

# EMPOWERING LIVES THROUGH KNOWLEDGE AND IMAGINATION

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## The determinants of European non-listed real estate funds' performance

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# **Research Questions**

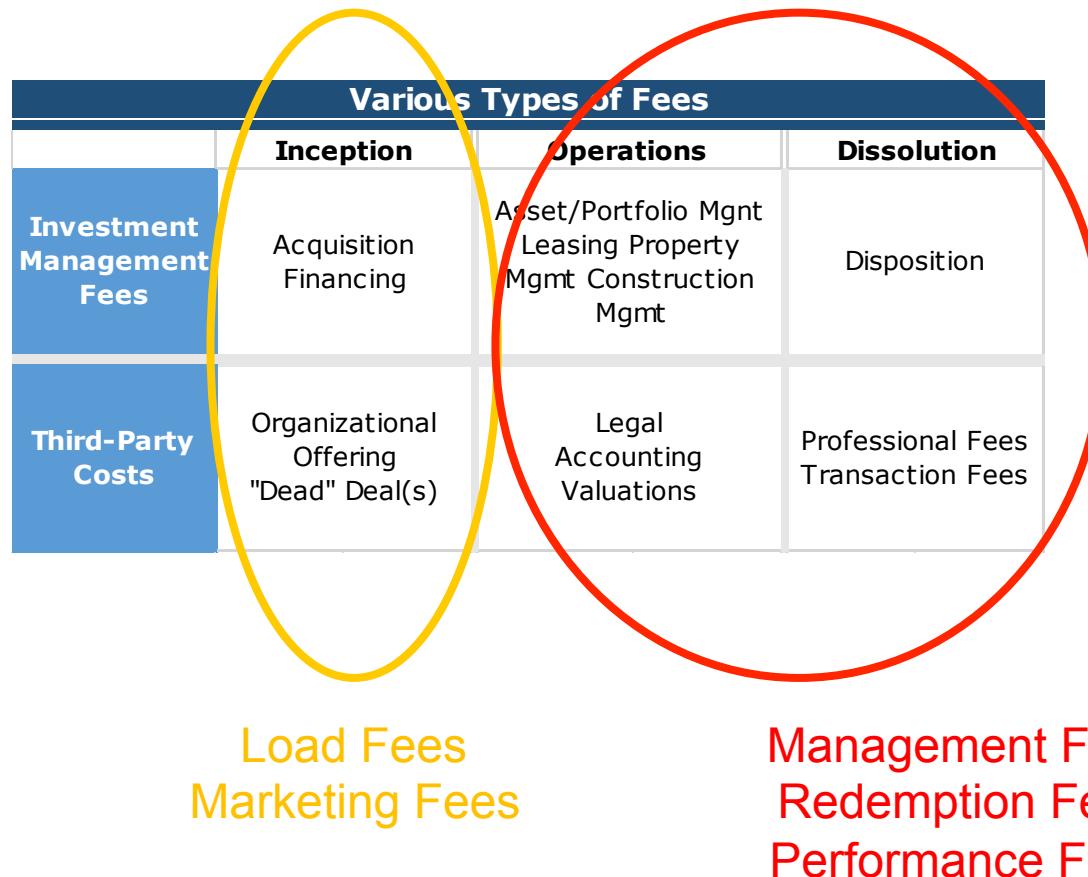
1. How the amount of fees charged by a non-listed real estate fund, together with its duration, size and leverage, affects the performance of the fund?
  2. Do the findings hold when conducting the research separately for core and value-added funds ?
  3. Has the relationship between the independent variables and performance been affected by the Global Financial Crisis?

# Fee structure in fund management industry

- Distribution charges
- Securities transaction fees
- Shareholder transaction fees
- Fund service charges
  - Shareholder communication expenses, connected to the costs of disclosure of prospectus, reports, or any documents relevant to the investors
  - Administrative expenses
  - Registration fees
  - Fees paid to external professionals, such as auditors and lawyers
  - Board of directors' costs
- Management fee
- Performance fee

*(Pozen and Hamacher, 2011)*

# Fee characterizing a real estate fund



adapted from Pagliari, 2013

# Literature review

- Several studies on mutual funds....  
...but only a few on real estate funds
- Different characteristics of real estate funds:
  - marketed only to institutional investors
  - investors' decision is often preceded by a direct contact with the management company
  - real estate assets are less liquid than other financial assets
  - real estate assets require active management

# Literature review: fees

- The majority of the studies provide evidences about the existence of a negative relationship between the fees charged by a fund and its **performance**:
  - *Gruber (1996) revealed that the expense ratio for the best performing mutual funds increases more slowly than that of the worst performing ones*
  - *Carhart (1997) confirms the existence of a negative relationship between fee and performance*
  - *Elton et al. (1993) found that rationale investors should avoid picking those charging the higher fees since these will systematically underperform other funds by an amount proportional to the difference between the fees*
  - *Morningstar (2015) confirmed the existence of a negative relationship between fees and return*

## Literature review: fees

- Other studies showed that the relationship between the fees applied by a mutual fund and its performance may vary based on the geographical location of a fund (Ferreira *et al.*, 2012, Otten and Barms, 2002)
- The relationship between fees and performance may be affected by some specific characteristics of a fund, such as investment style or its size (Garyn-Tal, 2015, Khorana *et al.*, 2008)

# Literature review: fees

- Even if the majority of the studies discovered that there exists a negative correlation between the two elements, some studies produced slightly different evidences:
  - Ippolito (1989) established that funds charging higher costs are the ones that generate higher returns
  - Zheng (1999) suggests the existence of a positive relation between the charges of a fund and its return
  - Grinblatt and Titman (1994), found no significant correlation between fees and performance
  - Berk (2005) claims that the fees charged by a fund appear to be proportional to the extra value generated by an active portfolio manager

# Literature review: leverage in Real Estate

- The use of leverage for listed real estate investments such as REITs is not truly beneficial
  - Howe and Shilling (1998), the absence of specific tax benefits makes difficult for REITs to compete for debt, and so they tend to favour equity
  - Alcock *et al.* (2013), leverage is not an effective long-term strategy to enhance the return a REIT is able to deliver, while it can bring marginal benefits in the short term
- Baum *et al.* (2011), the use of leverage has a negative impact on the performance of listed real estate funds
- The effect of leverage on the performance seems to vary based on the investment style adopted by a fund
  - Shilling and Wurtzebach (2010), the performance of core and value-added funds is boosted by the use of leverage
  - Fuerst and Marcato (2009) discovered that leverage is particularly effective in improving the performance of core open-ended funds

# Literature review: size in Real Estate

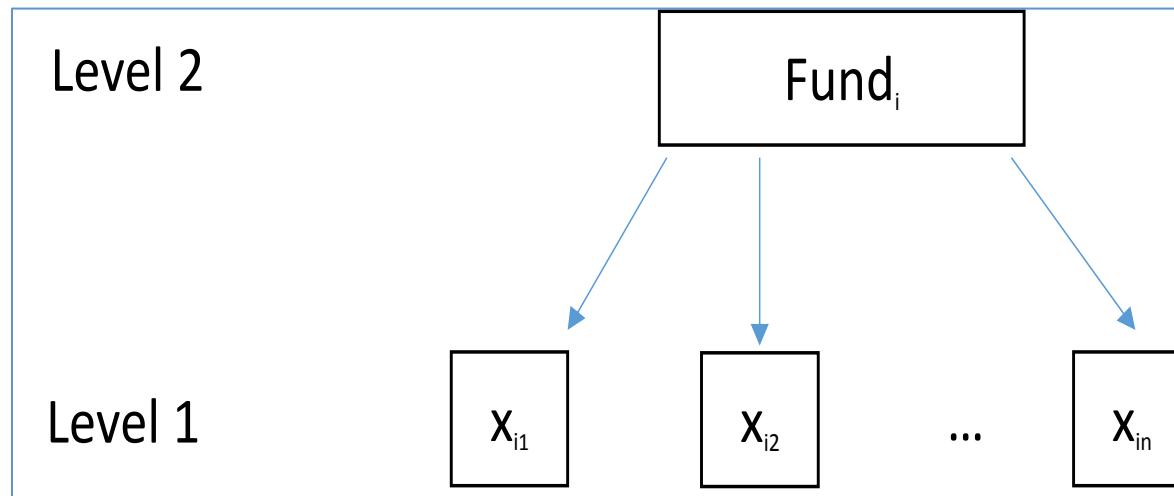
- Most of the studies reported that the relationship between the size and the performance of a fund is positive
  - Kaushik and Pennathur (2012), during the period 1990–2008, found that larger funds earned a greater return than smaller vehicles
  - Chous and Hardin III (2013) explained the existence of the extra performance generated by larger funds with the presence of economies of scale, allowing to reduce the costs per unit and, as a consequence, enhancing the return of the fund
  - Lin and Yung (2004) found that larger dimensions are associated with better fund returns by the presence of economies of scale and also by the evidence that the larger funds have greater financial resources enabling them to afford better portfolio managers and enable better research

# Sample

- Blind data at fund level provided by Inrev
- 363 funds (Core and Value Added)
  - around 83% of the European non-listed vehicles active in the period
- between 2001 and 2014
  - the large time extension allows to avoid any potential survivorship bias
  - funds that changed their fee policy during the time interval are excluded
- unbalanced panel of data consisting of 2,540 individual observations
  - the number of observations collected for each fund is based on its duration that varies from one vehicle to another

# Methodology

$$Y_{ij} = B_1 + B_2 X_{2ij} + \dots + B_p X_{pij} + e_{ij}$$



# Variables statistics

| Variable               |                | Mean        | Std. Dev. | Min        | Max         | Observations |
|------------------------|----------------|-------------|-----------|------------|-------------|--------------|
| <b>Year</b>            | <i>overall</i> | 2010        | 3,239,644 | 2001       | 2014        | N = 2540     |
|                        | <i>between</i> |             | 2,065,754 |            |             | n = 363      |
|                        | <i>within</i>  |             | 2,650,771 |            |             |              |
| <b>Load Fee</b>        | <i>overall</i> | .5346457    | .4988965  | 0          | 1           | N = 2540     |
|                        | <i>between</i> |             | .4922536  |            |             | n = 363      |
|                        | <i>within</i>  |             | .084472   |            |             |              |
| <b>Management Fee</b>  | <i>overall</i> | .0085326    | .0066654  | 0          | .071        | N = 2540     |
|                        | <i>between</i> |             | .0055964  |            |             | n = 363      |
|                        | <i>within</i>  |             | .0020184  |            |             |              |
| <b>Redemption Fee</b>  | <i>overall</i> | .7834646    | .4119644  | 0          | 1           | N = 2540     |
|                        | <i>between</i> |             | .4275021  |            |             | n = 363      |
|                        | <i>within</i>  |             | .024306   |            |             |              |
| <b>Marketing Fee</b>   | <i>overall</i> | .557874     | .4967371  | 0          | 1           | N = 2540     |
|                        | <i>between</i> |             | .4960048  |            |             | n = 363      |
|                        | <i>within</i>  |             | .0446224  |            |             |              |
| <b>Performance Fee</b> | <i>overall</i> | .1852591    | .0635773  | 0          | .4          | N = 2540     |
|                        | <i>between</i> |             | .0554963  |            |             | n = 363      |
|                        | <i>within</i>  |             | .0302864  |            |             |              |
| <b>Duration</b>        | <i>overall</i> | 12.74       | 8,563,541 | 3          | 100         | N = 2540     |
|                        | <i>between</i> |             | 8,563,541 |            |             | n = 363      |
|                        | <i>within</i>  |             | 0         |            |             |              |
| <b>Leverage</b>        | <i>overall</i> | .3795343    | .2373538  | -.5326797  | .9991124    | N = 2540     |
|                        | <i>between</i> |             | .2193847  |            |             | n = 363      |
|                        | <i>within</i>  |             | .0905596  |            |             |              |
| <b>Total Return</b>    | <i>overall</i> | .0190479    | .1666807  | -.9847158  | .9400423    | N = 2540     |
|                        | <i>between</i> |             | .0792777  |            |             | n = 363      |
|                        | <i>within</i>  |             | .1517294  |            |             |              |
| <b>Size</b>            | <i>overall</i> | 587,649,000 | 94.6278   | 56,308,229 | 904,028,416 | N = 2540     |
|                        | <i>between</i> |             | 72.8897   |            |             | n = 363      |
|                        | <i>within</i>  |             | 18.3927   |            |             |              |

# Results

| Dependent variable: Log Total Return |                          | Number of obs (level 1)    | = | 2,540          |
|--------------------------------------|--------------------------|----------------------------|---|----------------|
| Intercept                            | 0.01218***<br>(0.00206)  | Number of groups (level 2) | = | 363            |
| management fee                       | -0.00186***<br>(0.00068) | Obs per group:             |   |                |
| performance fee                      | -0.0957**<br>(0.0086)    | min                        | = | 2              |
| mn_Performance Fee                   | -0.0013**<br>(0.0008)    | avg                        | = | 7              |
| load fee                             | 0.0098<br>(0.0045)       | max                        | = | 14             |
| redemption fee                       | -0.00158*<br>(0.00094)   |                            |   | R <sup>2</sup> |
| marketing fee                        | 0.0095***<br>(0.0009)    | Total                      |   | 0.2808         |
| Duration                             | 0.0089***<br>(0.0024)    | Level 1                    |   | 0.0109         |
| Leverage                             | -0.00553***<br>(0.00181) | Level 2                    |   | 0.4542         |
| mn_Leverage                          | -0.01679***<br>(0.0219)  |                            |   | Errors' Sigma  |
| Size                                 | 0.00028***<br>(0.00004)  | /sigma_u                   |   | 0.0371         |
| Macro                                | -0.0979***<br>-0.0194    | /sigma_s                   |   | 0.1984         |
|                                      |                          | rho                        |   | 0.0298         |

(Standard Error); \*significant at 10% level, \*\*significant at 5% level, \*\*\*significant at 1% level

- ✓ Marketing fee
- ✓ Duration
- ✓ Size
- ✗ Performance fee
- ✗ Management fee
- ✗ Redemption fee
- ✗ Leverage
- ✗ Macro

# Results by investment style

|                 | Core Investment                      |           | Value - added                        | Whole Universe                       |
|-----------------|--------------------------------------|-----------|--------------------------------------|--------------------------------------|
|                 | Dependent variable: Log Total Return |           | Dependent variable: Log Total Return | Dependent variable: Log Total Return |
| Intercept       | 0.01294***                           | (0.0204)  | 0.02247***                           | 0.01218***                           |
| management fee  | -0.0216**                            | (0.0099)  | -0.0202*                             | -0.00186***                          |
| performance fee | -0.00029***                          | (0.00010) | -0.00578***                          | -0.0957**                            |
| load fee        | -0.0011                              | (0.0082)  | 0.0019                               | 0.0098                               |
| redemption fee  | 0.00029                              | (0.00019) | -0.00068                             | -0.00158*                            |
| marketing fee   | 0.00069***                           | (0.0005)  | 0.000038**                           | 0.0095***                            |
| Duration        | 0.0008**                             | (0.00009) | 0.0007**                             | 0.0089***                            |
| Leverage        | 0.00653***                           | (0.0514)  | -0.007183***                         | -0.00553***                          |
| Size            | 0.0002***                            | (0.00061) | 0.0008**                             | 0.00028***                           |
| Macro           | -0.0382**                            | (0.0094)  | -0.0285***                           | -0.0979***                           |

(Standard Error); \*significant at 10% level; \*\*significant at 5% level; \*\*\*significant at 1% level

|         | R <sup>2</sup> |         | R <sup>2</sup> |
|---------|----------------|---------|----------------|
| Total   | 0.1923         | Total   | 0.1692         |
| Level 1 | 0.0112         | Level 1 | 0.0087         |
| Level 2 | 0.3825         | Level 2 | 0.3871         |

*The proper amount of leverage is crucial to enhance the performance of a fund*

# Results by period

|                 | 2001 - 2007                          | 2008 - 2014                          | Whole Universe                       |
|-----------------|--------------------------------------|--------------------------------------|--------------------------------------|
|                 | Dependent variable: Log Total Return | Dependent variable: Log Total Return | Dependent variable: Log Total Return |
| Intercept       | 0.02274***<br>(0.0209)               | 0.01428**<br>(0.0131)                | 0.01218***<br>(0.00206)              |
| management fee  | -0.0176**<br>(0.0089)                | -0.0186**<br>(0.0081)                | -0.00186***<br>(0.00068)             |
| performance fee | -0.00028***<br>(0.00009)             | -0.00572***<br>(0.00291)             | -0.0957**<br>(0.0086)                |
| load fee        | -0.0014<br>(0.0081)                  | 0.0027<br>(0.00014)                  | 0.0098<br>(0.0045)                   |
| redemption fee  | 0.0002<br>(0.00016)                  | -0.00059<br>(0.00029)                | -0.00158*<br>(0.00094)               |
| marketing fee   | 0.00076**<br>(0.0004)                | 0.000045*<br>(0.00001)               | 0.0095***<br>(0.0009)                |
| Duration        | 0.0006**<br>(0.00009)                | 0.0007**<br>(0.00006)                | 0.0089***<br>(0.0024)                |
| Leverage        | 0.00503**<br>(0.00144)               | 0.00193***<br>(0.00116)              | -0.00553***<br>(0.00181)             |
| Size            | 0.0009***<br>(0.0001)                | 0.0004***<br>(0.0003)                | 0.00028***<br>(0.00004)              |

(Standard Error) \*significant at 10% level, \*\*significant at 5% level, \*\*\*significant at 1% level

|         | R <sup>2</sup> |         | R <sup>2</sup> |
|---------|----------------|---------|----------------|
|         | Total          | Total   | Total          |
| Total   | 0.2139         | Total   | 0.1951         |
| Level 1 | 0.0100         | Level 1 | 0.0118         |
| Level 2 | 0.3871         | Level 2 | 0.3799         |

# Conclusions

1. All the variables, with the exception of the load fee, included in the analysis have a statistically significant effect on the returns of the funds.  
Fees have a negative impact on the performance.
2. The effects of leverage on the performance of a fund vary according to the investment style of the fund
3. The GFC did not affect the relationship between the return of a fund and the independent variables that have been included in the model.

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