School of Property, Construction and Project Management

Debt Financing and Commercial Property Performance: Do the Risks Justify the Reward?

By

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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 risk levels. 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 (Mar 1989 - Sept 1993 and Sept 2007 - Sept 2009). Overall, the application of high debt levels (80% leverage) can lead to a 30% improvement to the 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, there needs to be recognition 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
1. Introduction

Compared to competing asset classes, investment grade property assets are scarce and have a high value threshold. According to Higgins (2013), PCA (2013a,b) there are only 1,557 investment grade Australian shopping centres and 4,156 commercial office buildings with an estimated average valued 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.

As equity finance on its own can lead to high specific property risk, and so 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, albeit slightly overpriced, underlying commercial property markets.

In discussing debt as part of the 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 is 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.
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 we live in an environment where 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, Section two provides a literature review covering commercial property market characteristics, debt structures and Australian property funds exposure to debt. Section three details the selected property data and associated methodology. Section four provides the empirical findings and the implications for property fund managers and the investment community. The last section provides the concluding comments.

2. 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 distinct features with competing asset classes, these are:

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

Source: 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 and Rowland 2010).

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

**Table 1**

<table>
<thead>
<tr>
<th>Property Investment Vehicles: Gearing Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>AREITs (Gross Assets &gt;$1b)</td>
</tr>
<tr>
<td>Range</td>
</tr>
<tr>
<td>Average</td>
</tr>
<tr>
<td>Key Investors</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Source: PIR 2012 and Author

Table 1 details the gearing levels (debt/assets) for leading public and private property equity funds. The spread in the gearing levels (debt/assets), highlight the varied use of debt funding in the performance of property funds. This distinct contrast in debt funding level is linked to the investor profile and strategy with property syndicates focus is 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).
3. Data and Methodology

3.1 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 (AR₁) and two years (AR₂). 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.

Table 2

<table>
<thead>
<tr>
<th></th>
<th>Cash</th>
<th>Aust fixed</th>
<th>Int fixed</th>
<th>Aust eq</th>
<th>Int eq</th>
<th>Listed Property</th>
<th>Direct Property</th>
<th>Altern’ves</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR₁</td>
<td>0.90</td>
<td>-0.05</td>
<td>-0.06</td>
<td>-0.31</td>
<td>-0.12</td>
<td>-0.01</td>
<td>0.67</td>
<td>0.38</td>
</tr>
<tr>
<td>AR₂</td>
<td>0.75</td>
<td>0.21</td>
<td>0.27</td>
<td>0.03</td>
<td>-0.20</td>
<td>-0.03</td>
<td>0.12</td>
<td>0.10</td>
</tr>
</tbody>
</table>

Source: Higgins 2013

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: 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 Giliberto (1992) research, 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, see Table 3.
Table 3

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

Source: Higgins 2013

Table 3 detailed 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.

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 etc.

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 rate which for this research can be a suitable proxy, as reflects the pricing of property debt in an environment were there is competition for funding from a range of financial providers. In defining the link, 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 public debt.

3.2 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 can be expressed as:

\[ e = \frac{tr - (i \times LR)}{(1 - LR)} \]

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 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:

\[
\text{Sharpe Ratio} = \frac{R_p - R_f}{\sigma_p}
\]

where:
- \(\sigma_p\) = Standard deviation of asset
- \(R_p\) = Return on the asset
- \(R_f\) = Risk free rate of return (90 day bank bills etc)

The Sharpe performance model characterises how well the return of an asset compensates the investor for the risk taken. When comparing assets, the one 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.

### 4. Empirical Findings

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

*Figure 1*

**Commercial Property Returns and Indicative Property Lending Rate**

Source: IPD 2013, RBA 2013a
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 compares 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% compares to property leading 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, see Figure 2.

**Figure 2**

*Indicative Property Interest Rates: Floating and Fixed Terms*

![Indicative Property Interest Rates](image)

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 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. Lower interest rates can assist with property investment performance.

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.

**Table 4**

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

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 renew 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

| Investment Performance: Total Property Returns and the Impact of Gearing |
|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Mean | Standard Deviation | Sharpe Ratio | Median | 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% |

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.

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.

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.

Table 6

| Investment Performance: Total Property Returns and the Leverage Types and Gearing |
|-----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Mean | Floating Standard Deviation | Sharpe Ratio Mean | Fixed 3 years Standard Deviation | Sharpe Ratio Mean | Fixed 5 years Standard Deviation | Sharpe Ratio Mean | Fixed 7 years Standard Deviation | Sharpe Ratio |
| Actual 10.2% | 11.4% | 0.24 | 10.4% | 14.2% | 0.20 | 10.4% | 14.4% | 0.20 | 10.2% | 14.5% | 0.19 | 10.5% | 14.2% | 0.20 |
| Gearing levels |
| 20% | 10.7% | 18.9% | 0.17 | 10.8% | 19.4% | 0.17 | 10.3% | 19.9% | 0.14 | 10.9% | 19.1% | 0.17 |
| 40% | 11.3% | 28.4% | 0.13 | 11.6% | 29.6% | 0.14 | 10.4% | 30.7% | 0.09 | 11.7% | 28.8% | 0.14 |
| 60% | 13.3% | 57.3% | 0.10 | 13.9% | 60.2% | 0.11 | 10.7% | 63.2% | 0.05 | 14.1% | 58.2% | 0.11 |
| 80% |
Table 6 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 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 rate 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 renew 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 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.
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Acknowledgments

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