DETERMINANTS OF CAPITAL STRUCTURE OF A-REITS AND THE GLOBAL FINANCIAL CRISIS

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ABSTRACT

This paper contributes to the capital structure literature by investigating the determinants of capital structure of Australian Real Estate Investment Trusts (A-REITs) over the period 2006-2009. By using a panel approach and a Global Financial Crisis (GFC) dummy variable, our analysis incorporates the Global Financial Crisis (GFC) shock which appears to have affected the market after December 2007. We find that A-REIT size, profitability, tangibility, operating risk and number of growth opportunities impact similarly to many previous studies of international entities upon the degree of leverage. We also find mixed support for prevailing capital structure theories of Pecking Order, Trade-off and Agency Theory, but find that Market Timing Theory can be rejected over our sample period. With specific focus after onset of the GFC, we find that the relationship between capital structure and our independent variables is somewhat distorted. Consequently, the postulations of theory also become distorted whereby changes to capital structure come about because of the primary goal to survive, rather than managerial opportunism.

Keywords: A-REIT, Australia, capital structure, global financial crisis

INTRODUCTION

Past international studies of capital structure have yielded mixed results despite being performed during relatively stable economic periods. If one is to draw back on Modigliani and Miller (1958), this is not surprising given their assertion that capital structure is irrelevant to maximising the value of a company. Australian REITs have traditionally been structured as unit trusts so that if the trust's taxable income is distributed to the unit holders, then the trust itself does not pay any income tax. Only the unit holders are taxed. If the unit trust does not pay out all the taxable income, then a penalty rate of tax of nearly half of the undistributed income, is imposed on the trust. As such, the trusts generally pay out their taxable income to the unit holders. In the absence of having retained earnings, those entities wishing to grow need to attract costly debt capital or perhaps even more costly equity capital. Many trusts now offer stapled securities signifying a trust and company structure. The company must pay tax at corporate tax rates while the trust has the flow through to unit holders benefit described before. The company in the stapled structure can retain earnings. REITs tend to have a high proportion of tangible assets giving them more security to enable a greater degree of secured borrowing. Even in the absence of valuable tax deductions from taking on debt, the desire to maximise earnings per unit (EPU) makes debt more attractive than equity at certain earnings levels and where unit issues could substantially dilute the unit holder base, holding back desired EPU growth.

In practice, the Global Financial Crisis (GFC) has exposed the failures of many highly levered entities, and urgent restructuring has placed doubt upon the ability of Modigliani and Miller's seminal work to remain robust over the vagaries of the global economic system. Determining the appropriate capital structure is not done in a static world. As has been seen many times over in the past, the financial world is susceptible to events that change the course of decision making for years to come, and every manager makes a decision where there is a trade off of one benefit or cost for another.

The most recent event to affect the corporate world was the GFC. At the height of the economic cycle, liquidity was at its peak, and this abundance of funding impacted upon disciplined lending, re-financing and underwriting by many financial institutions, particularly in the evaluation of borrowers' capacity to repay. Further compounding this effect was reliance on rising asset values and persistently low interest rates. Once the property bubble burst in the United States, asset values fell, and this was followed by defaults among over-leveraged borrowers. The opaqueness of the underlying financial instruments and their trading on over-the-counter markets both nationally and internationally made losses hard to locate (LDW 2008). In terms of structural issues, there was over-reliance on self regulation, especially with the dramatic rise of non-bank financial institutions, and risk management was trivialised with increasing use of synthetic products and collateralised debt obligations. In summary, there was a trade off between expected higher efficiency of financial intermediation and the stability of the financial system, particularly with lack of due diligence emanating from compensation of excessive managerial risk taking. This phenomenon ultimately spread via transaction cost reduction, the subsequent rise in cross-border operations, and lack of co-ordinated global regulation.

The GFC has had a large impact on the Australian listed property sector, with market values having dropped in 2008 by an average of 65% from its peak a year earlier. Returns also suffered, dropping from an average of 20% just prior to the GFC to -50% in 2008-2009. A-REITs have traditionally been highly levered, with the debt levels rising from 30% in 2001 to 52% in 2009 in pursuit of growth opportunities. Thus the scarcity of capital post GFC and the cost of debt remaining on offer has caused much doubt about how they will manage to continue operating when it comes time to re-finance. As a result, there have been over $15 Billion worth of capital raisings in the entire A-REIT market since September 2008 in an attempt to reduce exposure to debt and reduce downward pressure on asset valuations. With a drop in asset values, the likelihood of breaching debt covenants is increased, making equity issues even more critical. Table 1 shows raisings of both equity and debt for our sample of 31 A-REITs over the 2005/06 to 2008/09 financial years. The figures were taken from formal announcements made on the Australian Stock Exchange. Equity figures include open market offers, rights issues, and institutional and private placements. Totals are net of one unit buyback arrangement that took place in 2007/08. Debt figures include new note issues, loans and successful refinancing of existing debt. To be included in a specific period, raisings must have been finalised by the end of the relevant financial year.

Table 1: Equity and debt issues by A-REITs ($ 000,000)

	2005/06		2006/07		2007/08		2008/09	
A-REIT	EQUITY	DEBT	EQUITY	DEBT	EQUITY	DEBT	EQUITY	DEBT
ABP	90		60		100		211.4	
AJG								
LEP		350			-21.6			
APZ	152		104.4		12.6		104.5	
AJA	226		114.5	62.5	51.9	243.1		
AEU	39.2		40	70	20			
BWP							150	
CDP								
CFX			200	200		600	325	
CWT	2					167		
CPA	125	200				150	185.2	100
CNR								0.247
GPM	40		200					
GMG	350	115			1,500	4,016	1,065	720
GPT		925	704				3,020	
IIF	187.8		890			1,785	200	
IOF	8		201.4	1,681.2	119.5		829.5	
ILF	229.9		155					15.5
IEF	39				52.5			
LLA			175		25		100	200
MGR			375	200	300	300	1,593	
RBV								
RNY								
SGP			75	620.6			2,280	
THG						685		
TSO	71.8		125.3					
TGP								
TCQ	114		97.6					
VPG	150		1,584.2		1,050	350	158	165
WDC	17.8			2,500	3,000	1,100	2,900	700
WOT	81.1		36.9	505				
TOTAL	**1923.6**	**1,590.0**	**5,138.3**	**5,839.3**	**6,209.8**	**9,396.1**	**13,121.5**	**1,900.7**

Source: ASX announcements (http://asx.com.au)

The credit crunch post GFC has led to prohibitive debt pricing, especially given that Australian banks have over $46 Billion of exposure to A-REITs (BDO 2010). The decline in collateralised asset values, rental income and an increase in borrowing costs have placed doubt on the viability of A-REITs needing to refinance. With foreign banks exiting this

sector after the initial shock, the $4 Billion Australian Investment Business Partnership has been developed to support high quality Australian assets in need of funding. Lumsden et al (2009) state that the current environment is likely to make many features of the previous model difficult to replicate and will almost inevitably lead to a substantial review of the A-REIT structure.

In this paper, we attempt to find the contemporary determinants of capital structure of Australian REITs between 2006 and 2009, also examining the impact of the GFC on each of these determinants to find out how such a crisis alters the relationship between leverage and its explanatory variables. This paper is organised as follows. Section 2 provides an overview of the major theories and past empirical findings where the overwhelming majority of work thus far has focused on an international context. Section 3 addresses our methodology, hypotheses and describes the variables and their rationale for inclusion. We present hypotheses based on theory and other expectations unique to the Australian market. Section 4 explains the data and presents regression results. Section 5 provides discussion and full interpretation of our findings. Section 6 provides a concluding overview.

LITERATURE REVIEW

Theoretical Development

Modigliani and Miller's 1958 paper hypothesised that capital structure has no impact upon the value of the firm, given perfect capital markets, no taxes, bankruptcy, nor transaction costs. They then introduced corporate taxes and showed that firm value and its degree of leverage is positively correlated (Modigliani and Miller 1963). Miller (1977) then introduced the impact of both corporate and personal taxes to show that despite tax deductibility, the value of a firm and its structure are independent. Since these discussions, there has been a plethora of studies conducted, many with conflicting results. The literature is currently based around four primary theories.

The Trade-off model developed by Kraus and Litzenberger (1973) states that every firm maximises value by choosing an optimal debt to equity ratio. Miller and Scholes (1978), and DeAngelo and Masulis (1980) contributed an association with tax, whereby as the firm increases leverage, the trade off occurs when attaining tax deduction benefits on interest paid and having access to additional capital without diluting the shareholder base. On the other hand, the firm assumes a greater risk of insolvency and bankruptcy costs by being less able to cover interest repayments. They are also formally monitored to a greater extent by lenders and may have restrictive covenants placed upon them. The theory predicts that larger, more profitable firms are more likely to take on debt because they are financially healthier, with a lower probability of becoming bankrupt. They can also command lower rates of interest due to their greater scale of collateral. Stulz (1990) contends that the correct trade off between costs and benefits of debt leads to an optimal capital structure.

Pecking Order Theory states that an optimal debt level does not exist. Rather, choices of capital depend on their cost, with internal funds being preferred to debt finance, and equity issues coming last (Myers 1984, Myers and Majluf 1984). They also hypothesize that shareholders are sceptical of equity being issued when its price is overvalued and thus will react negatively. Managers anticipate this reaction, preferring to issue debt and avoid having to discount equity. Therefore, debt should only be undertaken in the absence of acceptable cash flow ahead of equity.

There is also an asymmetric information problem whereby firms can reduce outside stakeholder scrutiny by using mainly internal, and to a lesser extent, equity funds. As opposed to the Trade off Theory, capital structure is a function of an entity's investment opportunities. The Market Timing Theory first postulated by Baker and Wurgler (2002) also suggests that there is no optimal capital ratio. Rather, firms will choose the type of capital that is mispriced to a greater extent. In terms of equity, a firm would be expected to make an offering when their existing share price is unsustainably overvalued. This is to fund projects with a positive Net Present Value whilst minimising their cost of equity and causing the least negative impact to existing share holders.

Jensen and Meckling (1976), and Easterbrook (1984) hypothesise that there is conflict between firm owners and both managers and debt holders. In particular, managers strive to maximise their own gains by using company resources, whilst not expending effort in the best interests of their principal equity holders. In this case it is optimal for the firm to pay out all of their free cash flow in dividends as to avoid any risky and inefficient investment. Consequently it is more beneficial to fund expansion using debt such that its utilisation can be formally monitored by the lender. Shareholders also indirectly gain the benefit of this type of monitoring (Jensen 1986). It appears as though the minimum earnings payout tax incentive of REITs directly addresses the Free Cash Flow Agency problem by eliminating the use of unmonitored retained cash flows.

General Empirical Development

With regard to previous empirical work determining capital structure, Bradley et al (1984) found that certain debt ratios depend on the industry the firm belongs to. The A-REIT market is an industry in its own right and competes with other entities for property investment funding, whilst assets are generally tangible and illiquid. Geltner and Miller (2001)

assert that given the higher net tangible asset values in REITs, they can afford to be more highly geared than non-property related companies by offering greater collateral, whilst Myers (1985) concluded that the net tax gain to corporate borrowers is negative if their net marginal tax rate is zero. Fama and French (1998) concur with Miller (1977) that debt offers no net tax benefits, and find a positive relationship between dividends and firm value, whilst there is a negative relationship between firm value and debt levels. Given A-REIT tax rules, this implies that there is little incentive to use debt. Capozza and Seguin (1999) found that externally managed REITs have a higher debt ratio because external managers are frequently compensated according to the size of assets under management. This does give them incentive to gear up as much as possible to maximise their own personal remuneration, whilst internal managers are more concerned about escalating interest expenses.

Harrison et al (2011) state that regulatory mandates which restrict REITs from investing in assets other than property limit diversification and increase the probability of financial distress. It can be argued that this isn't necessarily the case because rental property can be seen as a vehicle in which other types of commerce function. As long as there is diversification across different property types then we don't expect the core function of REITs to be significantly riskier all else being equal.

The Trade-off, Pecking Order, Agency, and Market Timing Theories are assessed using the impact of certain independent variables upon capital structure. There has been no unequivocal evidence of 'the' optimal structure, but the following studies have shown mixed results internationally using common independent variables which both support and refute the various theories at different points in time.

Empirical Findings of Capital Structure Determinants Used in This Paper

Harrison et al (2011) in their contemporary study of U.S REITs find increasing entity size to increase the debt ratio. The positive entity size relationship with the debt ratio is also found by Rajan and Zingales (1995), Wiwattanakantang (1999), Booth et al (2001), Pandey (2001), Prasad et al (2003), Ariff and Hassan (2008) in their study of the Asian Financial Crisis, and by Chikolwa (2009) who studied a sample of 34 A-REITs just prior to the GFC. These results support components of both Pecking order and static trade off theories. Deesomsak et al (2004) also find a positive relationship and state that managers tend to make different decisions on capital structure internationally where there are different country considerations. They also found that the impact by explanatory variables was slightly, but not significantly altered in Australia by the Asian financial crisis.

Profitability has been found to mainly have a negative impact on the debt ratio in support of Pecking Order and Trade-off: Bankruptcy Costs Theories as per Titman and Wessels (1988), Rajan and Zingales (1995), Booth et al (2001), Fama and French (2002), Zoppa and McMahon (2002), Cassar and Holmes (2003), Hammes and Chen (2004), Morri and Berretta (2008), Westgaard (2008), Chikolwa (2009), and Harrison et al (2011), but has been positive and supporting of Agency and general Trade-off Theories as per Smith and Watts (1992), and Barclay, Morellec and Smith (2001).

Asset Tangibility has mostly had a positive impact on the debt ratio, supporting Agency and Trade-off Theories as per Prasad et al (2003) and Suto (2003) for Malaysian entities, Harrison et al (2011) for U.S REITs, Ariff and Hassan (2008), and Deesomsak et al (2004), who found a positive relationship among Australian firms. There have been some deviations from expectations with no significant relationships found by Wiwattanakantang (1999) and a negative one by Booth et al (2001), both who studied Thai firms. The result of Booth et al indicates a substitution for long term at the expense of total debt.

Earnings volatility or operating risk has mainly has a negative impact upon the debt ratio, supporting Trade-off Theory. Amongst numerous others, Booth et al (2001), Morri and Beretta (2008), and Chikolwa (2009) have found this result, whereas Wiwattanakantang (1999) found mixed results.

According to Harrison et al (2011), REITs with high growth opportunities have a lower debt ratio and tend to use shorter maturity debt to avoid underinvestment. This supports Agency and Trade-off Theories as per Kim and Sorensen (1986), Titman & Wessels (1988), Ariff and Hassan (2008), and Chikolwa (2009) in Australia. However Feng et al (2007) find that high growth REITs have a larger debt ratio when significant. They also state that transactions of illiquid property assets increase monitoring costs which exacerbates the cost of equity and makes debt preferable despite the inability to claim tax deductions. Positive relationships are also found by Deesomsak et al (2004), Morri and Berretta (2008) and Giambona et al (2008) using total debt. These have been found to support Pecking Order Theory.

Baker and Wurgler (2002), Deesomsak et al (2004), Ooi et al (2010), and Li et al (2007) all find that managers tend to issue equity during times when equity is overvalued, supporting Market Timing Theory. The latter authors also find that REITs differ from corporate entities by timing equity releases to reduce the impact of adverse selection. Howe and Shilling (1988) find that there is generally a positive market reaction to debt issues close to the announcement date, supporting the view that the market rewards greater monitoring and reduction in information asymmetry.

The presence of revenue generated outside Australia (GLOBAL) by A-REITs has generally shown a positive relationship with the debt ratio as per Ooi (1999), Newell (2006), Giambona et al (2008), and Chikolwa (2009). This is expected to occur because the geographical diversification of risk reduces the cost of debt.

Table 2 outlines the expected relationship between leverage and its theoretical determinants based on previous literature.

Table 2: Theories and the expected relationship between corporate factors and firm leverage

Variables	Expected theoretical relationship	Mostly reported in the empirical literature	Theories
Firm Size	+	+	Trade-off Theory: Bankruptcy costs/tax. Agency theory: Agency costs of debt. Other theories: Access to the market, economies of scale Pecking Order Theory
	-		Other theory: Information asymmetry
Profitability	-	-	Pecking Order Theory. Trade-off Theory: Bankruptcy costs. Other theory: Dilution of ownership structure
	+		Trade-off Theory: tax. Free Cash Flow theory. Signalling Theory
Tangibility	+	+	Agency Theory: Agency cost of debt. Trade-off Theory: Financial distress/business risk
Earnings Volatility/ Operating Risk	-	-	Trade-off Theory: Financial distress
	+		Agency Theory
Growth Opportunities	-	-	Agency Theory: Agency cost of debt. Trade-off Theory: Financial distress
	+		Signalling Theory. Pecking Order Theory
Share Price Performance	-	-	Market Timing Theory

METHODOLOGY, HYPOTHESES AND VARIABLE DEFINITIONS

In order to determine the catalysts of capital structure, each trust's leverage ratio is set as a function of a number of theoretically relevant trust-specific financial ratios. Using the Least Squares Dummy Variable Model, we estimate a panel equation in the following form:

$$y_{it} = \alpha_i + \beta X_{it} + v_{it}$$

where y_{it} represents the debt ratio dependent variable, subscript *i* denotes the cross sectional dimension and subscript *t* shows the time-series dimension.
α is a scalar.
X_{it} contains the set of explanatory variables in the estimation model.
β is a column matrix of the partial regression coefficients.
v_{it} represents the remaining disturbances in the regression which varies with individual firms and time.
y_{it} also represents a trust's debt per unit measure within a supporting regression to add an element of robustness to our results.

Rather than using averaged variables over time as per Deesomsak et al (2004), Rajan and Zingales (1995) and Pandey (2001), we have adopted a panel structure to rectify a small sample issue caused by the relatively small number of A-

REITs continuously listed on the Australian Securities Exchange around the time of the GFC. The trust-specific independent variables include trust size, profitability, tangibility, operating risk, growth opportunities, unit price performance and global investment. The systematic independent variable dummy is the GFC, which is introduced in the 2007/08 and 2008/09 financial years. These variables have previously been used with varying degrees of success in the literature both in Australia and abroad, except for the GFC. To our knowledge, this is the first time the impact of the GFC has been quantified with respect to capital structure decisions involving Australian REITs.

The dependent variable, leverage, is expressed in three different ways. One of the most common ratios used is Total Liabilities to Total Assets (Rajan and Zingales 1995). This variable suffers inaccuracy for two reasons. Firstly, when assessing capital structure decisions, REITs should be considering interest obligations in changing economic environments. During inflationary periods, higher interest rates will contribute to increased risk by increasing the likelihood of the entity defaulting on their obligations. We therefore use only interest-bearing liabilities (debt) in the numerator. As a result, using Total Assets in the denominator is inappropriate because the converse of this debt ratio does not become the equity ratio. Rather, the converse becomes Equity plus Non Interest Bearing Liabilities divided by total assets. To avoid this inconsistency, we replace Total Assets with Interest Bearing Liabilities plus Equity, eliminating Non Interest Bearing Liabilities entirely from the ratio.

Most previous studies have used size, growth opportunities, operating risk, tangibility, and profitability as variables due to their ability to test the large body of capital structure theory (Rajan and Zingales 1995, Chikolwa 2009). We have also used these variables and added unit (share) price performance as per Baker and Wurgler (2002) to add further insight. We also include two dummy variables in an attempt to capture the impact that the GFC and global diversified operations have on capital structure.

Firm size (SIZE) is measured by the natural log of total assets. Larger entities are expected to have greater sources of revenue and therefore face lower risk of bankruptcy and as such, lower expected costs of bankruptcy. Large firms are subject to a greater number of debt covenants and scrutiny, therefore face smaller internal monitoring costs and agency costs generally. Large entities also tend to have less variation in cash flows and cheaper access to the credit market. The Trade-off and Pecking Order theories therefore both postulate that larger entities will borrow more due to their lower cost of debt, making this relationship likely positive.

Profitability (NPATE) can be measured in several ways. We decided to use Net Profit After Tax divided by Equity due to its low correlation with other independent variables. According to Pecking Order Theory, managers prefer to fund projects using retained earnings because they are generally cheaper than using external finance. If this preference strictly holds true and there is no legal obligation to pay a fixed return to providers of external finance, then reportable profits would be higher. Thus a negative relationship between profitability and debt ratio is expected. Reducing the use of external funds in turn reduces external monitoring of the entity, magnifying the perils of the agency relationship. From this perspective, management has every incentive for this to occur, again eliciting a negative relationship between the variables. Trade-off Theory predicts that greater retained earnings are preferred in funding internal projects and paying off debt because alternatively increasing the use of debt would move the entity closer toward bankruptcy. We again see a negative relationship predicted by this theory.

Alternatively, Trade-off Theory also postulates that increased use of debt allows greater tax deductibility for entities which are integrated in the tax system. However, the unique tax rule applicable to A-REITs provides a large disincentive to retain earnings, therefore this aspect of the theories does not apply as fluidly as it would expect to be applied to standard tax-paying companies. The major trade-off to unstapled A-REITs thus appears to be the cost of imposed taxes if high earnings are retained, versus the cost of debt and equity if these earnings are paid out. As half of our sample includes A-REITs that have been stapled to tax-paying corporations, we expect there to be a somewhat negative relationship because these corporations do have the ability to use retained earnings at cheaper cost without being penalised via the highest marginal tax rate.

Tangibility is defined as the ratio of Tangible Property Assets to Total Assets. Agency theory hypothesises that entities with a high degree of borrowing are more inclined to invest inefficiently and transfer wealth from debt holders to equity holders. In return, lenders require tangible collateral to hedge their own lending risk if they are to continue. Therefore, as risky lending increases, the proportion of tangible assets should also increase to maximise entity liquidation value should bankruptcy occur. The alternative is that A-REITs that have intangible assets and cannot match collateral requirements imposed, must borrow at higher cost or raise more equity (Scott 1977). Neither of these latter two options would be preferred, thus the debt ratio and asset tangibility are always expected to have a positive relationship under both Trade-off and Agency Theories. A-REITs can be differentiated from corporate entities on another level with respect to tangibility. A-REITs have very little reason to capitalise neither Goodwill nor Research expenses, so their degree of tangibility is usually higher than that of companies. This is reflected by the propensity of A-REITs to gear up at a higher level and also indicates larger falls in unit values in comparison to company shares after the onset of a

negative financial event. Some A-REITs do however invest heavily in indirect property which lowers their levels of tangibility and ability to borrow.

Operating risk is defined as the standard deviation of EBIT scaled by Total Assets. If an entity's earnings become uncertain, then so does their ability to repay debt obligations. We consequently expect management to reduce debt as a priority to avoid mandatory interest obligations that may precipitate financial distress, and expect that the relationship between the debt ratio and operating risk will be negative under Trade-off Theory. Under Agency Theory, a firm is expected to borrow more as it approaches financial distress. Directors have a fiduciary responsibility toward owners and are expected to redirect borrowed funds toward them as a priority to ensure that wealth is maximised, even at the expense of creditors. This type of activity is likely undertaken as a last resort and when the entity is no longer financially viable.

Growth opportunities are usually measured in two ways. Firstly, Book Value of Total Assets less Book value of Equity plus Market Value of Equity, divided by Book Value of Total Assets. Secondly, Market Value of Equity divided by Book Value of Equity. We chose Market Value of Equity to Book Value of Equity arbitrarily in our models because as expected, they correlated highly with each other and yielded similar results. Under Agency Theory, higher growth opportunities provide incentives for management to invest sub-optimally by accepting risky projects with a high risk to return ratio (or have a high coefficient of variation) that may put debt holders at higher risk. This results in cost of debt rising such that use of internal funds or equity is preferred subject to taxation costs and the prevailing cost of external equity. Under Trade-off Theory, intangible growth opportunities place the ability of managers to service additional debt in doubt. As a result, a negative relationship is expected. Alternatively, legitimate low risk A-REIT growth opportunities may need to be funded with debt if the cost of debt is lower than taxation obligations triggered by retaining earnings. In this instance, a positive relationship is expected. Under Pecking Order Theory, A-REITs in particular, are expected to use debt before equity in the absence of retained earnings because it has a cheaper cost. Debt is cheaper because of high expected discounting of equity and the ability of debt holders to access assets first in the event of liquidation. Under Signalling Theory, an entity may wish to signal confidence in their legitimate growth opportunities, thus seeking further monitoring by borrowing more funds. Both of the above theories postulate a positive relationship with the debt ratio.

Unit price performance is defined as the percentage change in average annual unit price. Our variable Unit Price Performance (UPP) has been included to test Market Timing Theory and to measure the expected impact on leverage of dramatic falls in market capitalisation post GFC. Theory-wise, new equity is expected to be issued at a discount, given the information asymmetry that exists between managers and potential investors. It is expected that entities would prefer to delay the issue of new equity until unit prices are relatively high so as to minimise the impact of discounting on the amount of capital they raise. This hypothesis stems from Market Timing Theory (Baker and Wurgler 2002), therefore when unit price performance increases, the debt ratio should decrease. Alternatively, further equity issues will dilute the unit holder base and earnings per unit, so if these concerns dominate, there may be no significant impact.

Internationalising property investment opens up profitable opportunities on one hand, but also exposes A-REITs to a multitude of political and economic risks. Many A-REITs undertook overseas acquisitions prior to 2008 when the market was at its peak (BDO 2010). Empirical evidence has shown that A-REITs with a high international exposure have significantly higher debt levels (Newell 2006; Chikolwa 2009), yet have not increased their risk profile (Newell 2006). Despite this, exposure to countries that have been affected by the GFC to a greater extent is expected to impact upon unit holder sentiment, especially when those asset values fall. In fact, the biggest falls in market value have been recorded by those A-REITs with exposure to weak off-shore markets and high levels of debt (Lumsden et al 2009). Given previous empirical evidence, debt levels are expected to rise with greater degrees of international exposure, but only during stable economic conditions.

DATA AND EMPIRICAL RESULTS

Data

For our financial A-REIT data, we initially consulted the finance section of The Australian Newspaper to extract all A-REITs currently listed on the Australian Securities Exchange. As at April 2010, there were fifty nine A-REITs listed. Our aim was to collect data for three years on either side of the GFC in order to gauge the differences in results that an unstable financial period may evoke. We found that over these years, there was a large turnover of listed A-REITs on the ASX and we were able to secure a statistically sound sample of forty two over four years. Consolidated financial statement data was taken from both trust websites and the Finanalysis database of company reports. We then calculated various ratios using this data. We next consulted Bloomberg for daily unit prices. However, despite our A-REITs being listed, much of the Bloomberg data was sporadic and unpublished. As a consequence, we could only use thirty two A-REITs. After omitting Centro due to severe data fluctuations and outliers, we settled with a sample size of thirty one. Our sample of A-REITS used over the period 2006 to 2009 appears in the appendix, whilst Table 3 provides descriptive

statistics for the two dependent and six independent variables. We note that due to instability brought about by the GFC, several individual A-REIT observations lie slightly over three standard deviations away from their means. However, we included them in order to maintain minimum sample size integrity.

Table 3: Descriptive statistics

Variables	Mean	Median	Minimum	Maximum	Std. Dev.
DEPENDENT					
DDE	44.1623	42.8584	1.4294	98.4981	18.8039
DPU	1.6288	0.9492	0.0088	10.7147	1.9316
INDEPENDENT					
SIZE	20.7831	20.6126	16.7182	24.7470	1.5788
NPATE	-8.2150	9.4853	-327.8101	39.1585	55.9055
NTATA	86.9579	92.7782	7.1297	100.0000	15.9931
OPRISK	0.1387	0.0972	0.0134	0.6845	0.1229
MVBV	0.9253	0.8653	0.4747	2.9308	0.5170
UPP	-10.7395	-2.6500	-95.5880	72.6421	34.0894

Note: DDE represents the ratio of interest-bearing liabilities to interest-bearing liabilities plus equity, DPU represents the ratio of interest-bearing liabilities to number of equity units outstanding, SIZE represents the natural log of total assets and proxies the size of an A-REIT, NPATE is Net Profit After Tax divided by book Equity and represents profitability, NTATA is Net Tangible Assets divided by Total Assets and represents tangibility, OPRISK is the Standard Deviation of Earnings Before Interest and tax scaled by Total Assets and represents operating risk, MVBV is the ratio of Market Value of Equity to book Value of Equity and represents growth opportunities, UPP is the percentage change in average annual unit price and represents unit price performance. NPATE, NTATA, and SPP are expressed in raw percentages and Dummy variables have been excluded.

Table 4 shows all of the non-dummy independent variables and their correlation coefficient relationships. We strictly adhered to minimum - maximum correlation limits of -0.6 to +0.6.

Table 4: Correlation coefficients

	SIZE	NPATE	NTATA	OPRISK	MVBV	SPP
SIZE	1					
NPATE	0.0626	1				
NTATA	0.2140	0.1957	1			
OPRISK	0.0008	-0.4739	-0.0526	1		
MVBV	0.2658	0.3487	0.1363	0.0339	1	
SPP	0.0217	0.4570	0.1149	-0.0024	0.5432	1

Note: Dummy variables have been excluded

Empirical Results and Analysis

Our results are separated into determinants of overall capital structure using the dependent variables 'debt divided by debt plus equity' (DDE) (table 5) and 'debt divided by number of units outstanding' (DPU) (table 6).

Table 5: Dependent variable 'debt / debt + equity' (DDE)

VARIABLE	EXPECTED SIGN		COEFFICIENT	T-STATISTIC	PROBABILITY
INTERCEPT			**75.2993**	**1.2452**	**0.2157**
GFC	-		**-4.4556**	**-2.4986**	**0.0140**
GLOBAL	+		**7.6666**	**1.5769**	**0.1177**
SIZE	+		**-2.2815**	**-0.8172**	**0.4156**
NPATE	+	-	**-0.4294**	**-2.9203**	**0.0043**
NTATA	+		**0.1997**	**2.5392**	**0.0125**
OPRISK	-		**-40.8200**	**17.2949**	**0.0200**
MVBV	+	-	**3.2330**	**4.9609**	**0.0000**
UPP	-		**0.0087**	**0.1561**	**0.8763**
GFC*SIZE			**0.8252**	**3.3423**	**0.0011**
GFC*NPATE			**0.2731**	**1.9092**	**0.0589**
GFC*NTATA			**-0.1562**	**-9.3993**	**0.0000**
GFC*OPRISK			**-22.3722**	**-1.2702**	**0.2067**
GFC*MVBV			**-5.1689**	**-0.9661**	**0.3361**
GFC*UPP			**-0.0545**	**-0.7279**	**0.4682**
ADJUSTED R^2	**0.3875**				
F-STATISTIC	**6.5577**				
F-STAT PROB	**0.0000**				

Table 6: Dependent variable 'debt / number of units' (DPU)

VARIABLE	EXPECTED SIGN		COEFFICIENT	T-STATISTIC	PROBABILITY
INTERCEPT			**-11.4135**	**-4.2522**	**0.0000**
GFC	-		**-1.3198**	**-1.6755**	**0.0967**
GLOBAL	+		**0.5412**	**0.5669**	**0.5719**
SIZE	+		**0.5266**	**3.8917**	**0.0002**
NPATE	+	-	**-0.4041**	**-8.6119**	**0.0000**
NTATA	+		**0.0953**	**5.9499**	**0.0000**
OPRISK	-		**-10.2980**	**-8.4841**	**0.0000**
MVBV	+	-	**1.6307**	**2.5375**	**0.0126**
UPP	-		**0.0049**	**0.2234**	**0.8237**
GFC*SIZE			**0.0302**	**0.2613**	**0.7943**
GFC*NPATE			**0.3944**	**8.2516**	**0.0000**
GFC*NTATA			**-0.0801**	**-3.8279**	**0.0002**
GFC*OPRISK			**4.1642**	**0.8836**	**0.3789**
GFC*MVBV			**-1.1225**	**-0.8907**	**0.3750**
GFC*UPP			**-0.0242**	**-0.8738**	**0.3841**
ADJUSTED R^2	**0.5170**				
F-STATISTIC	**10.4036**				
F-STAT BROB	**0.0000**				

Note: Tables 5 and 6 are estimation results of ordinary least squares panel regressions on 124 observations. The dependent variables are the ratio of debt to debt plus equity (DDE), and the ratio of debt to total units outstanding (DPU). The independent variables are GFC: approximated by a dummy value of 1 in 2008 and 2009 or 0 otherwise; Global: approximated by a dummy value of 1 if an A-REIT owned assets based overseas or 0 otherwise; Size: natural logarithm of total assets (SIZE); profitability: NPAT divided by book equity (NPATE); tangibility: book value of tangible assets divided by total assets (NTATA); operating risk: standard deviation of EBIT scaled by total assets (OPRISK); market perceptions of growth opportunities: total market capitalisation divided by book value of equity (MVBV); market perceptions of performance: percentage growth in unit price relative to the previous year (UPP). The F-statistic is the result of analysis of variance tests on the null hypothesis that there is no linear relationship between the dependent and independent variables. The adjusted R^2 shows the proportion of movement in the dependent variables that can be explained by the independent variables. Two panel regressions are given for four years between 2006 and 2009, along with interaction variables to gauge the impact of each independent variable post GFC.

DDE has the potential to give dubious results because it relies on the underlying equity value to be stable. During volatile financial periods, A-REIT asset values may need to be downgraded to reflect either their market value or more directly, potential to earn future income according to Australian Accounting standards. Significant decreases may 'increase' a debt ratio and be an unintended consequence, not reflecting managerial capital structure intentions. We therefore supplement our results with a further regression using the number of units outstanding in the denominator to ascertain their validity. The number of units outstanding is not compromised by volatility in asset values, nor volatility in market value. In fact, the DPU dependent variable is naturally magnified only when A-REITs deliberately issue further equity. We argue that it is therefore a better measure of managerial capital structure decisions despite itself being a capital structure proxy. Deesomsak et al (2004) analysed the impact of the Asian Financial Crisis on Australian companies, but also stated that this crisis itself had no impact on Australia in general. To our knowledge ours is the first study incorporating the effects of a large and relevant financial crisis in Australia.

INTERPRETATION AND DISCUSSION

Both of our models show similar results, which appears to validate the use of our DPU proxy. We analyse results in both models and give reasons where applicable for any significant deviations. Table 7 replicates the expected and mainly reported relationship between the independent variables and capital structure, alongside our results over the entire sample period and post GFC. Table 8 shows our support or otherwise for the various theories and the variables concerned.

Table 7: Comparison of theoretical, mostly reported and A-REIT (2006-2009) relationships

Variables	Expected theoretical relationship	Mostly reported in the empirical literature	A-REITs 2006-2009	A-REITs to 2009 after GFC onset
Firm Size	+	+	+	+
Profitability	+/-	-	-	+
Tangibility	+	+	+	-
Earnings volatility/ Operating risk	+/-	-	-	+/-
Growth Opportunities	+/-	-	+	-
Share/Unit Price Performance	-	-	+	-

A-REIT size (SIZE) has a negative and insignificant impact on leverage in our DDE model but is positive and highly significant at the 1% level in our DPU model. Size can be a proxy for the quantity of information that managers have to convey to the market (Morri and Berretta 2008). The negative impact of size in our DDE model may highlight that smaller entities pay relatively more than large entities to issue new equity (Morri and Berretta 2008). Another possibility is the uptake of relationship lending amongst smaller entities, whereby lenders also rely on provision of 'soft' information. This is particularly important given the riskier environment caused by the GFC. The positive DPU result is consistent with Rajan and Zingales (1995), Wiwattanakantang (1999), Booth et al (2001), Pandey (2001),

Prasad et al (2003), Chikolwa (2009), Deesomsak et al (2004), and Harrison et al (2011). It also supports both Pecking Order and static Trade-off Theories (Rajan and Zingales 1995; Fama and French 2002, Feng et al 2007, and Ang et al 1982) where larger A-REITs have a lower probability of bankruptcy and can borrow at lower cost.

After the onset of the GFC, both models show that larger A-REITS with more debt (or smaller A-REITs with less debt) increased leverage by even more, although only the DDE model shows this to be significant, being so at the 1% level. Intuitively, we could conclude that large falls in equity values led to a dubious DDE ratio result but we also raise some other possibilities. This increase may have been specific to short term debt because equity and long term debt are relatively expensive for smaller entities to issue (Morri and Berretta 2008), particularly during periods of instability. This is evidenced by the smallest ten entities increasing gearing by an average of 21% in 2009 (BDO 2010). This increase in gearing also suggests that smaller A-REITs were unable to efficiently raise sufficient equity capital. We also see that smaller A-REITs are more likely to undertake cheaper short term debt during unstable periods, where short term debt rollovers help reduce the risk of insolvency.

The effect of profitability (NPATE) on leverage is negative and significant at the 1% level in both models. This finding is consistent with Rajan and Zingales (1995), Booth et al (2001), Zoppa and McMahon (2002), Cassar and Holmes (2003), Westgaard (2008), Hammes and Chen (2004), Fama and French (2002), and Titman and Wessels (1988), and Harrison et al (2011), but inconsistent with Smith and Watts (1992), and Barclay, Morellec and Smith (2001). In a raw sense, our result would support Pecking Order Theory for entities that are able to retain earnings and use less debt, but because debt becomes first preference in the absence of retained earnings, we refute this theory for this variable. In terms of Agency Theory, it appears that more profitable A-REITs could have been attempting to reduce debt in order to reduce the degree of external monitoring. This effect is exacerbated due to the greater earnings that can potentially be 'mismanaged' with less scrutiny. Our result also supports Trade-off Theory whereby more profitable A-REITs prefer to reduce cheaper debt for the greater fear of approaching bankruptcy, especially where they are not integrated with the tax system. Given our strong result and inclusion of stapled A-REITs in our sample, lower debt usage suggests that tax deductions play little or no part in the gearing decision, weakly refuting the tax component of Trade-off Theory.

After the onset of the GFC, both models show that more profitable A-REITs with lower debt ratios had increased debt. Our DDE and DPU models show these to be significant at the 10% and 1% level respectively. We believe that possible reasons for this revolve around the credit shortage and banks' greater unwillingness to lend funds after the GFC onset. It appears that stricter lending criteria and the scarcity of funds had made it more likely for more profitable (or less unprofitable) A-REITs to obtain debt finance at the expense of less profitable A-REITs. With some facing fast expiring debt facilities, it may have been less costly to promptly refinance where they could and to avoid the uncertainties involving drawn-out, more expensive equity issues. From a theoretical perspective, it appears as if Pecking Order Theory prevails and both Agency and Trade-off Theories are refuted when analysing profitability during an unstable period. The reasons appear to be more opportunistic when facing urgent expiry deadlines rather than focusing on long term net costs.

The relationship between leverage and tangibility (NTATA) is positive in both DDE and DPU models and significant at the 5% and 1% level respectively. This is inconsistent with Wiwattanakantang (1999) and Booth et al (2001) but consistent with Prasad et al (2003) and Suto (2003) who find a positive significant relationship for Malaysian entities, Harrison et al (2011) for U.S REITs, and Deesomsak et al (2004), who find a positive relationship among Australian entities. Long term debt is typically used to fund larger asset purchases over a longer period, and thus incorporates a duration premium within its cost. All or part of this premium may translate into lenders' demand for collateral. The pre GFC period also coincides with a greater number of long term property purchases and an increase in long term gearing at the height of the economic cycle. Our results show strong support for Agency Theory whereby collateral opportunities in the form of fixed charges increases with the level of debt. If the relationship were negative, then we would see A-REITs with lower levels of tangibility borrowing at higher cost, also contravening Pecking Order Theory. Trade-off Theory is also supported by our results because with a higher number of tangible assets, losses to creditors are minimised should default occur. We also see support for these theories anecdotally where the A-REIT market in general is more highly geared than non A-REIT entities and has a higher degree of tangibility with real estate assets in the absence of Goodwill and Research & Development.

With onset of the GFC, both models show that highly tangible A-REITs reduced debt levels at the 1% level of significance. This result may simply reflect negative asset revaluation once economic pessimism lowered the present value of expected future income generated by assets. In turn, the magnitude of collateral fell and it appears that both Trade-off and Agency theories hold with respect to tangibility. Lowering of debt levels aims to reduce the impact of default on creditors and also minimises the cost of debt where lenders would otherwise be under-collateralised.

Operating risk (OPRISK) has a negative impact upon debt levels and is significant at the 5% level in our DDE model and at 1% in our DPU model. This result supports Trade-off Theory whereby volatile earnings make financial distress more likely. A-REITs appear to have reduced leverage on this basis in order to reduce mandatory interest repayments and reduce the risk of distress. Our result contradicts Agency Theory whereby debt levels increase with earnings

volatility in order to ensure managers maximise unit holders' wealth whilst they can at the expense of debt holders. As Agency Theory is refuted in this case, we can suggest that the A-REIT market is not at the critical stage where its viability is in jeopardy. The converse would have suggested a last-ditch attempt to appease unit holders before the metaphorical ship sinks.

Table 8: Support or otherwise of postulated theories for A-REITs (2006-2009)

THEORY	VARIABLES SUPPORTED	VARIABLES REFUTED	POST GFC VARIABLES SUPPORTED	POST GFC VARIABLES REFUTED
PECKING ORDER	SIZE TANGIBILITY GROWTH OPPORTUNITIES	PROFITABILITY	PROFITABILITY	
TRADE-OFF	SIZE PROFITABILITY TANGIBILITY OPERATING RISK	PROFITABILITY (TAX) GROWTH OPPORTUNITIES	TANGIBILITY GROWTH OPPORTUNITIES	PROFITABILITY
AGENCY	PROFITABILITY TANGIBILITY	OPERATING RISK, GROWTH OPPORTUNITIES UNIT PRICE PERFORMANCE	TANGIBILITY	PROFITABILITY
SIGNALLING	GROWTH OPPORTUNITIES			
MARKET TIMING		UNIT PRICE PERFORMANCE		UNIT PRICE PERFORMANCE

After the onset of the GFC, our results are mixed in that A-REITs with volatile earnings and lower debt levels either further reduced debt (DDE model) or increased it (DPU model). Both are insignificant and suggest that the Trade-off Theory, despite holding in prosperous times is not quite as rigid during an uncertain period where it is expected to be even more so. We suggest that the lack of significance is due to risky A-REITs expecting such financial results and having previously reduced debt levels in preparation for further volatility. It is also possible that A-REITs with high operating risk were slow to react in reducing debt levels when faced with the uncertain magnitude of the GFC. Looking back at Table 1, debt issues increased from $5.8 Billion in the 2006/07 financial year to $9.3 Billion in 2007/08, before falling to $1.9 Billion in 2008/09.

Growth opportunities (MVBV) have a positive relationship with gearing levels. It is significant at the 1% level in the DDE model, and at 5% in the DPU model which is consistent with the results of Deesomsak et al (2004), Giambona (2008), and Feng et al (2007). This finding contrasts with the findings of Chikolwa (2009), Titman & Wessels (1988), and Harrison (2011), and generally with studies using companies that are not bound by the same degree of regulation and tax exemption that A-REITs are. Our results do not support Agency theory, whereby A-REITs with high growth potential are expected to shy away from lender monitoring. Theory states that there is potential to undertake opportunities that are more risky than optimal, with cost of debt reflecting this risk. A-REITs' preference to borrow clearly does not reflect an increased cost of debt, nor does it suggest a propensity to engage in super risky projects. In contradicting Trade-off Theory, intangible growth opportunities also do not appear to be placing debt serviceability in doubt. In this case, growth opportunities seem to be substantiated, eliciting more optimism than the theory gives it credit for. This blends in better with signalling theory where high-growth A-REITs may be borrowing more as a signal to the market that their strategy will withstand further monitoring. In contrast with our result, many studies of U.S REITs have shown that growth opportunities are not typically funded with debt. We see that as a sign of undertaking more aggressive, risky growth strategies without the pressure of additional monitoring in a more competitive and condensed U.S REIT market.

After onset of the GFC, A-REITs with higher growth opportunities and increased debt levels appear to have reduced gearing in both models, although this result is insignificant. In a weak sense, there is a slight indication that managers may have been trying to reduce the scrutiny of lenders after revising the expectations of their projects. It is more likely however that A-REITs saw greater volatility in growth opportunities post GFC and followed Trade-off Theory by reducing debt and mandatory interest payments with more expensive equity funding. This signifies a potential move away from confident signalling to lower monitoring when growth is impaired.

Unit Price Performance (UPP) has a positive relationship with the debt ratio but remains highly insignificant in both models. Our positive result contrasts with that of Deesomsak et al (2004), Baker & Wurgler (2002), Li et al (2007), and Ooi et al (2010). This result contrasts with Market Timing Theory by suggesting that higher unit prices elicit greater use of debt. Our explanation is that despite the potential to raise sizeable amounts of equity capital when unit prices are high, debt was relatively inexpensive pre GFC and on average, it seems there may have been a desire to not dilute the unit holder base. Drawing on Table 1, the total debt issued in our sample in the 2005/06 and 2006/07 financial years pre GFC was $7.429 Billion whereas total equity issued over the same period was $7.062 Billion. These similar figures help to explain that there was no specific preference for equity despite unit price performance being considered healthy. We are able to contend that A-REITs don't appear to have taken advantage of information asymmetry by strategically offering equity when units were overvalued. Even if price performance did lead to more equity being issued, it must be proven that unit values were positively deviating from their intrinsic value in order to assert that managers opportunistically acted upon information asymmetry.

After onset of the GFC, A-REITs with superior market performance and higher debt levels appear to have reduced debt but the impact remains insignificant in both models. The lack of impact could be due to the fact that despite tremendous falls in market capitalisation initially from December 2007, a large number of A-REITs were actively raising equity capital in our sample to improve their financial position as seen in Table 1 ($19.331 Billion equity to $11.297 Billion debt). Anecdotally, this refutes Market Timing Theory and again shows that the GFC appears to have distorted decisions that managers may have planned to make under stable economic conditions. Either way, there was no definitive relationship over this sample time period.

The presence of revenue generated outside Australia (GLOBAL) by A-REITs shares a positive relationship with the debt ratio. Both our models show that this relationship is insignificant in contrast to Ooi (1999), Giambona (2008), Newell (2006), and Chikolwa (2009), albeit slightly falling outside the 10% significance level in our DDE model. It appears that the benefits of international diversification and its array of political, economic and financial risks blur any impact in this case. This is despite many A-REITs having undertaken overseas acquisitions prior to 2008 when the market was at its peak and not having increased their risk profile (Newell 2006). With the onset of the GFC, however, exposure to countries like the U.S that have been affected by the GFC to a greater extent is expected to impact upon unit holder sentiment, especially when those asset values fall. This invites a case for attempting to limit debt exposure where overseas asset values fall even further. In fact, the biggest falls in market value have been recorded by those A-REITs with exposure to weak off-shore markets and high levels of debt (Lumsden et al 2009). Given previous empirical evidence, debt levels are expected to rise with a greater degree of international exposure because geographical diversification reduces risk and lowers the cost of debt, but this appears to occur during stable economic and financial conditions.

Finally, the Global Financial Crisis (GFC) has had a pronounced negative impact in both models, being significant at the 5 % and 10% levels in the DDE and DPU models respectively. Its general negative impact reflects the concern of A-REITs of being overexposed to debt when revenues are uncertain. There prevails a two-pronged effect. The first conforms with Trade-off Theory whereby uncertain revenues place the ability to cover mandatory interest repayments in doubt. A-REITs then actively attempt to reduce this default risk by issuing equity to pay off debt. In some cases, equity issues assisted in making interest payments where profitability was highly negative in the 2007/08 and 2008/09 financial years. The GFC also reduced the supply of loan funding and led to a tightening of credit policy. This means that A-REITS were scrambling to secure refinancing of debt facilities while they could, and to a greater extent, obtaining equity capital despite heavy falls in unit prices. The second effect comes into play when asset values fell and 'artificially' rose debt ratios despite A-REITs having not varied their nominal debt significantly across financial years. Higher debt ratios in turn raise the cost of debt because lenders run the risk of the loan-to-value margin decreasing or even becoming negative as was seen with Centro. Again, the desire to secure equity capital despite its low price and high cost shows that this strategy was the lesser of two evils compared to the potentially prohibitive cost of debt, increased monitoring and risk of bankruptcy.

CONCLUSIONS

The Australian listed property sector is an unique market in its own right, and given the conflicting determinants of capital structure in numerous previous research, the GFC has created an environment where the effect of the classic determinants seem to become distorted. This does not mean that the way in which they interact with the debt ratio is illogical, but rather appear to achieve an outcome that is focused on A-REIT survival rather than managerial opportunism. We tested the robustness of the traditional capital structure model (DDE) by using a second model (DPU) with a proxy debt ratio measure. The results were very similar and the proxy model was found to have reflected capital structure decisions better. We believe that this was the case because the DDE variable incorporates large variations in the book equity denominator which are somewhat beyond managerial control during periods of market volatility.

Our results are similar to those found in both REIT and corporate entities internationally and show that several explanatory variables have differing impacts where the GFC does play a part in affecting capital structure decisions. Our results show that determinants of A-REIT capital structure and their signs compare similarly with those of U.S REITs and given conflicting results abroad, it is difficult to give definitive reasons. A-REITs were however more prompt than U.S REITs in issuing significant equity post GFC and this is a likely reason our capital structure currently has a lower proportion of debt. U.S REITs only recently had close to $20 Billion of equity issues in 2010 and their debt levels remain at 50% as opposed to A-REITs at 30% (St Anne 2011).

Capital structure theories including Pecking Order, Trade-off, Agency, and Market Timing Theories were both supported and refuted in our study, depending on the interplay of certain independent variables with the level of debt. It is important to note that by confirming that a particular theory holds true, we do not necessarily discount another as they are not mutually exclusive, rather they provide insight into capital structure decisions from different perspectives and under a changing financial environment.

There is potential for further research in terms analysing long term impacts of financial crises, including the degree and timing of possible reversion back to the status quo. The impact of traditional determinants on both long and short term leverage decisions can be compared given the invisible optimal capital structure that exists under different environments. There is also greater scope for more research with U.S REITs, as the GFC has had the largest impact there and should provide more dramatic differences across different periods.

Generally, as the A-REIT sector attempts to ride out the effects of the GFC, we expect a more passive investment strategy, with less active investment in property development and a more simple financial structure to appeal to more risk-averse equity holders. We hope that lessons have been learned within the financial industry and that the listed property sector will in future position itself with a sustainable mix of capital at every stage in the economic cycle.

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APPENDIX

List of A-REITs included in the sample

Name	ASX Code
Abacus Property STP	ABP
Agricultural Land Unt	AGJ
ALE PRP GRP STP	LEP
Aspen Grp STP	APZ
Astro Jap Prop STP	AJA
Aust Education UNT	AEU
Bunnings Warehouse UNT	BWP
Carindale Prop UNT	CDP
CFS Retail Prop UNT	CFX
Challenger Winetr UNT	CWT
Commonwealth Prop Ord UNT	CPA
Coonawarra Aust UNT	CNR
GEO Prop Grp STP	GPM
Goodman Grp Forus	GMG
GPT Grp STP	GPT
ING Industrial Fd UNT	IIF
ING Office FD STP	IOF
ING Re Com Grp STP	ILF
ING Real Est Ente UNT	IEF
Living & Leisure Grp STP	LLA
Mirvac Grp STP	MGR
Rabinov Prop Tr UNT	RBV
RNY Prop Tr UNT	RNY
Stockland STP	SGP
Thakral Holdings UNT	THG
Tishman Speyer UNT	TSO
Trafalgar Corp STP	TGP
Trinity Grp STP	TCQ
Valad Prop Forus	VPG
Westfield Grp STP	WDC
Westpac Office Tr UNT	WOT
TOTAL	31