Australian Commercial Property Investment Market :

Styles, Performance and Funding

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Abstract

Australian commercial property is a physical asset class that forms an important part of the capital market universe. On available data, the extent and composition of investment grade commercial property and associated property investment products can be measured and compared to the wider Australian investment market. As at December 2012, the estimated Australian institutional grade commercial property stock was AU$681 billion. The size of the core property investment market (office, retail and industrial) is AU$280 billion of which approximately AU$195 billion (70%) is owned by Australian Institutions.

Due to illiquidity and high value thresholds, a range of securitised property investment products exist which offer investors exposure to local and overseas commercial property. The largest is public equity with Real Estate Investment Trusts capitalised at AU$89 billion representing close to 4% of the Australian Stockmarket. Next is private equity, comprising wholesale property trusts and property syndicates at a combined value of AU$84 billion. Debt securities offer an alternative return stream linked to property in the form of the AU$165 billion whole commercial property mortgage sector and the AU$16 billion traded debt securities sector.

Typically, data about the performance of investment asset classes is sourced from transaction based indices. With no central trading place and low transactions, commercial property investment performance data are based on valuation indices which exhibit artificially low volatility. Using accepted statistical techniques, the valuation based PCA/IPD composite property data can be desmoothed, which increases volatility by 31%. Over the 1985-2012 period, with inflation removed, desmoothed property is shown to have one of the best risk adjusted performance profiles (joint second) of the eight leading investment asset classes. However, future performance depends on economic conditions and how levels of new supply affect rentals and prices.

A high value threshold means that direct property investment requires considerable capital. This can be achieved by increased equity leading to higher specific property risk or debt financing part of the property investment. Whilst debt funding can improve property investment returns, it substantially increases the risk levels. Using the same 28 year desmoothed property data series, a 80% gearing level can lead to a 30% improvement to the property total returns, although the risk (volatility) is increased five-fold.

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1. Introduction

For investors, Australian commercial property is a physical asset class that forms an important part of the capital market universe. Property assets offer diversification potential with returns based on regular income from long lease contracts and prospects for capital growth. Typically, commercial property prices are highly inelastic with the supply of new assets subject to long development periods and planning regulations (Baum 2009).

The role of commercial property in the capital market is not always appreciated or understood. Compared to the competing asset classes, most commercial properties are traded in private and require limited disclosure. These and other differences call for specific oriented research to better integrate commercial property into the capital markets.

The aim of this research is to address three specific issues, i) defining the size of Australian commercial investment property market, ii) compare investment performance with competing asset classes after adjusting for the reported low volatility from commercial property valuation based performance indices, and iii) study the impact of debt financing on commercial property fund performance. The research provides an important knowledge base for investors less familiar with the potential role of commercial property[1] in an asset portfolio and reference point for those involved in the commercial property investment market.

In detailing the scope of the research, it is important to understand for decision making that investors place considerable value on the level of accessible information. Compared to competing asset classes, commercial property as an asset class has distinct features:

- no central trading place to generate observable market prices
- limited transactions restricting directly comparable evidence
- illiquid assets requiring a large capital outlay
- high value threshold of direct property can lead to highly concentrated portfolio risk
- unique characteristics of individual buildings create substantial idiosyncratic risk
- low property related disclosure/reporting requirements
- issues of obsolescence and depreciation – implying capital expenditure requirements
- management intensive asset class with potential risks of rental income volatility

Reflecting these characteristics compared to other asset classes, investors have a unique opportunity to add value. Astute management offers opportunities to increase property returns with new leases, refurbishments, and the possibility of repositioning the property in a changing marketplace.

[1] Commercial property is an investment asset class and is separate from property development (construction) investment which is recognised as a high-risk activity (Baum 2009).

Involvement in management of the underlying (direct) property asset is not a necessary requirement for the investor due to the existence of a range of creative capital market property instruments. These enable investors to have an exposure to property in different shapes and forms, without the management and liquidity issues of direct ownership. These types of investments generally involve intermediaries holding the properties and issuing financial claims related to the property returns to investors. In most instances, the investors are not actively involved in the property decision making (selection or management) process.

For the Australian commercial property market, the various investment options for investors are shown in Figure 1.

Figure 1

Property Investment Market Structure

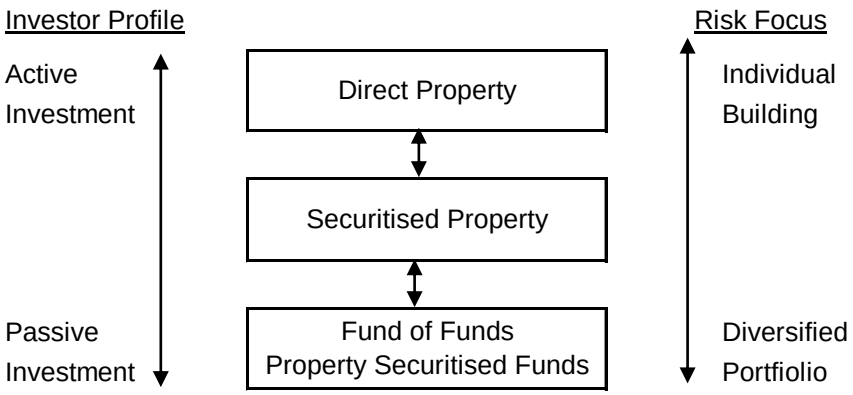


Figure 1 shows the three property investment layers which offer different risk and return profiles. For investors, a direct property investment requires active asset management to maintain and improve property returns. As high value thresholds and illiquidity limit diversification, investors are exposed to increased property specific risks.

An alternative property investment option is "*securitised property*", where an investment vehicle offers investors access to the property sector. Diversifying the risk, with a low entry cost, the property investment options are extensive and professionally managed. Although in the long term returns on securitised property investment follow the underlying property asset returns, short term performance can vary depending on the investment platform. Specifically, short term listed property movement can be linked to the liquidity offered by the public equity market and therefore listed property may not reflect underlying property market value.

Accompanying the main property investment products, fund of funds arrangements (so-called Property Securitised Funds) offer an efficient structure for investors to gain access to a wide range of direct and securitised property investment assets. Investment managers of the property securitised funds select the property assets and have access to specialist property funds that might otherwise be unavailable to investors.

The securitised property market offers a range of investment opportunities with different risk and return profiles. These can be placed into four capital market categories according to whether they are traded on the public or private markets and whether they are either equity or

debt investments. The four quadrant investment market and leading securitised property asset classes that operate within each quadrant are illustrated in Figure 2.

Figure 2 **Four Quadrant Securitised Property Investment Market**

	Public Markets	**Private Markets**
Equity Assets	**Traded Public Securities** *- Real Estate Investment Trusts*	**Private Entities** *- Unlisted Property (Wholesale Property Funds and Property Syndicates)*
Debt Assets	**Traded Debt Securities** *- Commercial Mortgage Backed Securities* *- Property Trust Bonds*	**Bank Loans** *- Whole Commercial Property Mortgages*

Figure 2 shows the structure of the Australian securitised property investment market. Linked to the underlying direct property asset, property investment choices are as follows:

Private Investment Products: represents illiquid (unlisted) property investments where there is no central trading place. The investment horizon is normally long term.

- **Wholesale Property Funds**: offer large investors a share in direct ownership managed by a third party. Generally major investors are represented on a supervisory (decision-making) board. Examples include: Charter Hall Core Plus Office Fund, and Goodman Australian Industrial Fund.
- **Property Syndicates**: focused at small (retail) investors offering low entry costs to a managed trust ranging from a single property asset to a major diversified property portfolio. Examples include: Stockland Direct Retail Trust No1, and Australian Unity Office Property Fund.
- **Commercial Mortgages**: these are traditional debt instruments used in financing arrangements and consist of whole commercial mortgages originated and held by banks and other financial organisations usually over a defined time period.

Public Investment Products: refers to investments that are easily traded over public exchanges and so provide for a range of short and long term investment horizons.

- **Real Estate Investment Trusts**: (REITs): are tax transparent property investment vehicles that primarily hold, manage and maintain properties for investment. REITs are liquid assets and are listed and traded on the Australian Securities Exchange. A past alternative Australian name for REITs is Listed Property Trusts (LPTs). Examples of REITs include: Westfield Group, GPT and Mirvac Group.
- **Commercial Mortgage Backed Securities** (CMBS): are generally pass-though securities backed by a pool of mortgages secured over commercial properties. Examples include: Charter Hall Retail REIT.

- **Property Trust Bonds**: represent an unsecured claim against the property investment vehicle, rather than a claim against the underlying properties. The issuance of Property Trust Bonds generally obliges the property investment vehicle to adhere to specified covenants. These like CMBS are thinly traded on a secondary market. Examples include: CFS Retail Property Group, and Dexus Property Group.

In detailing the property opportunities available to investors, the sourcing of property and capital market information, definitions and coverage do vary between data providers and in some instances their samples are representative of the total population. Acknowledging these data limitations, commercial property can be compared with other major components of the domestic investment market. For the purpose of this research, the focus is on the Australian commercial property investment market as at December 2012.

As the research focus is on the Australian investment market, household residential property, has been omitted as there are limited opportunities for institutional investors to invest in residential properties in the public equity market.

This research is structured in the following manner. Section 2, “Styles of Property Investment” provides detail on the size of the Australian commercial property investment market, investment types and ownership. The relative importance of the property investment products that form the four quadrants shown in Figure 2 are calculated. Section 3, “Property Investment Market Performance” initially covers desmoothing of the appraisal based property data. This then allows for inflation adjusted long term performance comparisons with alternative asset classes. Section 4, “Debt and Property Investment Markets” covers the types and impact of leverage on investment returns. A final section provides concluding comments.

2. Styles of Property Investment

Good investment decision making is important for the allocation of resources (land, labour and capital) and requires access to quality information. For many asset classes, there is a contrast as to the type and level of information; specifically well documented is risk, return and liquidity information to commonly less known market size.

Comparing the size of the commercial property investment markets relative to alternative asset classes in the Australian capital market is difficult due to the following:

- limited disclosure of corporate property asset values and private investment products.
- investment products can overlap and invest in more than one investment product (for example: Fund of Funds, raising potential problems of double counting).
- investment products can comprise different combinations of equity and debt (so called, hybrid products).

To overcome these issues, market size and opportunities for investors can be examined at three distinct levels. For example, measures of the Australian investment grade commercial property market can be considered as follows:

- **Total stock**: represents all institutional grade property, whether owned by investors or owner occupiers and in the public or private sectors. This includes corporate owned property which forms part of an organisation's manufacturing operation.
- **Investment market**: consists of all investment vehicles/assets that are available to investors in the public or private sector that have property as the core underlying constituent [2].
- **Investable universe:** is the total value of all institutional grade assets with all overlaps removed. Double counting can occur when assets are included in more than one investment asset class. For example: Real Estate Investment Trusts are part of the publicly traded equity market, however the underlying properties are counted as part of the total commercial property stock.

The three distinct measures can provide contrasting outcomes. For the purpose of this research, the focus is on the total stock and the investment market.

In examining the Australian property investment market structure, the total value of the public portion is relatively straightforward. As in most public traded markets, the value of each security is known, as public trading provides constant pricing information and the number of shares (units) is a matter of public record.

Conversely, estimating the aggregated value of non-securitised or private market investment is more difficult. This results from the fragmented, non-standardised and complex nature of trading in these instruments. In addition, there is not much incentive to publicise transaction details.

Consequently, the available estimates of the total value of many private market asset classes come from market surveys carried out by service data providers where classification and market coverage may vary.

[2] For the purposes of this research, managed funds, fund of funds (property securitised funds) and derivatives, are omitted as their value simply captures the value of the equities or debt obligations already included in this category, which they own or have the right to own in the future.

Australian Property Investment Market

Various private markets form the domestic investment market. The structure of these private markets is considerably more complex than the publicly traded markets. ABS (2013) values unlisted shares[3] at AU$1,873 billion which includes equity investments in private non-residential property.

Apart from the ABS (2013) unlisted share value, individual classes of assets are estimated using methodology and data sources appropriate for that particular asset class. The standard approach to estimate the size of a country's investment grade commercial property market is a top-down GDP based approach. In estimating the investment grade commercial property market size, different adjustments are used for developed markets and developing markets, as well as adjustments for different population densities. For methodology, see Liang and McIntosh (1999) for the global commercial property market and Higgins (2005) for the Australian commercial property market.

The top-down GDP based approach is utilised by Pramerica (2012) to assess the size of 55 global commercial property markets. The Asia Pacific Region accounts for over US$7 trillion (27%) of the US$26.6 trillion global investment grade commercial property market. Pramerica (2012) estimated the Australian commercial property market (covering all investment grade commercial property - offices, retail, hospitals, hotels etc) at US$656 billion (AU$681 billion), which represents approximately 2.5% of the global commercial property universe.

A bottom-up approach to the size of the Australian core commercial property markets can be assessed based on PCA (2013a,b) estimates of office stock and individual shopping centre data. The industrial property market utilises ABS employment data, specifically the industrial sector (transport and storage, wholesale and manufacturing categories) and applies a workspace ratio with adjustment for institutional grade floor space, see Higgins (2005) for the methodology. IPD (2013) capital values are then applied to the estimated floor areas.

To arrive at a value of Australian institutionally owned property, the research itemised and omitted both the overseas owned properties (AU$71 billion) and development/residential properties (AU$14 billion) recorded in the PIR (2012) *Australian Property Fund Industry Survey*. While acknowledging data limitations, the findings in Figure 3 illustrate the Australian property ownership structure and allow comparisons between Australian investment grade core property markets[4].

[3] ABS 5232, Australian National Accounts sourced the unlisted shares data from a quarterly survey of public unit trusts. As this is a survey of investment value, ABS advises that the information should be viewed with caution.

[4] For the purpose of this research, core property covers office, retail (shopping centres) and industrial buildings. Non-core property includes entertainment and community (hospital) facilities etc.

Figure 3

Summary of the Australian Property Investment Market

	Property Investment Market Size Total Value AU$B	Institutionally Owned Property Total Value AU$B	Market Coverage by Institutional Investors
Core Property Sector			
Office Investment Market	111	63	56%
Retail Investment Market	112	106	94%
Industrial Investment Market	56	27	47%
Total	**280**	**195**	70%

Figure 3 also outlines the size and the degree of institutional ownership of the Australian core property investment market. Australian institutions have AU$195 billion exposure to the core property sector, apportioned: office 32%, retail 54% and industrial 14%. The proportion of the retail market owned by Australian institutions is a high 94% and would suggest with limited new supply that growth opportunities may centre more on redevelopment opportunities or retail transactions between institutions. Alternatively, as institutional investors own 47% of the industrial property market, a major source of future industrial property investment would be from corporate owned property as they move to a leasing ownership option to adjust to the changing Australian manufacturing and retailing logistic landscape.

A recent feature of the Australian commercial property market is the significance of long term overseas institutional investors. They have increasingly entered the market, attracted by a developed economy and a mature property market offering quality returns. Their investment strategies cover joint ventures most noticeably with key local property fund managers: Westfield Group – retail and Goodman Group – industrial. These joint ventures are recorded in the institutionally owned property figures, whilst there is limited data on direct overseas property ownership in Australia. Major overseas investors in direct property do include leading Asian pension funds, for example: Government of Singapore Investment Corporation (GIC) and South Korea's National Pension Service (NPS).

Those Australian properties owned by Australian institutions are typically spread across property investment vehicles in the public and private markets. This offers investors a different risk/return profile, as prices of publicly listed property trusts are affected more by movement in the stockmarket than the private market property vehicles, which are driven more by underlying property fundamentals (Rowland 2009). Figure 4 shows the different property investment vehicles and the associated value of the underlying Australian properties.

Figure 4

Institutionally Owned Australian Commercial Property: Comparing Public versus Private Markets

	Institutionally Owned Property Total Value AU$B	% of Total
Public Market		
Real Estate Investment Trusts	89	46%
Private Market	106	54%
Wholesale Property Funds	90	46%
Property Syndicates	*16*	8%
Total	**195**	**100%**

Source: PIR 2013 and author

Figure 4 illustrates the ownership profile of the Institutionally owned Australian investment grade property market with the well documented publicly traded market (Real Estate Investment Trusts) owning AU$89 billion of Australian investment grade property. This compares to the unlisted/private market which is formed by the less documented, institutional based AU$90 billion Wholesale Property Funds[5] and the retail investment focused AU$16 billion Property Syndicate market.

Australian Property Investment Products

This section provides an overview of the components of the Australian investment market. The investment assets are placed in the four quadrants of the Australian capital market, being defined as public equity, public debt, private equity and private debt. The following shows information on the structure and size of these individual markets alongside the associated Australian commercial property products in each quadrant.

Public Markets

The public equity and public debt components of the domestic investment market are shown in Figure 5.

[5] Wholesale Property Funds include PIR classification for wholesale property funds and unlisted property trusts

Figure 5

Australian Financial Markets

	Value AU$B	
Publicly Traded Equities	1,335	
- Real Estate Investment Trusts		*89*
Debt Securities		
- Short term debt securities	462	
- Long term debt securities	1,725	
Securitisation Vehicles	324	
- Residential mortgages		*103*
- Non-residential mortgages		*16*
- Others		*205*
Total	3,846	

Source: ASX 2013, ABS 2013, NAB 2013

Figure 5 shows selected financial instruments that form the Australian financial market, being approximately AU$3.8 trillion with the debt securities being AU$2.2 trillion representing 57% of the selected Australian financial markets**.** The commercial property component (Real Estate Investment Trusts) and non residential mortgages represented less than 3% of the Australian financial markets.

Private Markets

The structure of the private market is considerably more complex than the publicly traded markets. The unlisted property sector is covered by private property investment products represented by Wholesale Property Funds (including Direct Property Funds) and Property Syndicates. The sizes of these markets are detailed in Figure 6.

Figure 6

Summary of the Private (Unlisted) Property Investment Market

	Total Value AU$B	% of Total
Wholesale Property Funds	76	90%
Property Syndicates	8	10%
Total	**84**	**100%**

Source: PIR 2013 and author

Figure 6 outlines the value of the unlisted property investment market. This is different to Figure 4 which shows the value of Australian properties owned by the property funds. In part the growth in wholesale property trusts is due to major REITs setting up wholesale property trusts with properties that they have under management and sourced for this specific purpose. For example: Goodman Group buying the listed ING Industrial Fund in 2011. Property syndicate growth has been affected by the global financial crisis, although there are now signs of increased property syndicators' activity.

Limited disclosure restricts information about the private debt market. The ABS (2013) reports on loans and placements outstanding which can be detailed[6] as the outstanding loan liability outside the publicly traded market. As at December 2012, loans and placements outstanding was AU$2,866 billion, with households borrowing the largest proportion at AU$1,682 billion. To match the private equity market which excludes residential property, household borrowings[7] have been deducted to record an outstanding amount of AU$1,184 billion. This can be compared to survey data collected by APRA (2013) on outstanding commercial property market debt held by Australian banks. Please see Figure 7.

Figure 7

Commercial Property Exposure Held by Australian Banks: Dec 2012

	Total Value AU$B	% of Total
Core Property Sector		
Office	60	29%
Retail	44	21%
Industrial	24	12%
Sub Total	128	
Land development/other residential	43	21%
Other (inc Tourism)	37	18%
Total	**208**	**100%**

Source: APRA 2013

Figure 7 details the outstanding bank debt across the commercial property sectors. The AU$208 billion includes AU$36 billion exposure to overseas property. The banks AU$128 billion exposure to the core property sector is apportioned; office 46%, retail 35% and industrial 19%. This is different to the allocation by the institutions to the core property sector in Figure 3 and would suggest debt funding arrangements vary across property sectors depending on the ownership structure of the property investment vehicles and the underlying performance profile of the building asset/ property portfolio.

The four quadrants of the public and private, debt and equity markets can be joined together to provide an overview of the Australian investment market. Likewise, the commercial property component of each quadrant can be shown as part of the aggregate data. Figure 8 details the Australian investment market composition.

[6] ABS explanatory notes detail "loans**"** as borrowings which are not evidenced by the issue of debt securities, and are not usually traded. Also "placements" are customers' account balances with entities not regarded as deposit-taking institutions.

[7] The major proportion of household borrowing (AU$1,186 billion) is for residential property purchases (ASB Cat 5609).

Figure 8

Australian Investment Market – AU$6.9 Trillion

	Public Markets	Private Markets
Equity Assets	**Shares (AU$1,335billion)** *- Real Estate Investment Trusts (AU$89billion)*	**Private Entities (AU$1,873billion)** *- Unlisted Property (AU$84billion)*
Debt Assets	**Debt Securities (AU$2,511billion)** *- Commercial Mortgage Backed Securities and Property Trust Bonds (AU$16billion)*	**Bank Loans (AU$1,184billion)** *- Whole Commercial Property Mortgages (AU$165billion)*

Figure 8 illustrates the components of the AU$6.9 trillion Australian investment market and the size of commercial real estate assets in each section. The public debt market accounts for 36% of the Australian investment market with short and long term debt securities comprising the major share. In Australia, these are primarily issued by banks and other financial corporations.

The total commercial property component of AU$354 billion, represents just above 5% of the Australian investment market. The private sector commercial property market comprises approximately 70% and distributed approximately between the debt AU$165 billion[8] (46%) and equity AU$84 billion (24%) market. The publicly traded market (Real Estate Investment Trusts) represents AU$89 billion (25%).

3. Property Investment Market Performance

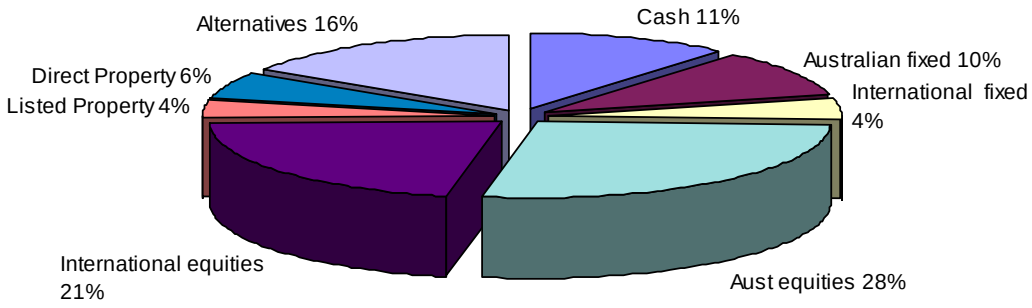
A pillar of the Australian investment market is Australian managed funds which include superannuation accounts. At December 2012, Australian managed funds had AU$2.0 trillion under management, diversified across a broad asset base including Australian commercial property. For investment strategies, the assets are typically grouped into defined categories for asset allocation and benchmark performance measurements.

Figure 9 illustrates the benchmark asset allocation for one of the leading superannuation options: balanced industry superannuation fund.

[8] Commercial property debt included core property and other (tourism) sector.

Figure 9

Average Asset Allocation for Balanced Industry Superannuation Funds: December 2012



Source: Rainmaker 2013

For the eight asset classes there are industry recognised benchmark indices. The Direct property classification represents direct and unlisted property, and Listed property covers Real Estate Investment Trusts. For this research, the Alternative sector comprises equal weighted benchmark data for private equity, hedge funds, resources and infrastructure assets.

Typically, the asset classes are represented by transaction based indices, which provide accurate current information on the asset class performance. However, due to no central trading place and limited transactions, the performance of direct property is sourced from valuation based indices which have a reduced volatility when compared to transaction based indices. The smoothing primarily occurs with the frequency of the property valuations, with individual property valuations anchored to prior property transaction data in the absence of conclusive current property market evidence of significant change (Marcato and Key 2007).

To illustrate the level of smoothing on the annual PCA/IPD Composite Property Total Return data (1985-2012), each period was lagged one year (AR_1) and two years (AR_2). Evidence of smoothing is a high autocorrelation, close to one, see Figure 10.

Figure 10

Investment Asset Class Returns: Autocorrelation Analysis

	Cash	Aust fixed	Int fixed	Aust eq	Int eq	Listed Property	Direct Property	Altern'ves
AR_1	0.90	-0.05	-0.06	-0.31	-0.12	-0.01	0.67	0.38
AR_2	0.75	0.21	0.27	0.03	-0.20	-0.03	0.12	0.10

Figure 10 shows low auto correlation (degrees of similarity between a given time series and a lagged version) apart from the high autocorrelation for cash and direct property. This is understandable for cash, as the interbank rate is closely linked to the decisions made at the monthly Reserve Bank Board meetings regarding the RBA cash rate target. Depending on market conditions, the RBA cash rate target changes, although more often it remains the same (unchanged).

The autocorrelation for direct property lowers the reported volatility and requires the data to be desmoothed to better reflect risk over any particular holding period. There is extensive literature detailing approaches to desmoothing property data, see: Bond and Hwang (2005), Geltner *et al* (2007), Marcato and Key (2007). Generally, desmoothing takes the form of, a first or second order autoregressive model, a time-varying approach, or an applied unsmoothing parameter weighting (0.4 to 0.6) range. To verify the model, the literature often refers to research by Giliberto (1992), which reported on a US investor survey which suggests the true volatility of property to be half that of equities.

For this research, various statistical models were tested and a suitable adjustment was made to desmooth the annual direct property data[9], see Figure 11.

Figure 11 **Equity and Property Data**
Smoothed and Desmoothed Performance: 1985-2012

	Mean	Standard Deviation	Median	Kurtosis	Skewness	Range	Max	Min
Aust Equities	13.1%	20.3%	15.4%	0.65	-0.40	92.6%	52.2%	-40.4%
Direct Property								
- Actual	10.4%	8.8%	10.6%	0.67	-0.04	38.6%	29.7%	-8.9%
- Desmoothed	10.3%	11.5%	10.7%	0.58	-0.26	50.6%	36.0%	-14.6%

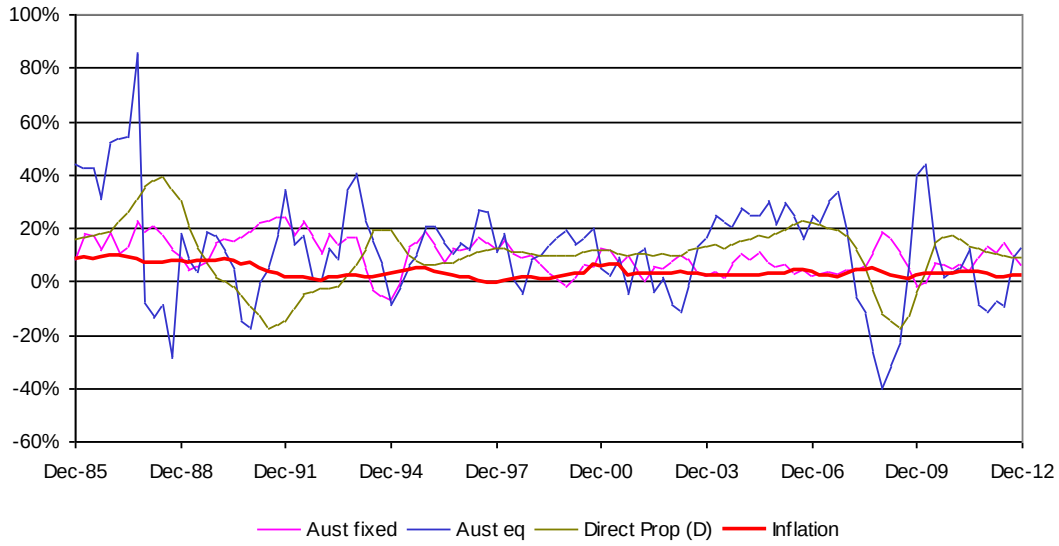
Figure 11 detailed the proposed adjustment to the valuation based commercial property data. The actual and desmoothed average returns are similar whilst the desmoothed property data volatility (standard deviation) increases by 31% to 11.5%. Likewise, the desmoothed property data range is amplified by a similar 31% amount.

Figure 12 plots the rolling annual performance of the leading local investment asset classes: equities, bonds and the desmoothed commercial property returns. On the graph, inflation data is shown to demonstrate over time the impact of consumer price movement on the asset classes.

[9] A parameter weighting of 0.4 provided a suitable adjustment to desmooth the annual direct property data.

Figure 12

Leading Australian Investment Asset Classes:
Rolling Annual Performance: 1985:2012



Source: ASX 2013, IPD 2013

Figure 12 illustrates major annual performance changes in leading Australian asset classes. Most evident is the movement in the Australian equity market data. Similar volatility is evident (although not shown) in International equities and Listed property (AREITs). The annual movement of these asset classes can range from plus 80% to more than negative 40% returns.

When looking at long series data, inflation is an important consideration, especially as annual inflation was often above 9% in the 1980's. This contrasts to the Reserve Bank of Australia (RBA) current low inflation mandate. By removing inflation, real rates of return provide better comparison between the performances of the asset classes, when comparing different time periods.

Figure 13 details the rolling annual performance and descriptive statistics for returns on the leading investment asset classes with inflation removed.

Figure 13

Investment Asset Classes Real Annual Performance: 1985-2012
Descriptive Statistics

	Mean	Standard Deviations	Sharpe Ratio	Median	Excess Kurtosis	Skewness	Range	Max	Min
Cash	3.8%	2.4%	0.03	2.9%	-0.54	0.64	9.7%	9.3%	-0.4%
Aust fixed	5.9%	6.4%	0.33	5.4%	-0.24	0.32	31.7%	22.6%	-9.1%
Int fixed	3.2%	5.3%	-0.10	2.2%	-0.23	0.27	29.2%	17.1%	-12.1%
Aust eq	8.3%	18.1%	0.25	9.6%	0.98	0.01	113.8%	71.3%	-42.5%
Int eq	5.8%	21.6%	0.10	8.2%	0.34	-0.08	122.6%	71.1%	-51.5%
Listed Prop	6.4%	17.0%	0.16	8.2%	3.61	-1.45	100.3%	41.6%	-58.6%
Direct Prop (D)	6.3%	10.4%	0.25	7.8%	0.50	-0.66	49.8%	29.7%	-20.1%
Altern'ves	4.5%	10.5%	0.08	2.3%	-0.72	0.28	46.1%	29.7%	-16.5%

Figure 13 shows Australian Equities provided the best mean real return (8.3%), however the standard deviation was a high 18.1%. Desmoothed direct property provided an annual mean return (6.3%) and relatively low volatility (10.4%). The low Sharpe Ratios were due to the selected risk free rate: 90 day bank bills, which after inflation provided an average annual 3.7% return[10].

The Kurtosis and Skewness readings reflected the shape of the distribution return data relative to the standard bell curve. According to Brown and Matysiak (2000) the preferred reading is an excess Kurtosis (above zero) with slightly positive skewness which demonstrates limited past downside risk (no major negative shocks). Apart from Listed Property, all asset classes demonstrated a standard bell curve (Kurtosis close to zero) with predominantly positive skewness.

Figure 14 illustrates the correlation matrix of the rolling annual performance for the investment asset classes.

Figure 14

Investment Asset Classes:
Correlation Matrix

	Cash	Aust fixed	Int fixed	Aust eq	Int eq	Listed Prop	Direct Prop (D)	Altern'ves
Cash	1.0							
Aust fixed	0.4	1.0						
Int fixed	0.3	0.7	1.0					
Aust eq	0.1	-0.1	0.0	1.0				
Int eq	0.2	-0.1	0.0	0.8	1.0			
Listed Prop	0.1	0.1	0.0	0.7	0.5	1.0		
Direct Prop (D)	-0.3	-0.4	-0.4	0.2	0.3	0.3	1.0	
Altern'ves	-0.4	0.0	0.0	0.2	0.1	0.4	0.5	1.0

Figure 14 show that there are strong links (positive correlations) between the respective Australian and International fixed interest (0.7) and equity markets (0.8). Similarly, Listed property appears to have a positive relationship with Australian equity (0.7) and International equity (0.5). For desmoothed Direct property there appears to be limited relationship with the other investment asset classes. Most noticeably, desmoothed Direct property has a negative (-0.4) correlation with Australian and International fixed interest and a positive (0.5) correlation with the Alternative asset class. This can relate to similar underlying asset class characteristics, for example: Alternative (infrastructure) and property assets feature long lease structures.

As the investment asset classes perform differently over time, performance can be reviewed relevant to prevailing economic conditions. Figure 15 divides the period from 1985 onwards into a number of sub-periods based on annualised economic growth relative to the long term GDP rolling annual average of 3.3% per annum. To capture major peaks and troughs, the

[10] A common risk-return measure is the *Sharpe Ratio*, being the rate of return above a risk-free rate, divided by the standard deviation of the returns.

selected periods shows defined periods of growth and recession in the Australian economy. For literature business cycle theory and measurement, see Pagan (1997).

Figure 15

Australian Economic (GDP) Performance

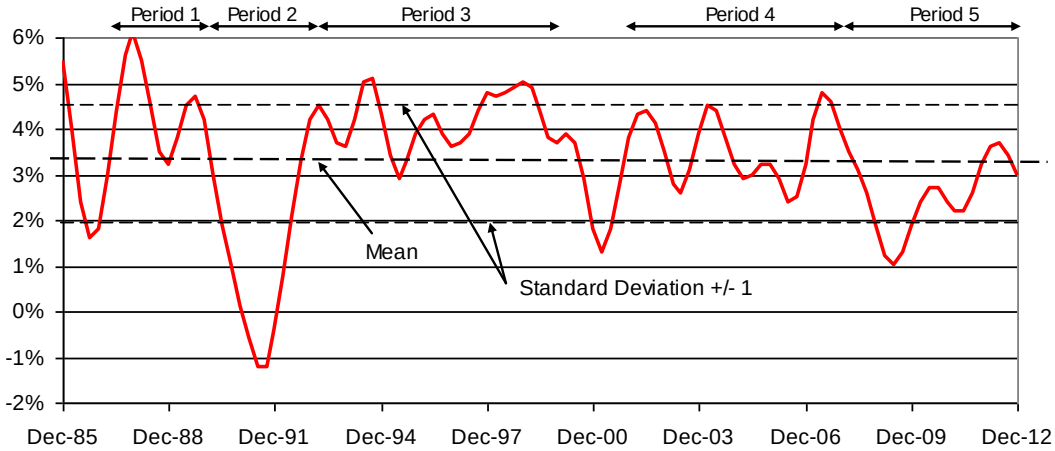


Figure 15 details periods of time where the Australian economy had changing economic conditions. Apart from period 4, the Australian economy appeared to experience rapid growth to above +1 standard deviation and sharp declines to below -1 standard deviation. The performance of the investment asset classes in the different economic environment is shown in Figure 16.

Figure 16

Investment Asset Classes: Real Annual Performance During Different Periods of Economic Activity

	Period 1 Strong Growth		Period 2 Major Recession		Period 3 Strong Growth		Period 4 Stable Growth		Period 5 GFC Impact	
	Returns	Rank	Returns	Rank	Returns	Rank	Returns	Rank	Returns	Rank
Cash	6.2%	4	7.8%	3	3.6%	8	2.4%	6	1.8%	3
Aust fixed	4.9%	5	15.8%	1	6.6%	6	2.4%	7	5.5%	1
Int fixed	-1.3%	7	6.6%	4	5.7%	7	1.2%	8	2.2%	2
Aust eq	7.7%	2	2.5%	5	11.4%	2	11.1%	2	-2.9%	7
Int eq	7.6%	3	-3.8%	6	11.5%	1	3.6%	5	-1.0%	6
Listed Prop	3.9%	6	8.1%	2	9.5%	3	10.7%	4	-6.6%	8
Direct Prop (D)	14.1%	1	-12.8%	8	7.2%	5	11.4%	1	1.6%	5
Altern'ves	-1.7%	8	-6.7%	7	8.2%	4	10.8%	3	1.7%	4

Figure 16 shows the performance of the investment asset classes in different economic conditions. It is evident that those linked to the equity markets (Australian and International equities, and Listed property), performed better in stable and growth economic phases. Likewise, Australian fixed interest performed well in periods of economic recession. Overall, the performance range of the asset classes narrowed during periods of economic growth with the exception of direct property in period one which experience strong growth based on good underlying property fundamentals.

The different periods of economic activity can show the variations between desmoothed Direct and Listed property performance. It appears property market fundamentals; particularly the supply side is an important direct property performance determinant. For example,

Australian office supply is slow to adjust during periods of economic recession; period 2 and the GFC impact period 5. According to PCA (2013a), Australian office stock increased by an estimated 6.3% per annum in period 2 and 2.7% in period 5 compared to the long term 2.3% annual average. The increased office supply is partly responsible for the poor Direct property performance in period 2 (-12.8% per annum) and to a lesser extent in period 5 (1.6% per annum). This highlights how underlying property characteristics (new supply), separate from economic conditions, can impact direct property performance.

During the cyclical phases covering periods two, three and four, Listed property performance remained relatively stable (8.1% – 10.7%) compared to the changing economic environment. This may relate to the changing AREIT market structure, for example: during these periods, AREITs embraced offshore property exposure, increased debt and pursued development and fund management opportunities. The low returns in period five highlight the move back to relatively low geared, Australian property focused AREITs.

Standard return and risk performance measures can overlook outlier risk. One approach to dealing with this is to measure individual asset performance relative to that of the overall investment universe (all data) returns. Figure 17 details the standard deviation measure for the rolling annual investment returns, where +/- 2 standard deviations can be considered an outlier.

Figure 17

Investment Asset Classes Real Annual Performance: Outliers

	More than + 2 SD	+1 SD to +2 SD	Mean to + 1 SD	Mean to - 1 SD	- 1 SD to -2 SD	More than - 2 SD
	> 31.4%	31.4% to 18.5%	18.5% to 5.6%	5.6% to -7.4%	-7.4% to -20.3%	< -20.3%
Cash	0	0	27	82	0	0
Aust fixed	0	3	50	55	1	0
Int fixed	0	0	39	69	1	0
Aust eq	9	19	38	24	13	6
Int eq	12	15	32	25	12	13
Listed Prop	2	17	47	30	5	8
Direct Prop (D)	0	7	66	22	14	0
Altern'ves	0	14	31	51	13	0

Figure 17 shows the spread of investment data to the 5.6% mean for all the data returns. Cash and Fixed interest were primarily within +/- 1 standard deviation range. Most noticeable in these investment asset classes, the data points appeared slightly negatively skewed which is understandable as their average returns are close to or below the investment universe mean.

In the equity and listed property investment asset class, there was evidence of outliers (above +/- 2 standard deviations). Distinctly, the downside outliers (- 2 standard deviations) were higher in International equities than Australian equities and Listed property. Also for International equities and Listed property, the downside outliers were higher than the corresponding upside outliers (+ 2 standard deviations). Comparing the timing of the downside outliers, apart from the Global Financial Crisis in 2008 which affected all asset

classes, individual asset class outliers appears random, with International equities performing poorly in 2001-02, as an aftermath of the global technological bubble.

Desmoothed Direct property and the Alternative asset class demonstrated solid returns within the +/- 2 standard deviation range. Property appears to have a narrower range with a high number of readings between the mean and +1 standard deviation. This compares to the Alternative asset class data which seems to be unevenly spread with higher negative returns to the universal mean.

4. Debt and Property Investment Markets

Investment grade property assets are generally large in terms of capital price. This high value threshold means that direct property investment requires considerably higher levels of capital investment. Using only equity finance can limit investor opportunities for a diversified portfolio and lead to high specific property risk. Drawing upon debt finance enables available equity funds to be used across a range of investments and achieve diversification benefits. Such leverage can enhance expected returns as long as the return on investment exceeds cost of debt, although overall portfolio risk is amplified along with the volatility of equity returns on the specific property asset. Debt finance conditions placed on the property asset must be met to avoid default and its consequences.

Securitised property vehicles typically take on debt to increase expected returns. Figure 18 shows the gearing levels for major property funds across the public and private property equity markets as in the PIR (2012) survey.

Figure 18 **Property Investment Vehicles: Gearing Levels**

	AREITs (Gross Assets >$1b)	**Unlisted Wholesale Funds** (Gross Assets >$1b)	**Property Syndicates** (Gross Assets >$100m)
Range	12% - 55%	0% - 53%	0% - 86%
Average	31%	22%	50%

Source: PIR 2012 and Author

Figure 18 details the gearing levels (debt/assets) for leading public and private property equity funds. The spread in the gearing levels highlights the varied use of debt funding in the performance of property funds. For property fund analysis, it is therefore important to examine the underlying properties, management expertise and debt structures.

There are several debt funding features, which include debt expiry profile, level of security (building or fund level) and debt default process. An important factor is the type and level of interest rate change. If any interest rate is fixed over the term of the loan, future payments are known compared to a variable “floating” rate which can move depending on capital market conditions. The choice between fixed and floating interest rates is dependent on several

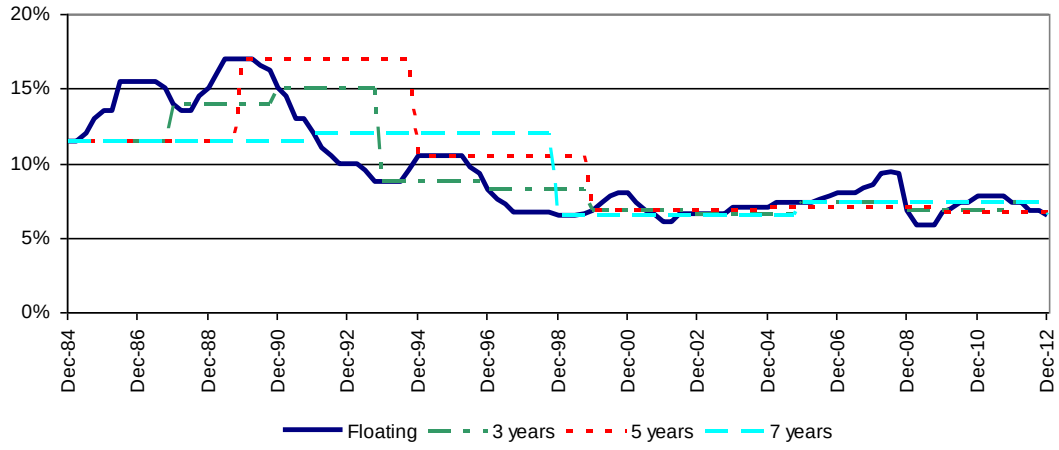
factors, including the economic and financial environment and debt pricing mechanism adopted by the financier.

Generally, debt pricing for commercial property loans are set at a margin above a published benchmark interest rate. The most common referenced interest rate is the short term bank bill rate and the 6 month Bank Bill Swap (BBSW) rate. The margin above is the compensation required by the lender for default risk. This can vary considerably across loans and depends on capital market conditions, debt level, mortgage covenants, type of security etc.

In the competitive banking environment, information on commercial property interest rates is sensitive data and difficult to source. The RBA (2013) publish a long series for the indicative house lending rate which for this research can be a proxy for movement over time in the pricing of commercial property debt although it may understate the level[11]. The cost of capital can be examined on the floating interest rate and fixed terms of 3, 5 and 7 years with renewals on the same terms, see Figure 19.

Figure 19

Indicative Property Interest Rates: Floating and Fixed Terms



Source: RBA 2013, and Author

Figure 19 illustrates the interest rate movement and that of renewed fixed 3, 5 and 7 year terms. During the early 1990's, the movement in interest rates were significant and the variations between the fixed and floating option considerable. Since 2000, interest rate volatility has reduced, with interest rates moving between a 5.8% - 9.5% band.

Figure 20 details past cost of the different finance options covering the past 28 years. For comparison purposes the analysis assumes the same loan costs with each finance option.

[11] At any point of time, commercial property lending rate can vary to the housing lending rate, this being most noticeable in early 2000 with competition from securitised debt.

Figure 20 **Property Leverage: Fixed and Floating Costs**

	Mean	Standard Deviations	Median	Excess Kurtosis	Skewness	Range	Max	Min
Floating	9.5%	3.3%	8.1%	-0.41	0.96	11.2%	17.0%	5.8%
Fixed								
3 years	9.3%	3.0%	8.3%	-0.86	0.87	8.5%	15.0%	6.6%
5 years	10.1%	3.7%	10.5%	-0.58	0.83	10.4%	17.0%	6.7%
7 years	9.3%	2.5%	7.3%	-1.96	-0.01	5.6%	12.0%	6.5%

Figure 20 illustrates the interest costs based on defined floating and fixed interest rate movement. Based on the December 1984 commencement date, the renewed 7 year fixed term had the lowest average cost and risk profile. This compared to 5 year fixed term with costs 8% above those of the 7 year fixed term. A critical element to this is the timing of the fixed term renew as both the 3 year and 5 year fixed terms were renewed at close to the top of the interest rate cycle.

Figure 21 examines the effect of financial leverage on the commercial (direct) property desmoothed rolling annual total return data. The floating interest rate is compared with a 20% to 80% gearing range.

Figure 21

Investment Performance:
Total Property Returns and the Impact of Gearing

	Mean	Standard Deviation	Sharpe Ratio	Median	Excess Kurtosis	Skewness	Range	Max	Min
Actual	10.2%	11.4%	0.24	0.11	0.78	-0.34	56.8%	39.0%	-17.8%
Gearing levels									
20%	10.4%	14.2%	0.20	0.12	0.70	-0.45	70.4%	45.3%	-25.0%
40%	10.7%	18.9%	0.17	0.13	0.63	-0.55	93.6%	56.0%	-37.7%
60%	11.3%	28.4%	0.13	0.17	0.58	-0.65	140.2%	77.2%	-63.0%
80%	13.3%	57.3%	0.10	0.26	0.54	-0.75	279.9%	140.9%	-139.1%

Figure 21 shows the average returns increased with higher gearing levels. An 80% gearing level can lead to long term 30% improvement in the desmoothed property total returns, although the risk has increased five-fold. This is evident when examining the range of maximum and minimum returns, an 80% gearing level has a range of 280% compared to the desmoothed property total return range of 57%. In the 80% gearing level, the large annual negative return of -139% would represent a substantial drop in value, over 50%, and increases the chance that the commercial property will be in loan default with the possibility of the investor losing the property and their equity.

Furthermore, the risk return profile is substantially changed, from the property total return Sharpe ratio of 0.24 to the lower Sharpe ratio of 0.10 for an 80% gearing level. The increased risk can have a major impact on the inclusion of geared property in a mixed asset portfolio. This is evidence by risk adverse industry superannuation funds preference for low geared leading wholesale property funds.

Figure 22 shows the impact on rolling annual desmoothed total property returns from different gearing levels and a selection of floating and fixed interest rates.

Figure 22

Investment Performance:
Total Property Returns and the Leverage Types and Gearing

	Floating			Fixed 3 years			Fixed 5 years			Fixed 7 years		
	Mean	Standard Deviation	Sharpe Ratio	Mean	Standard Deviation	Sharpe Ratio	Mean	Standard Deviation	Sharpe Ratio	Mean	Standard Deviation	Sharpe Ratio
Actual	10.2%	11.4%	0.24									
Gearing levels												
20%	10.4%	14.2%	0.20	10.4%	14.4%	0.20	10.2%	14.5%	0.19	10.5%	14.2%	0.20
40%	10.7%	18.9%	0.17	10.8%	19.4%	0.17	10.3%	19.9%	0.14	10.9%	19.1%	0.17
60%	11.3%	28.4%	0.13	11.6%	29.6%	0.14	10.4%	30.7%	0.09	11.7%	28.8%	0.14
80%	13.3%	57.3%	0.10	13.9%	60.2%	0.11	10.7%	63.2%	0.05	14.1%	58.2%	0.11

Figure 22 illustrates that higher gearing levels lead to increased returns and changes the risk profile. As shown in the Sharpe ratio data, lower risk return performance occurs with high gearing levels. The variations were similar across the floating and fixed interest rates. Changes are clearly evident in the 80% gearing level, with improved returns and much higher risk profile, most noticeably with the Fixed 7 year's interest rate. This suggests that high debt funding with long fixed interest rate terms offers improved returns, as long as property income can cover interest payments. This places a lot of emphasis around renewal of the interest rate term, as to the stability of future property income and capital market conditions.

In demonstrating the impact of interest rates types and gearing levels on the desmoothed property total return performance, there needs to be recognition that the management of debt is an important part of a property strategy and should be considered as part of a wider investment agenda. Debt financing changes the underlying property performance profile and increases the financial risks.

5. Summary and Conclusion

Compared to competing asset classes, commercial property has distinct features which include illiquidity, high value threshold, no central trading place and limited transactions. In identifying key capital market limitations, investors have a unique opportunity with commercial property to add value. In saying this, good market knowledge is an important part of the commercial property decision making process.

There are major benefits in calculating the extent and composition of commercial property within the Australian investment market. Opportunities for institutional investment can be identified alongside market coverage. On an economic activity formula, Pramerica (2012) reported that the Australian institutional grade commercial property universe is estimated at AU$681 billion. Separate building data calculations can show the core commercial property investment market can be apportioned, office AU$111 billion, retail AU$112 billion and industrial AU$56 billion.

As illiquidity and high entry costs limits direct property investment opportunities, securitisation offers extensive diversification benefits. Securitised property vehicles can be placed into four capital market categories, according to whether they are traded on the public or private markets and if they are either equity or debt assets. As at December 2012, the estimated size of the Australian investment market is AU$6.9 trillion of which the Australian commercial property component represents AU$354 billion (approximately 5%). The property debt market is dominated by private debt (AU$165 billion) with the publicly equity market (Real Estate Investment Trusts) share at AU$89 billion.

Whilst the performance of asset classes are generally based on transaction measured indices, direct property performance is sourced from valuation based indices which have an artificially reduced volatility when compared to transaction based indices. Based on statistical analysis, the appraisal calculated PCA/IPD composite property index can be desmoothed, increasing volatility by 31%. Over a long 28 years data series (1985-2012), with inflation removed, desmoothing property is shown to be one of the best risk-adjusted performers (joint second) of the eight leading investment asset classes, although this can vary depending on economic conditions and levels of new supply.

A high value threshold means that direct property investment requires significant levels of capital investment. This can be achieved by increased equity leading to high specific property risk or debt financing part of the property investment. Whilst debt funding can improve property investment returns, it substantially increases the risk levels. Over the 1985-2012 period, an 80% gearing level can lead to a 30% improvement in the property total returns, although the risk is increased five-fold and can lead to a wide 280% performance range.

In demonstrating the impact of gearing levels on desmoothed total property return performance, there needs to be recognition that the management of debt is an important part of a property strategy and considered as part of a wider investment agenda. Debt financing changes the underlying property performance profile and increases the financial risks.

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