

# THE VALUE OF DEBT ON PROPERTY INVESTMENT

## MARKET PERFORMANCE

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### ABSTRACT

*Commercial property is a physical asset class that forms an important part of the capital market universe. Due to illiquidity and high value thresholds, commercial property investment generally requires considerable equity and debt funding. Whilst debt funding can improve property investment returns, it substantially increases the level of risk. Over 28 years, on Australian data, the research showed the average indicative property floating and fixed lending rates were similar, in a range of 9.3% - 10.1% per annum. This compared to average desmoothed commercial property total returns of 10.2% per annum which included two periods of negative returns (March 1989 - September 1993 and September 2007 - September 2009).*

*Overall, the application of high debt levels (80% leverage) can lead to a 30% improvement to annual commercial property total returns (13.3%), although the risk (volatility) is increased five-fold (11.4% to 57.3%) and can lead to a wide (280%) performance range. In demonstrating the impact of gearing levels on desmoothed total property return performance, recognition is required that the management of debt and the associated stability of future property income is a central part of a property investment strategy.*

**Keywords:** commercial property, investment analysis, property leverage

### INTRODUCTION

Compared to competing asset classes, investment grade property assets are scarce and have a high value threshold. According to Higgins (2013) and PCA (2013a,b), there only exists 1,557 investment grade Australian shopping centres and 4,156 commercial office buildings, with an estimated average value of AU\$72 million and AU\$27 million, respectively. The high value threshold for direct commercial property investment leads to considerable capital investment outlay with sources of finance derived from equity and debt markets.

Equity finance on its own can lead to high specific property risk, limiting the investor's opportunities for a diversified portfolio. Most commercial property investments combine equity and debt finance. By forming a hybrid asset, combining equity and debt, there is an opportunity for investors to increase the value of their commercial property investment exposure and possible returns. This can be achieved by a strategic asset allocation strategy with a portfolio of commercial properties offering diversification benefits and lower specific (unsystematic) property risk.

In detailing the benefits of debt, the performance of a leveraged property investment can be distorted to the return and risk profile of the underlying commercial property portfolio. The geared and ungeared performance differential can have widespread ramifications as evident in the recent global financial crisis. In Australia, the exceedingly poor performance of many property investment vehicles (for example, real estate investment trusts) can largely be attributed to the capital markets and not directly to the fundamentally sound underlying commercial property markets.

In discussing debt as part of property investment, it is important to examine key debt funding features and how they impact property investment performance overtime. Foremost is the type and level of debt. Debt (interest rate) can be fixed over the term of the loan, where 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.

To better understand the impact of debt on a commercial property investment, this research examines the significance of gearing levels (debt/assets) and interest rate charges (fixed and floating) on key financial performance indicators including the popular Sharpe Ratio risk return measure. Direct property performance is sourced from the IPD Composite Property Total Return data series covering the 1985-2012 period. The valuation based index was desmoothed to increase volatility for comparison to transaction based indices of competing asset classes.

Whilst much has been written on the theory of debt finance on property, this is the first Australian study to examine the actual impact of floating and fixed lending rates and gearing levels on historical commercial property market data. This is significant as it will highlight the influence of leverage on equity returns and risk for the property investor.

In undertaking this research, it should be noted that the analysis presented here illustrates the impact of debt on past desmoothed commercial property market performance. In recognising future performance is separate from past returns, highlighting historical underlying property investment performance can provide a good indication of future property investment performance although structural changes and unexpected natural and man made events are becoming more common and severe. Property decisions need to understand these future challenges.

Following this introduction, the next section provides a literature review covering commercial property market characteristics, debt structures and Australian property funds exposure to debt. The following section then details the selected property data and associated methodology, then the empirical findings and the implications for property fund managers and the investment community with some final concluding comments.

## **LITERATURE REVIEW**

For investors, Australian commercial property is a physical asset class that forms an important part of the capital market universe. Commercial property assets offer diversification potential with returns based on regular income from long lease contracts underlying certainty of income 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; Higgins 2013).

In detailing key underlying drivers providing attractive stable commercial property returns, it is important to compare commercial property’s distinct features with competing asset classes, being:

- i) no central trading place to generate observable market prices
- ii) limited transactions restricting directly comparable evidence
- iii) illiquid assets requiring a large capital outlay
- iv) high value threshold of property carries a significant concentration of the portfolio risk
- v) unique individual buildings characteristics provides for substantial idiosyncratic risk
- vi) low property related disclosure/reporting requirements
- vii) issues of obsolescence, implying capital expenditure requirements
- viii) management intensive asset class with potential opportunity to add value

(Higgins 2013)

In identifying commercial property unique characteristics, investors are attracted to the physical asset value (land and building) alongside the security offered by the property rental income. Similarly, banks have typically been keen to lend against the collateral security offered by the property asset, especially when the rental income more than covers the interest payments on the loan (Baum 2009).

The consequences of borrowing can be shown to increase the likely returns on the investor's equity, although potential capital losses can be magnified and create difficulties in meeting regular loan payments. Financial leverage expands the range of possible returns and increases the level of risk. To understand the impact of financial leverage, three return measures must be distinguished, namely: the return on i) property, ii) debt and iii) equity (Geltner et al 2007; Rowland 2010).

Historically, the extent of leverage varies with investment strategies, property markets and ownership structures. A key aspect is the investor profile, investment objectives and ownership tax liabilities. For example, superannuation funds and sovereign wealth funds generally have strong equity flows and prefer investments with low gearing levels and less onerous tax liabilities. Their focus is on the exposure to the underlying property market, which historically offers considerable diversification benefits to alternative asset classes (Newell 2006; Rowland 2010).

Similarly, Davis and Zhu (2011) linked commercial property market activity to bank lending using cross-country data. In particular, the research findings showed strong links of credit to commercial property in the countries that experienced crises related to property losses by banks in 1985-1995 period.

Property investment vehicles typically take on debt to increase expected returns. Table 1 shows the gearing levels and investor profile for major Australian property investment funds across the public and private property equity markets as shown in the PIR (2012) survey.

	<b>AREITs</b> (Gross Assets >\$1b)	<b>Unlisted Wholesale Funds</b> (Gross Assets >\$1b)	<b>Property Syndicates</b> (Gross Assets >\$100m)
Range	12% - 55%	0% - 53%	0% - 86%
Average	31%	22%	50%
Key Investors	- Local superannuation funds - Global institutions - Retail investors	- Local superannuation funds - Global institutions	- Retail investors

### **Property Investment Vehicles: Gearing Levels**

**Source: PIR 2012 and Author**

**Table 1**

Table 1 details the gearing levels (debt/assets) for leading public and private property equity funds. The spread in the gearing levels (debt/assets) highlights the varied use of debt funding in the performance of property funds. This distinct contrast in debt funding levels is linked to the investor profile and strategy with property syndicates focussing on the retail investors with less significant property portfolios compared to major AREITs and Unlisted Wholesale Funds. For analysis on the property investment fund, it is therefore equally important to examine the underlying properties, management strategies (including expertise) and debt structures (Higgins 2013).

## DATA AND METHODOLOGY

### Data

Typically, the traditional leading asset classes (equity, bonds and cash) are represented by transaction based indices, which provide accurate current information on the asset class performance. 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 valuation based Australian IPD Composite Property Total Return index, the annual data (1985-2012) for each period was lagged one year ( $AR_1$ ) and two years ( $AR_2$ ). The valuation based property index is compared to leading asset classes including cash, local and overseas fixed interest and equities. Evidence of smoothing is a high autocorrelation, close to one, see Table 2.

	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

### Investment Asset Classes: Autocorrelation Analysis

Source: Higgins 2013

Table 2

Table 2 shows 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 after any particular holding period. There is extensive literature detailing approaches to desmoothing property data (see, for example: Bond and Hwang 2005; Geltner et al 2007; Marcato and Key 2007; Newell and MacFarlane 1995). 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 the findings of Giliberto (1992) which reported on a US investor survey that suggested 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, as shown in Table 3.

Table 3 details the proposed adjustment to the valuation based commercial property data. The actual and desmoothed 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. This reflects the real level of risk experienced by investors who have to sell in a weak market or buy in a strong market.

	Mean	Standard Deviation	Median	Excess 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%

### Equity and Property Data Smoothed and Desmoothed Performance: 1985-2012

Source: Higgins 2013

Table 3

For commercial property loans, the price of the debt is generally 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 and so forth.

In the competitive banking environment, information on commercial property interest rates is sensitive data and difficult to source. The RBA (2013a) publish a long series of indicative house lending rates which for this research can be a suitable proxy, as it reflects the pricing of property debt in an environment where there is competition for funding from a range of financial providers. In defining the link, at any point of time, the commercial property lending rate can vary to the housing lending rate, this being most noticeable in early 2000 with competition from securitised public debt.

#### Methodology

The return on equity is the percentage rate earned by the investor on the property returns after meeting the loan commitment. There is a requirement to know the return on the property, loan interest rate and percentage that is borrowed. The return on equity may be expressed as:

$$e = \frac{tr - (i * LR)}{(1 - LR)} \quad \text{Equation 1}$$

where:

- $e$  = return on equity
- $tr$  = return on property
- LR = loan to value percentage
- $i$  = loan interest rate

The equation is relatively straightforward. Comparing return on property to the loan interest rate will indicate if the equity return is positive or negative. The return on equity will be more pronounced depending on the gearing level. The risk being the return on property may be less than the loan interest rate, which occurred as a consequence of the recent global financial crisis.

The most widely used measure of risk-adjusted performance in financial analysis is the reward-to-variability ratio or Sharpe ratio (see Sharpe 1966 and 1994). In financial literature, the use of the Sharpe ratio is almost ubiquitous as the foremost measure of risk-adjusted performance (Bernstein 2007; Travers 2004). This simple statistic uses the average excess returns of an asset beyond a defined risk-free rate (90 day Bank Bills) relative to its volatility, as measured by its standard deviation:

$$\text{Sharpe Ratio} = \frac{R_p - R_f}{\sigma_p} \quad \text{Equation 2}$$

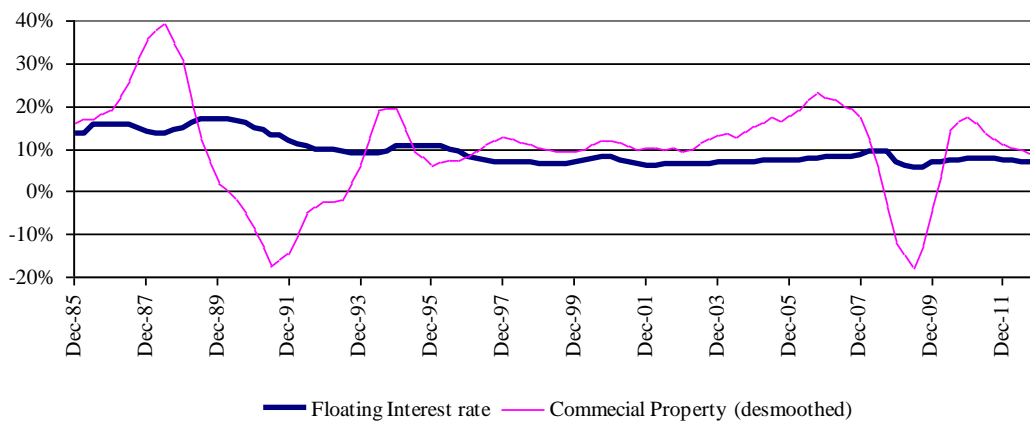
where:

$\sigma_p$  = standard deviation of asset  
 $R_p$  = return on the asset

The Sharpe performance model characterises how well the return of an asset compensates the investor for the risk taken. When comparing assets, that with a higher Sharpe ratio provides better return for the same risk (or, equivalently, the same return for lower risk). The Sharpe performance model can rank assets, although there is no absolute standard.

### EMPIRICAL FINDINGS

The first step is to examine the performance of commercial property to the indicative property lending rate. Figure 1 details the rolling annual desmoothed commercial property returns to the corresponding property lending rate.



### Commercial Property Returns and Indicative Property Lending Rate

Source: IPD 2013, RBA 2013a

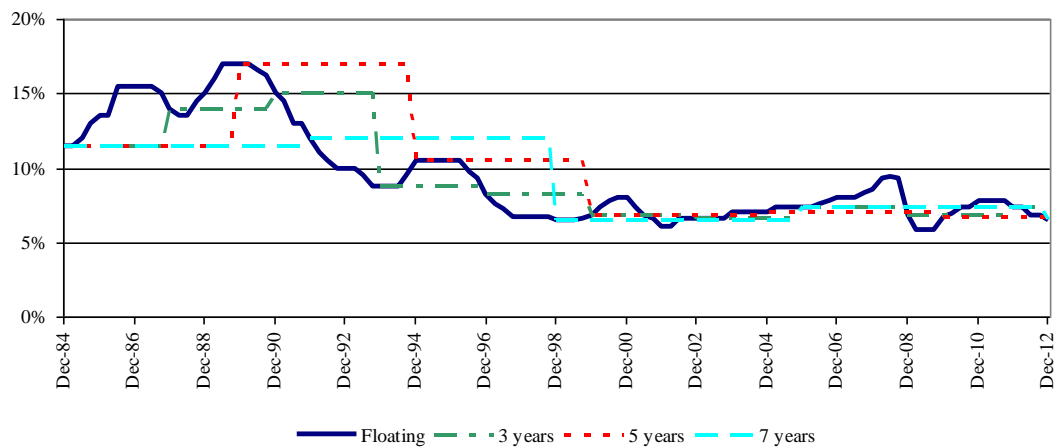
Figure 1

Figure 1 highlights the volatility in the performance of the desmoothed commercial property total returns to the indicative property lending rates. There are two main periods (Mar 1989 – Sept 1993 and Sept 2007 – Sept 2009) when commercial property returns were substantially below the property lending rates. This compared to the constant commercial property performance above the property lending rate (Dec 1996 - Dec 2006), where the positive impact of gearing would have a multiplier effect. Overall for the 1985 - 2012 period the annual total returns were 10.2% compared to property lending rate of 9.4% with the risk (standard deviation) of 11.4% and 3.5% respectively.

The cost of capital can be examined further by comparing the floating interest rate and fixed interest terms of 3, 5 and 7 years with renewals on the same terms, as shown in Figure 2.

Figure 2 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 was 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. Lower interest rates can assist with property

investment performance.



### Indicative Property Interest Rates: Floating and Fixed Terms

Source: RBA 2013a, Author

Figure 2

Table 4 details the cost of the different finance options covering the past 28 years. The analysis assumes the same loan establishment costs with each finance option.

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

### Property Leverage: Fixed and Floating Costs

Source: Author

Table 4

Table 4 illustrates the interest costs based on defined floating and fixed interest rate strategies. 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 renewal as both the 3 year and 5 year fixed terms were renewed at close to the top of the interest rate cycle.

Table 5 examines the effect of financial leverage on the commercial property desmoothed rolling annual total return data. The floating interest rate is compared with a 20% to 80% gearing range.

Table 5 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.

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

**Investment Performance: Total Property Returns and the Impact of Gearing**  
**Source: Author**  
**Table 5**

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 evidenced by risk adverse industry superannuation funds' preference for low geared leading wholesale property funds.

Table 6 shows the impact on rolling annual desmoothed total property returns from different gearing levels and a selection of floating and fixed interest rates.

	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
<b>Actual</b>	10.2%	11.4%	0.24									
<b>Gearing levels</b>												
<b>20%</b>	10.4%	14.2%	0.20	10.4%	14.4%	0.20	10.2%	14.5%	0.19	10.5%	14.2%	0.20
<b>40%</b>	10.7%	18.9%	0.17	10.8%	19.4%	0.17	10.3%	19.9%	0.14	10.9%	19.1%	0.17
<b>60%</b>	11.3%	28.4%	0.13	11.6%	29.6%	0.14	10.4%	30.7%	0.09	11.7%	28.8%	0.14
<b>80%</b>	13.3%	57.3%	0.10	13.9%	60.2%	0.11	10.7%	63.2%	0.05	14.1%	58.2%	0.11

**Investment Performance: Total Property Returns and the Impact of Leverage Types and Gearing**  
**Source: Author**  
**Table 6**

Table 6 illustrates that higher gearing levels lead to increased returns and changes in 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. This finding was supported by Lee et al (2008) who showed high geared AREITs are more sensitive to downside risk.

## 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 are attached to the scarce physical asset alongside the security offered by the property rental income.

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.

Interest costs based on defined floating interest rates and fixed interest rates of 3, 5 and 7 years appeared similar with a 9.3% to 10.1% range. A critical element is the timing of the fixed term renewal as both the 3 year and 5 year fixed terms were renewed at close to the top of the interest rate cycle. The preferred strategy will depend on economic conditions, although fixed term interest rate provides a known future expense.

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 investment strategy. Increasing debt liability places a lot of emphasis on the stability of future property income and managing capital market conditions. For property investment, debt financing changes the underlying property performance profile with financial risks amplified for improved monetary reward.

## REFERENCES

- Baum, A 2009, *Commercial real estate investment: a strategic approach*, 2<sup>nd</sup> edition, EG Books, Oxford
- Bernstein, P 2007, *Capital ideas evolving*, John Wiley and Sons, New Jersey
- Bond, S and Hwang, S 2005, 'A measure of fundamental volatility in the commercial property market', *Real Estate Economics*, Vol. 31, pp. 577-600
- Davis, E and Zhi, H 2011, 'Bank lending and commercial property cycles: some cross-country evidence', *Journal of International Money and Finance*, Vol. 30, pp. 1-21
- Geltner, D, Millar, N, Clayton, J and Eichholtz, P 2007, *Commercial real estate: analysis and investments*, Prentice Hall, New Jersey
- Giliberto, M 1992, *Real estate risk and returns: 1991 survey results*, Real Estate Research Papers, Salomon Brothers Inc, New York
- Higgins, D 2013, *Australian commercial property investment market: styles, performance and funding*, Australian Centre for Financial Studies, Melbourne
- IPD, 2013, *Australian property investment digest: quarter ending December 2012*, Investment Property Databank, Sydney
- Lee, C, Robinson, J and Reed, R 2007, *Downside systematic risk in Australian listed property trusts*, 13<sup>th</sup> Pacific Rim Real Estate Society Conference, 21-24 January, Fremantle
- Marcato, G and Key, T 2007, 'Smoothing and implications for asset allocation choices', *Journal of Portfolio Management*, Vol. 33, pp. 85-99
- Newell, G 2006, *The significance of property in industry based superannuation funds in Australia*, Pacific Rim Real Estate Society Conference, Auckland
- Newell, G and MacFarlane, J 1995, 'Improved risk estimation using appraisal smoothed real estate returns', *Journal of Real Estate Portfolio Management*, Vol. 1, pp. 51-57
- PCA, 2013a, *Office market report: January 2013*, Property Council of Australia, Sydney
- PCA, 2013b, *Shopping centres online*, Property Council of Australia, Sydney
- PIR, 2012, *Australian property funds industry survey 2012: a complete landscape of the property fund sector*, Eleventh Edition, Property Investment Research, Sydney

- RBA, 2013a, *Indicative housing lending rate: statistical table F5*, Reserve Bank of Australia, Sydney
- RBA, 2013b, *Interest rates and yields – money market: statistical table F1*, Reserve Bank of Australia, Sydney
- Rowland, P 2009, *Australian Property Investment and Financing*, Lawbook Co, Sydney
- Sharpe, W 1966, 'Mutual fund performance', *Journal of Business*, Vol. 39, pp. 119-138
- Sharpe, W 1994, 'The Sharpe ratio', *Journal of Portfolio Management*, Vol. 21, pp. 49-58
- Travers, F 2004, *Investment managers analysis: a comprehensive guide to portfolio selection, monitoring and optimisation*, Wiley Finance, New Jersey

#### **ACKNOWLEDGMENTS**

Research for this paper is from an Australian Centre for Financial Studies (ACFS) funded report titled *Australian Commercial Property Investment Market: Styles, Performance and Funding*.

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