The role of financial leverage in the performance of private equity real estate funds

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Outline

1. Motivation and objectives
2. Hypothesis development
3. Data and methodology
4. Results
5. Conclusion
Motivation and objectives
The basic idea of this study

- Efficient allocation of investment capital within the unlisted, private equity real estate fund universe requires adequate assessment of risk/return profiles.
- In contrast to the listed real estate sector, especially the impact of leverage on excess fund returns remains unclear.

**Research objective:**

We examine the performance of a sample of global private equity real estate investment funds, and particularly the role of leverage as well as managerial timing skills in making leverage choices.
Why does this study matter?

- Implications for investors, fund managers and transparency in the private equity real estate investment industry

- Assess the contribution of managerial investment skill to fund performance, in particular ability to deploy leverage to good effect

- Understand the value of managerial skill, distinguish between returns achieved through risk-taking via financial leverage and performance generated on the basis of genuine investment and financing skill

- Analysis of the drivers of private equity fund returns further contributes to improved transparency in the analysis of fund performance in the private equity real estate industry
Hypothesis development
The long-term impact of leverage

• Some suggest that leverage can make a positive contribution to fund performance (Anson and Hudson-Wilson [2003])

• Others find that leverage is not a suitable long-term strategy for improving excess returns (Baum, Fear and Colley [2011, 2012])

• We re-examine the relationship between excess fund returns and leverage using a unique, large, global sample with observations covering an entire property cycle

Hypothesis 1: The level of leverage held by a fund on average makes a positive contribution to excess fund returns
The short-term impact of leverage

- Managers may employ leverage to modify the market exposure of their funds and thus enhance performance (Goetzmann, Ingersoll, Spiegel and Welch [2007], Alcock, Glascock and Steiner [2012])

- We hypothesise that managers form a view on the likely strength of the underlying market in the future and optimise their fund’s exposure to the market return accordingly by choosing the appropriate level of leverage

Hypothesis 2: Timing leverage successfully makes a positive contribution to excess fund returns
Data and methodology
Data and methodology

• Sample
  • 169 firms investing in 16 global regions
  • Study period 2001-2011, sub-periods for robustness (2001-07, 2008-11)
  • Fund returns and leverage (debt to GAV) from PFR
  • Real estate market data from IPD
  • Bond data from Bloomberg

• Methodology
  • Fixed effects annual panel
  • Single-factor market model augmented by
    • Style
    • Leverage
    • Timing
    • Interactions
Data set: 169 firms investing in 16 global regions

Style split
- Core
- Opportunity
- Value-add

Sector split
- Diversified
- Industrial
- Office
- Other
- Residential
- Retail

Sample period: 2001-2011
Fund returns and volatility

- Fund returns
  - All funds
  - Core
  - VA
  - Opp

- Standard deviation of fund returns
  - All Funds
  - Core
  - Value added
  - Opportunity

Years: 2001 to 2011
The timing measures

**• Measure 1**

- **TIMING VARIABLE**
  - Change in leverage \( \times \) Market return

  - Year \( t-1 \) \( \rightarrow \) Year \( t \)  
  - Time

**• Measure 2**

- **2SLS model**
  - Estimate change in fund leverage over \( t-1 \) as a function of the forecast return on the market in year \( t \)
  - This is change in leverage incurred to take advantage of next year’s market
  - This variable is predictor in second stage regression of excess fund returns
Results
### Global panel for fund excess returns, 2001-2011

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Market model</th>
<th>Leverage</th>
<th>Timing</th>
<th>L.D.Leverage 2SLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excess market return</td>
<td>1.012***</td>
<td>0.974***</td>
<td>0.962***</td>
<td>0.929***</td>
</tr>
<tr>
<td>Excess market return*VA</td>
<td>0.187**</td>
<td>0.178*</td>
<td>0.153</td>
<td>0.222**</td>
</tr>
<tr>
<td>Excess market return*Opp</td>
<td>0.830***</td>
<td>0.600***</td>
<td>0.807**</td>
<td>0.858***</td>
</tr>
<tr>
<td>Leverage (Debt/GAV ratio)</td>
<td></td>
<td>-0.586***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leverage*VA</td>
<td></td>
<td>0.204</td>
<td></td>
<td></td>
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<tr>
<td>Leverage*Opp</td>
<td></td>
<td>-0.182</td>
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</tr>
<tr>
<td>Timing (with market forecast)</td>
<td></td>
<td></td>
<td>-0.047**</td>
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</tr>
<tr>
<td>Timing*VA</td>
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<td></td>
<td>0.016</td>
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<tr>
<td>Timing*Opp</td>
<td></td>
<td></td>
<td>0.000</td>
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</tr>
<tr>
<td>L.D.Leverage</td>
<td></td>
<td></td>
<td></td>
<td>-0.559**</td>
</tr>
<tr>
<td>Constant</td>
<td>-2.495***</td>
<td>13.666***</td>
<td>-4.556***</td>
<td>-3.939***</td>
</tr>
</tbody>
</table>

| Observations                     | 1,018        | 775      | 526     | 526               |
| R-squared                        | 0.609        | 0.648    | 0.573   | 0.499             |
| Number of firms                  | 154          | 148      | 138     | 138               |
| Firm fixed effects               | Yes          | Yes      | Yes     | Yes               |

Standard errors (not shown) are clustered by firm. Significance is indicated as follows: *** p < 0.001, ** p < 0.01, * p <0.05.
Conclusion
Summary of findings

• We find evidence consistent with the hypotheses that

  • Fund performance is almost directly proportional to the return on the underlying real estate market

  • There is evidence for systematic underperformance as measured by Jensen’s alpha, possibly related to market frictions

  • Leverage cannot be viewed as a long-term strategy to enhance performance

  • Timing leverage choices to the expected future market environment does not appear to add significantly to fund excess returns