM)	2003	3	1	93819	467050	560869	84463	226466	310929	419940	359991	76020	46512	46512	1280	8857	0	31221	43574
232	Villa World Ltd (VWD)/MFS Diversified Group (MFT)	2003	1	1	112950	90987	203937	121738	83722	205460	278477	184892	150160	0	146771	585	9602	6569	10291	19639
233	Westfield Holdings Ltd (WSF)	2003	1	1	299509	2822124	3121633	293848	1024616	1318464	1623169	2341850	1915300	56864	1147419	17300	42710	72046	141094	-63093
234	Westpac Office Trust (WOT).Westpac First Trust (WBK)	2003	1	1	2156	54397	56553	1735	20539	22274	34279	45907	21367	0	21084	0	1215	-86	0	-751
235	(CFS) Gandel Retail Trust (GAN)	2004	1	2	45656	3767384	3813040	165562	1017621	1183183	2629857	3746793	333403	0	325901	4540	42812	0	187538	180613
236	Abigroup/Abacus prop group	2004	3	2	130179	285880	416059	109818	134297	244115	271994	198605	118690	73318	22847	2014	8159	193	30359	34725
237	Ariadne Australia Ltd	2004	3	2	38177	65676	103853	22749	21397	44146	59707	57346	101058	22057	75498	1729	1279	0	1969	5160
238	Australand Holding (ALZ)/Australian Hotel (AAZ)	2004	1	2	958975	1323950	2282925	245637	776105	1021742	1261183	1257414	1231017	18190	1181218	8665	76475	72082	64527	145127
239	Australian Growth Property (AGH)/Aspen Group (APZ)	2004	1	2	1764	66624	68388	687	29000	29687	38701	66609	4561	0	4437	1167	1908	0	0	1311
240	AV Jennings Home (AVJ)	2004	2	2	331188	212678	543866	127174	148571	275745	286121	207033	552464	550046	1055	0	7272	28055	22599	68461
241	Bunning Warehouses (BWP)/BT Prop	2004	1	2	6080	575342	581422	24793	155220	180013	401409	575342	44474	1988	42347	0	8366	0	32255	83975
242	Carringdale Property Ltd (CDP)/Capital Prop Trust (CPL)	2004	1	2	3100	263657	266757	10562	36100	46662	220095	263657	24341	0	24267	0	2311	0	12610	49678
243	Cedar Woods Prop Ltd (CWP)	2004	2	2	39546	55171	94717	33950	12935	46885	47832	52995	63728	56991	6737	340	1314	4421	3481	4421
244	Central Equity Ltd (CEO)	2004	2	2	501690	13423	515113	269024	139927	408951	420162	72907	341364	281650	0	1853	531	14449	11204	33567
245	Centro Property Group (CEP)/Centro Retail (CER)	2004	1	2	218079	3298401	3516480	232963	1085377	1318340	2198140	3074857	349767	30665	319102	12208	69017	0	68116	187954
246	CFS Retail Prop Trust (CFX)	2004	1	2	4985	98884	103869	8789	29290	38079	65790	98258	15826	1390	14436	0	185	178	1123	4609
247	Commonwealth Property (CPA)	2004	1	2	242364	2375039	2617403	218407	744570	962977	1654426	2166854	250494	41834	194338	0	44422	0	138792	139120
248	Devine Ltd (DVN)	2004	2	2	132670	187697	320367	119787	118413	238200	322167	168818	402012	376581	0	0	15948	6836	8645	15650
249	Diversified United Investment Ltd (DUI)	2004	3	2	2951	248345	251296	3897	154329	158226	193070	248023	46674	33218	13456	0	1492	121	0	10891
250	Equity Trustees Ltd (EQT)	2004	1	2	9176	12900	22076	2487	13124	15611	18465	2259	19621	0	19621	44	292	952	619	2810
251	Flexi property Trust (FPF)/ Internat Equity Corp (IEQ)	2004	3	2	66962	37850	104812	2047	12500	14547	90265	37850	55748	42500	8223	686	1317	0	6110	5643
252	Forest Place Group Ltd (FPG)	2004	2	2	11314	61070	72384	20532	8666	29198	43186	45083	20734	19970	0	1691	1535	0	2184	-11196
253	General Prop Trust (GPT)	2004	1	2	123300	8973700	9097000	1376600	3627000	5003600	6093400	8866200	780800	20500	660600	0	118700	0	443600	426400
254	Grand Hotel Group (GHG)	2004	3	2	35028	454827	489855	37243	244006	281249	308606	450512	235180	72600	153700	178	22216	223	0	22293
255	Henry Walker Eltin Grp Ltd (HWE)	2004	2	2	421041	307633	728674	255638	477628	733266	751046	251668	1126300	1115364	54497	0	18671	4726	0	15897
256	Hudson Investment Group Ltd (HGL)	2004	3	2	4880	49833	54713	7771	30782	38553	46160	46424	86121	57747	28374	0	7264	28	0	-16351
257	Ipoh Ltd (IPH)IPG/Desane Group Holding (DGH)	2004	3	2	23334	422600	445934	23796	150457	174253	271681	369902	639375	450723	68456	7987	79519	3020	23327	25378
258	Land Lease Corp Ltd (LLC)	2004	2	2	3455000	3675700	7130700	3328000	966800	4294800	4835900	2306800	9725500	8292700	1083200	0	46300	128200	159600	337600
259	Leighton Holdings Ltd (LEI)	2004	2	2	1695568	1049315	2744883	1399218	489750	1888968	2055915	639686	6003824	4834376	91900	291863	18118	39296	122692	122062
260	Macmahon Holding Ltd (MAH)	2004	2	2	85084	161994	247078	78990	68697	147687	199391	126032	381049	344875	10349	23147	23147	638	437	8479
261	Macquarie Countrywide (MCW)	2004	1	2	18883	1338500	1357383	12027	296462	308489	1048894	1056034	104007	28830	96635	597	15575	906	82531	108645

262	Macquarie Leisure (MLE)	2004	3	2	15740	203746	219486	14672	45411	60083	159403	185523	116398	30644	82756	5036	3338	547	6377	46012
263	Mirvac Group Ltd (MRG)	2004	3	2	97060	2210260	2307320	249829	482000	731829	1575491	2205128	292842	62545	229804	6801	32246	43445	72209	125770
264	Phileo Australia (PHI/PHT)	2004	2	2	1452	50323	51775	6506	28330	34836	36939	49997	4919	4443	320	65	1894	12	0	1657
265	Primelife Corporation (PLF)	2004	3	2	128593	272384	400977	14837	228690	243527	257450	46127	94447	53820	18965	15574	11083	106804	23400	78181
266	Stockland Trust Group (SGP)	2004	2	2	399436	982855	1382291	89427	781120	870547	951174	835340	809206	610669	63319	0	14824	43836	67328	100039
267	Sunland Group Ltd (SDG)	2004	2	2	177393	369484	546877	100888	258209	359097	387780	324651	285293	278084	7209	2774	11332	10617	8621	27205
268	Thakral Holdings Grp (THG)	2004	3	2	32308	294502	326810	11112	279809	290921	325211	48008	82196	32650	45895	6972	3927	0	34804	37109
269	Timbercorp Primary Infrastructure(TPF)/Timbercorp Ltd (TIM)	2004	1	2	176034	501437	677471	99616	212652	312268	365203	254249	192914	0	192914	7709	15626	18495	12892	45102
270	Tyndal Meridian Trust (TMT)/JF Meridian Trust (JFM)	2004	3	2	144792	509129	653921	13783	140234	154017	499904	413160	168694	120356	48338	631	8765	0	37628	40735
271	Villa World Ltd (VWD)/MFS Diversified Group (MFT)	2004	1	2	166599	96596	263195	136649	92858	229507	310688	82625	175024	0	173356	921	9929	10631	12415	24550
272	Westfield Holdings Ltd (WSF)	2004	1	2	741100	33539900	34281000	2244500	13533700	15778200	18502800	31496400	1397100	198700	1192600	10000	313500	44800	632700	581400
273	Westpac Office Trust (WOT).Westpac First Trust (WBK)	2004	1	2	2615	62123	64738	2409	19211	21620	43118	52957	22904	1613	20017	0	1227	38	1310	3662
274	(CFS) Gandel Retail Trust (GAN)	2005	1	2	52027	4573561	4625588	624842	875000	1499842	3125746	4532534	683981	291058	369926	3824	71254	4540	208117	500919
275	Abigroup/Abacus prop group	2005	3	2	141336	452839	594175	46163	143419	189582	404593	300971	57952	27391	30561	-1	9271	223	36939	52631
276	Ariadne Australia Ltd	2005	3	2	24326	61029	85355	26249	21028	47277	48780	19010	54414	19573	29954	674	1286	0	2067	12365
277	Australand Holding (ALZ)/Australian Hotel (AAZ)	2005	2	2	781238	2300027	3081265	620467	964307	1584774	1694461	898000	1533138	1533138	40129	92532	73587	30852	143888	201002
278	Australian Growth Property (AGH)/Aspen Group (APZ)	2005	3	2	15305	207149	222454	18212	120843	139055	183399	201525	20466	14581	21057	62	6324	435	5986	9885
279	AV Jennings Home (AVJ)	2005	2	2	332324	294391	626715	122280	240606	362886	368229	597846	479118	477224	50	2395	11713	20931	23675	43547
280	Bunning Warehouses (BWP)/BT Prop	2005	1	2	6729	650100	656829	25612	167020	192632	464197	650100	56670	0	56670	0	10449	0	25930	79929
281	Carringdale Property Ltd (CDP)/Capital Prop Trust (CPL)	2005	3	2	2505	297920	300425	11558	136032	147590	152835	297675	59295	32886	26330	0	2384	1571	13731	32740
282	Cedar Woods Prop Ltd (CWP)	2005	2	2	45150	70470	115620	21524	45006	66530	79090	66783	64560	60255	0	0	3216	6805	5190	10256
283	Central Equity Ltd (CEO)	2005	2	2	463214	601421	1064635	383140	186100	569240	595393	225577	236970	170994	0	19926	726	10389	23193	20060
284	Centro Property Group (CEP)/Centro Retail (CER)	2005	3	2	2526529	4038113	6564642	333296	2673666	3006962	3557680	3228415	722392	404565	317827	0	62911	0	61474	186053
285	CFS Retail Prop Trust (CFX)	2005	3	2	52027	4573560	4625587	624842	875000	1499842	3125745	4532534	683981	291058	369926	4540	48579	0	208117	500919
286	Commonwealth Property (CPA)	2005	1	2	245717	2295297	2541014	462826	1354000	1816826	2124188	2041219	265839	20500	204694	4610	51003	0	142568	142118
287	Devine Ltd (DVN)	2005	2	2	401189	258382	659571	373139	235819	608958	650613	627553	213475	209558	0	0	10826	0	9617	-2733
288	Diversified United Investment Ltd (DUI)	2005	1	2	6234	311135	317369	58	80600	80658	236711	310806	13273	0	10782	0	2147	263	6190	13222
289	Equity Trustees Ltd (EQT)	2005	1	2	16332	15337	31669	7648	26130	33778	35768	14373	20585	0	18718	241	110	1574	2231	3402
290	Flexi property Trust (FPF)/ Internat Equity Corp (IEQ)	2005	1	2	32164	20801	52965	5000	41285	46285	56680	19800	16530	0	16530	0	2303	0	0	-6252
291	Forest Place Group Ltd (FPG)	2005	1	2	7902	283273	291175	143859	53209	197068	249107	269226	32046	0	21870	0	547	6022	0	13439
292	General Prop Trust (GPT)	2005	3	2	262300	10169400	10431700	201500	4043400	4244900	6186800	7944200	1378000	351800	674300	7200	155600	-400	471900	566000
293	Grand Hotel Group (GHG)	2005	1	2	30140	483468	513608	71567	207145	278712	284896	329699	153835	0	153324	12661	145980	659	9999	22998
294	Henry Walker Eltin Grp Ltd (HWE)	2005	2	2	13457	545684	559141	35072	87383	122455	436686	500545	257967	41617	216350	876	22559	36767	39513	51537
295	Hudson Investment Group Ltd (HGL)	2005	3	2	4192	57565	61757	5584	35799	41383	50374	51602	17658	6035	2443	0	2125	1807	301	6024
296	Ipoh Ltd (IPH)IPG/Desane Group Holding (DGH)	2005	3	2	8006	317940	325946	34920	145040	179960	245986	140140	300327	201656	98671	8125	71179	8262	462	1809
297	Land Lease Corp Ltd (LLC)	2005	3	2	2612200	4312400	6924600	3383600	830600	4214200	5270040	2322400	9435300	3553000	533000	0	56600	114300	215300	235900
298	Leighton Holdings Ltd (LEI)	2005	3	2	1749594	1256188	3005782	1853927	257270	2111197	3894555	1148149	6267173	2748650	1245200	366864	23403	94637	128164	189024
299	Macmahon Holding Ltd (MAH)	2005	2	2	128405	195528	323933	125264	77831	203095	220838	153243	558130	555393	1396	30332	8067	4784	1877	15924
300	Macquarie Countrywide (MCW)	2005	3	2	29863	2526811	2556674	36585	504247	540832	2015842	2526811	260147	150496	109651	0	55548	23318	134594	138284
301	Macquarie Leisure (MLE)	2005	1	2	43149	310698	353847	23987	100518	124505	229342	298528	125562	747	124815	7068	4734	631	21055	23506
302	Mirvac Group Ltd (MRG)	2005	2	2	949968	4917021	5866989	1440092	1058602	2498694	3368295	3551522	1314273	832486	291741	17773	98667	19918	129343	245517
303	Phileo Australia (PHI/PHT)	2005	2	2	1692	76892	78584	1254	49550	50804	57780	49550	5514	5514	0	486	2682	0	0	-447
304	Primelife Corporation (PLF)	2005	3	2	40738	250540	291278	15464	76161	91625	199653	149757	22590	11981	10609	790	11015	-4895	109	-17610
305	Stockland Trust Group (SGP)	2005	3	2	641000	7758100	8399100	758100	2154800	2912900	5486200	5849000	1712900	780500	528000	35300	192400	51800	257200	104300
306	Sunland Group Ltd (SDG)	2005	2	2	413099	343411	756510	314942	205665	520607	535903	367290	201450	157057	36716	3066	8371	15185	23850	30740
307	Thakral Holdings Grp (THG)	2005	1	2	160166	857918	1018084	144160	398957	543117	574967	764467	314750	0	314750	0	26217	0	36281	36018
308	Timbercorp Primary Infrastructure(TPF)/Timbercorp Ltd (TIM)	2005	1	2	162447	794568	957015	345906	460751	806657	950358	503990	315097	6455	308642	9185	32440	30216	11629	62117
309	Tyndal Meridian Trust (TMT)/JF Meridian Trust (JFM)	2005	3	2	218299	705060	923359	24340	205910	230250	693109	663931	134534	27619	70499	0	16026	0	65315	95716
310	Villa World Ltd (VWD)/MFS Diversified Group (MFT)	2005	1	2	6716	154062	160778	20408	91094	111502	149276	152577	15616	0	15354	364	5371	0	5282	5316
311	Westfield Holdings Ltd (WSF)	2005	3	2	836500	42214300	43050800	303400	20418600	20722000	22328800	41272800	2998100	1435200	1363800	41700	413300	41700	719100	1954000
312	Westpac Office Trust (WOT).Westpac First Trust (WBK)	2005	1	2	67213	69308	136521	16602	41951	58553	77968	38247	241298	1098	226728	0	380	1656	25550	49968
313	(CFS) Gandel Retail Trust (GAN)	2006	1	2	89979	5234569	5324548	593787	1147120	1740907	3583641	5199024	847790	361510	446035	3824	87432	4540	230304	605924
314	Abigroup/Abacus prop group	2006	3	2	193973	969307	1163280	104063	386106	490169	673111	404593	92315	31275	41907	1346	7832	744	50961	101860
315	Ariadne Australia Ltd (ARA)	2006	3	2	24326	79367	103693	7887	25557	33444	70249	23688	40854	19430	19430	494	1238	0	1942	7126

316	Australand Holding (ALZ)/Australian Hotel (AAZ)	2006	2	2	1147626	2354934	3502560	333863	1456556	1790419	1912141	1400663	1058354	1058354	32587	89286	92093	32966	148887	243050
317	Australian Growth Property (AGH)/Aspen Group (APZ)	2006	1	2	40419	312002	352421	20245	164069	184314	186107	308237	35980	23788	32929	61	7769	6733	7858	34489
318	AV Jennings Home (AVJ)	2006	2	2	365475	227862	593337	290336	144495	434831	444395	562828	499707	312868	41	2498	16137	4855	21523	16200
319	Bunning Warehouses (BWP)/BT Prop	2006	1	2	6592	725020	731612	175644	571469	747113	804499	721125	60353	0	60353	0	11620	0	37348	75246
320	Carringdale Property Ltd (CDP)/Capital Prop Trust (CPL)	2006	3	2	3215	370678	373893	13147	241028	254175	319718	369594	95184	66225	28069	0	2447	1431	15171	66883
321	Cedar Woods Prop Ltd (CWP)	2006	2	2	56001	140364	196365	79436	48481	127917	168448	135651	87829	80236	0	0	3955	6108	9346	16208
322	Central Equity Ltd (CEO)	2006	2	2	829222	876171	1705393	387063	480332	867395	879983	643671	311134	309050	0	46979	28871	0	0	0
323	Centro Property Group (CEP)/Centro Retail (CER)	2006	3	2	35408	2290464	2325872	46496	1269240	1315736	1361010	2205967	318327	62301	256026	153	55263	3885	31192	227960
324	CFS Retail Prop Trust (CFX)	2006	3	2	89979	5234569	5324548	593787	1147120	1740907	3583641	5199024	847790	361510	446035	4540	75026	0	230304	605924
325	Commonwealth Property (CPA)	2006	3	2	94385	2796006	2890391	294961	602404	897365	1993026	2498420	426888	238099	239375	6273	48230		156233	297515
326	Devine Ltd (DVN)	2006	2	2	311155	374181	685336	329916	289867	619783	655353	400951	572070	571704	0	0	54080	8060	10405	18870
327	Diversified United Investment Ltd (DUI)	2006	1	2	11232	423480	434712	11448	88733	100181	344531	423220	14940	0	12473	0	2290	1769	6517	16764
328	Equity Trustees Ltd (EQT)	2006	1	2	15768	29008	44776	5872	2547	8419	36357	22650	25342	0	23499	236	53	2055	3148	5156
329	Flexi property Trust (FPF)/ Internat Equity Corp (IEQ)	2006	1	2	27453	24523	51976	1785	40539	42324	49652	24112	16645	0	16645	0	2104	0	0	2972
330	Forest Place Group Ltd (FPG)	2006	1	2	9237	329841	339078	156226	61780	218006	221072	309190	49822	0	36297	0	1471	11511	0	26965
331	General Prop Trust (GPT)	2006	3	2	2275700	9726200	12001900	1893300	2666500	4559800	7442100	6120500	2065800	670000	659700	1980	225200	1200	55000	384000
332	Grand Hotel Group (GHG)	2006	1	2	39255	514611	553866	38149	172081	210230	343636	509851	179581	0	168412	12713	160021	1109	9444	50873
333	Henry Walker Eltin Grp Ltd (HWE)	2006	2	2	10296	1173556	1183852	55098	972299	1027397	1256455	1147010	510208	68773	441435	3253	75306	33912	94080	128181
334	Hudson Investment Group Ltd (HGL)	2006	3	2	3923	60494	64417	2557	40623	43180	51237	54315	15431	4358	2392	0	2887	1016	105	3388
335	Ipoh Ltd (IPH)IPG/Desane Group Holding (DGH)	2006	3	2	9470	410320	419790	12760	172640	185400	234390	401580	263647	184048	79599	9322	81209	9569	531	1687
336	Land Lease Corp Ltd (LLC)	2006	3	2	3378500	4776400	8154900	3179100	3179100	6358200	7011300	3337400	12126800	1773400	33500	0	61800	150100	235400	422600
337	Leighton Holdings Ltd (LEI)	2006	3	2	3378500	1336015	4714515	2308420	891599	3200019	3403269	1328468	8519705	3653720	4765500	454051	25646	92835	152156	305277
338	Macmahon Holding Ltd (MAH)	2006	2	2	222865	263849	486714	184566	130229	314795	471919	245388	807266	804022	2602	34776	10709	11355	5736	7497
339	Macquarie Countrywide (MCW)	2006	3	2	60211	3002697	3062908	44176	707765	751941	2310967	2993833	342963	225890	117073	0	72100	71485	185849	236607
340	Macquarie Leisure (MLE)	2006	1	2	30961	427293	458254	34348	101374	135722	322532	411849	185273	2767	181622	9012	43465	885	26368	994
341	Mirvac Group Ltd (MRG)	2006	3	2	1138113	4384517	5522630	1593954	1293122	2887076	3168058	3953188	1806044	1067862	339335	19292	61573	44834	206859	443395
342	Phileo Australia (PHI/PHT)	2006	2	2	2083	81601	83684	13218	55360	68578	85105	81361	7767	7767	0	433	3954	0	0	-1386
343	Primelife Corporation (PLF)	2006	1	2	94363	314432	408795	228042	123260	351302	574935	192770	110651	10942	99709	1302	14904	329	0	6156
344	Stockland Trust Group (SGP)	2006	3	2	973500	8625000	9598500	786000	2417400	3203400	6395100	8240200	2309900	955800	556100	6800	218300	61200	281300	123500
345	Sunland Group Ltd (SDG)	2006	3	2	590655	192981	783636	400690	99989	500679	582957	87273	988490	463289	463289	2942	32414	30987	26378	72333
346	Thakral Holdings Grp (THG)	2006	2	2	130590	963315	1093905	82445	448983	531428	562477	861123	395387	342429	0	1930	26739	0	39305	89289
347	Timbercorp Primary Infrastructure(TPF)/Timbercorp Ltd (TIM)	2006	1	2	309091	1002705	1311796	228462	639147	867609	903851	476855	393159	162077	231082	10870	33449	35016	16017	79614
348	Tyndal Meridian Trust (TMT)/JF Meridian Trust (JFM)	2006	3	2	238260	854808	1093068	26701	289000	315701	777367	812930	160195	43902	77637	0	16955	0	63553	106974
349	Villa World Ltd (VWD)/MFS Diversified Group (MFT)	2006	3	2	38102	275455	313557	45299	178139	223438	290119	254366	46211	23702	20352	568	9613	0	13812	23000
350	Westfield Holdings Ltd (WSF)	2006	3	2	994100	47887600	48881700	2397700	22854700	25252400	26529300	46392900	5307100	3386400	1490500	137900	507100	137900	848400	4323200
351	Westpac Office Trust (WOT).Westpac First Trust (WBK)	2006	1	2	143289	114420	257709	61891	166714	228605	259104	100917	404400	31775	193382	0	2056	12724	28538	11334